

# SHEFFIELD METALS TEST REPORT

## SCOPE OF WORK

ASTM E1646 WATER PENETRATION BY UNIFORM STATIC AIR PRESSURE DIFFERENCE ON  
0.040" ALUMINUM 1-3/4" SNAPLOCK PANELS

## REPORT NUMBER

I3448.04-450-44 R0

## TEST DATE(S)

05/07/18

## ISSUE DATE

08/14/18

## REVISED DATE

N/A

## RECORD RETENTION END DATE

05/07/22

## PAGES

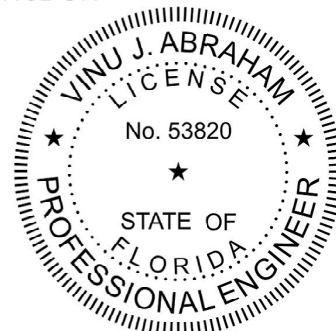
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## DOCUMENT CONTROL NUMBER

ATI 00231 (09/05/17)

RT-R-AMER-Test-2827

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*V. Abraham*  
Digitally Signed by Vinu Abraham

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## TEST REPORT FOR SHEFFIELD METALS

Report No.: I3448.04-450-44 R0

Date: 08/14/18

### REPORT ISSUED TO

#### SHEFFIELD METALS

5467 Evergreen Parkway  
Sheffield Village, OH 44054

### SECTION 1

#### SCOPE

##### Product:

Intertek Building & Construction (B&C) was contracted by Sheffield Metals, 5467 Evergreen Parkway, Sheffield Village, OH 44054, to perform testing in accordance with ASTM E1646, *Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference*, on their 0.040" Aluminum 1-3/4" SnapLock roof panels. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek test facility in West Palm Beach, Florida. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

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### SECTION 2

#### SUMMARY OF TEST RESULTS

**Product Type:** Metal Roof Panel

**Series/Model:** 0.040" Aluminum 1-3/4" SnapLock

**Test Pressure(s):** 6.24 psf

For INTERTEK B&C:

**COMPLETED BY:** Melissa Nuttall  
Technician Team Leader  
- Product

**TITLE:**

**SIGNATURE:**

**DATE:**

  
Digitally Signed by: Melissa Nuttall

08/14/18

mmn:ab

**REVIEWED BY:** Vinu Abraham, P.E.  
Vice President – Global  
Business Development

**TITLE:**

**SIGNATURE:**

**DATE:**

  
Digitally Signed by: Vinu Abraham

08/14/18

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### SECTION 3

#### TEST METHOD

The specimen was evaluated in accordance with the following:

**ASTM E1646-95 (2011)**, *Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference*

**ASTM E8/E8m-16a**, *Standard Test Method for Tension Testing of Metallic Materials*.

### SECTION 4

#### MATERIAL SOURCE

The test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of four years from the test completion date. Installation of the tested product was performed by the client.

### SECTION 5

#### EQUIPMENT

**Lab Pack:** Portable blower with pressure measuring device

### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Ronald Green	Intertek B&C
Jacob Patterson	Intertek B&C
Veron Wickham	Intertek B&C
Melissa Nuttall	Intertek B&C
Alan Rule	Intertek B&C
Vinu Abraham P.E.	Intertek B&C

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### SECTION 7

#### TEST SPECIMEN DESCRIPTION

**Product Type:** Metal Roof Panel

**Series/Model:** 0.040" Aluminum 1-3/4" SnapLock

**Test Pressure(s):** 6.24 psf

**Product Size(s):**

#### All Test Specimens

OVERALL AREA:	WIDTH		LENGTH	
	millimeters	inches	millimeters	inches
9.3 m <sup>2</sup> (100.0 ft <sup>2</sup> )				
Overall Size	1676	66	1321	52
Panel Coverage	406	16	1321	52

#### Test Deck Construction:

The unit was installed over a Pine wood deck measuring 68" wide x 54" long. The deck utilized a 2x4 Pine wood frame with studs spaced 16" on center, running parallel to the seams of the roof panels. #8 X 3" long Torx flat head screws were used to secure all frame members.

#### Roof System:

COMPONENTS	DETAILS	ATTACHMENT METHOD
Clip	The 1.86" high x 2.032" wide x 3.50" long clips were constructed from 18 Ga steel.	The clips were spaced at 18" on center and attached to the studs using two #10-13 x 1" pancake head fasteners per clip.
1-3/4" SnapLock Panels	The panels were constructed from 0.040" aluminum and had a 16" coverage width. Three full and two partial width panels were tested.	The male leg of the panels were secured using clips spaced 18" on center. The female leg of the panels snap-fit to the male leg of the adjacent panels. A 1/8" continuous bead of Novaflex metal roof sealant was used at the seams on the underside of the peak of female leg of the panel. #12 x 1-1/4" HWH with weather seal washer self-drilling screws were used at the perimeter of the panels spaced 3" on center. The perimeter was sealed with butyl tape and silicone.

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### SECTION 8

#### TEST RESULTS

TITLE OF TEST	RESULTS	ALLOWED	NOTE
<b>Preload</b> +15 psf / -15 psf	No Damage	No Damage	1
<b>Water Penetration,</b> per ASTM E 1646 at 6.24 psf	No leakage	No Leakage	2, 3, 4

*Note 1: Pre-loads were held for 10 seconds with a 2 minute recovery period after removal of each pre-load. The pre-load cycle was performed 3 times.*

*Note 2: Testing was performed at a 0° slope.*

*Note 3: Water penetration testing was performed for 15 minute duration.*

*Note 4: Panel surface temperature prior to testing was 97°F. Panel surface temperature during testing was 82°F. The ponded water depth during testing was 1/2 inches.*

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### SECTION 9

#### TENSILE TEST RESULTS

Tensile tests were conducted on two specimens from each panel sample. The specimens were machined from the metal members to the dimensions of the sheet-type 0.5" wide specimen given in Figure 1 of ASTM E8. The coating on the specimens was removed from the reduced section prior to testing. Tensile properties were determined utilizing a Satec Universal Test Machine (ICN: Y002011) equipped with a 5,000 pound load cell (ICN: 65607) and a Class C extensometer (ICN: Y002015). The test was run at a crosshead speed of 0.2 in/min.

Specimen No.	Base Thickness (in)	Yield Strength (ksi)	Tensile Strength (ksi)	Modulus of Elasticity (ksi)	Reduction of Area (%)	Elongation (%)
1	0.0298	21.7	26.1	11,211	11	10.3

### SECTION 10

#### CONCLUSION

The product met the specified performance requirements.

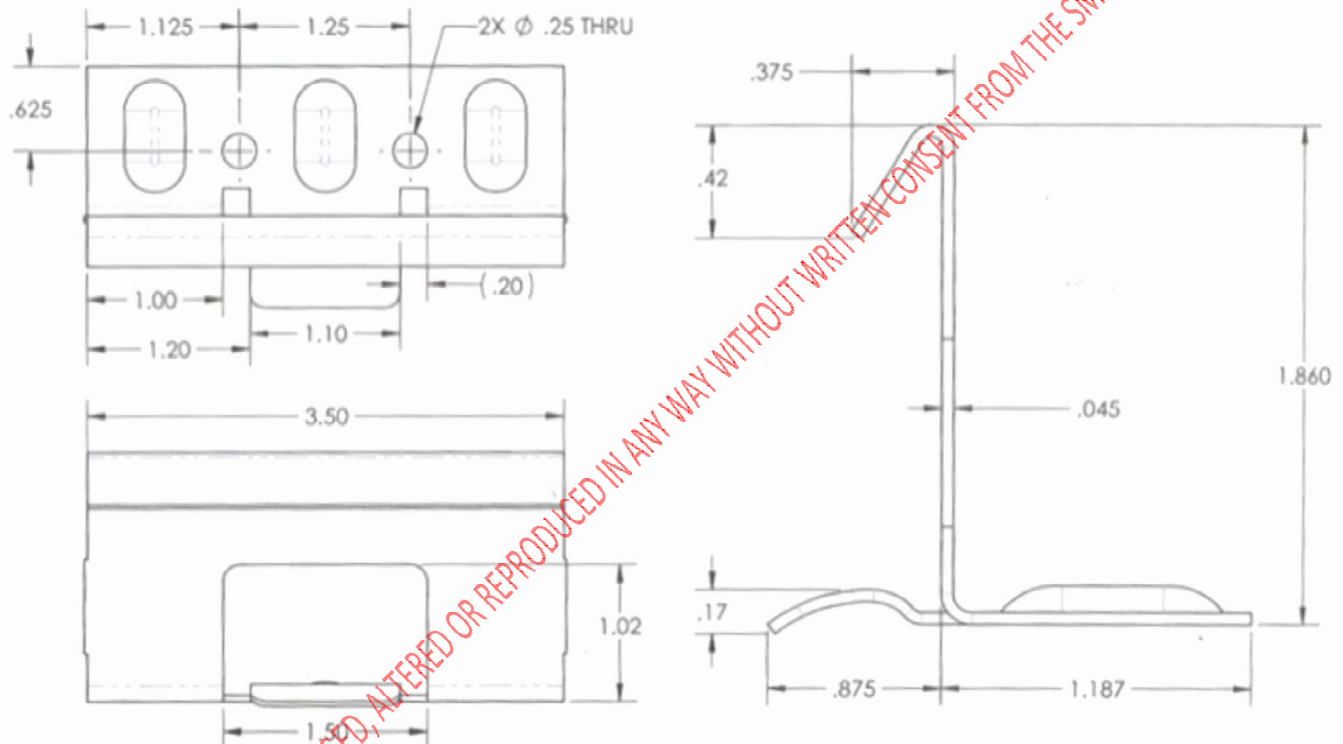
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### SECTION 11

### DRAWING



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL:  $\pm$

ANGULAR: MACH  $\pm$

TWO PLACE DECIMAL:  $\pm$

THREE PLACE DECIMAL:  $\pm$

INTERPRET GEOMETRIC

TOLERANCING PER:

MATERIAL:

FINISH:

DO NOT SCALE DRAWING

NAME DATE  
BAY 12-18-17

SCHULMEISTER METAL PRODUCTS

TITLE:

1.75" SNAP LOCK

675 NEWTECH

SIZE DWG. NO. REV  
A SMP 1.75 SN CLIP UL90 REV A A

SCALE: 1:1 WEIGHT: SHEET 1 OF 1

PROPRIETARY AND CONFIDENTIAL  
THE INFORMATION CONTAINED IN THIS  
DRAWING IS THE SOLE PROPERTY OF  
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USED ON

APPLICATION

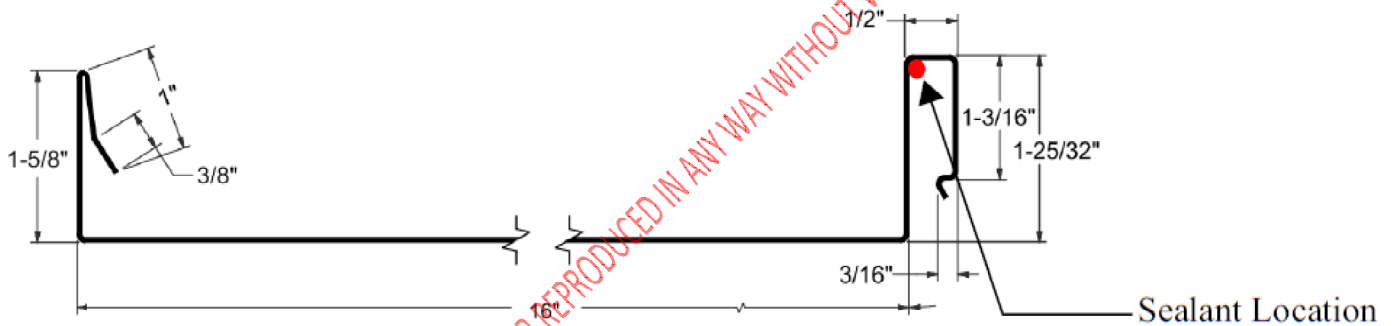
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**TEST REPORT FOR SHEFFIELD METALS**

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**Drawing No. 1**  
**Clip Details**



**Drawing No. 2**  
**Panel Details with Sealant Location**

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### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	08/14/18	N/A	Original Report Issue

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