

SHEFFIELD METALS TEST REPORT

SCOPE OF WORK

ASTM E1646 WATER PENETRATION BY UNIFORM STATIC AIR PRESSURE DIFFERENCE ON
0.032" ALUMINUM 1-1/2" SNAPLOCK PANELS

REPORT NUMBER

I3448.03-450-44 R0

TEST DATE(S)

05/02/18

ISSUE DATE

08/14/18

REVISED DATE

N/A

RECORD RETENTION END DATE

05/02/22

PAGES

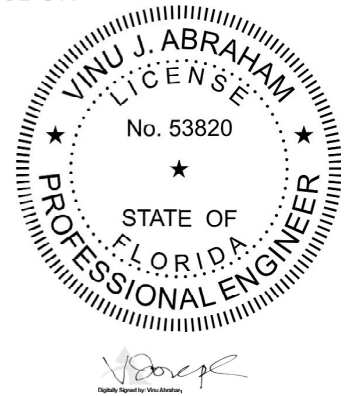
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DOCUMENT CONTROL NUMBER

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TEST REPORT FOR SHEFFIELD METALS

Report No.: I3448.03-450-44 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 0.032" Aluminum 1-1/2" 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: 0.032" Aluminum 1-1/2" SnapLock

Test Pressure(s): 6.24 psf, 12.0 psf

For INTERTEK B&C:

COMPLETED BY:	Melissa Nuttall
TITLE:	Technician Team Leader - Product
SIGNATURE:	 Digitally Signed by: Melissa Nuttall
DATE:	08/14/18

Mmm:ab

REVIEWED BY:	Vinu Abraham, P.E.
TITLE:	Vice President – Global Business Development
SIGNATURE:	 Digitally Signed by: Vinu Abraham
DATE:	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: 0.032" Aluminum 1-1/2" SnapLock

Test Pressure(s): 6.24 psf, 12.0 psf

Product Size(s):

All Test Specimens

OVERALL AREA:	WIDTH		LENGTH	
	millimeters	inches	millimeters	inches
9.3 m ² (100.0 ft ²)				
Overall Size	1676	66	1321	52
Panel Coverage	381	15	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 1.60" high x 2.032" wide x 3.50" long clips were constructed from 20 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.
1-1/2" SnapLock Panels	The panels were constructed from 0.032" aluminum and had a 15" 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. #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
Preload +15 psf / -15 psf	No Damage	No Damage	1
Water Penetration, per ASTM E 1646 at 6.24 psf	No leakage	No Leakage	2, 3, 4

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Preload +15 psf / -15 psf	No Damage	No Damage	1
Water Penetration, per ASTM E 1646 at 12.0 psf	No leakage	No Leakage	2, 3, 5

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 78°F. Panel surface temperature during testing was 79°F. The ponded water depth during testing was 1/2 inches.

Note 5: Panel surface temperature prior to testing was 78°F. Panel surface temperature during testing was 83°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	0.0289	23.8	28.1	10,930	10	8.3

SECTION 10

CONCLUSION

The product met the specified performance requirements.

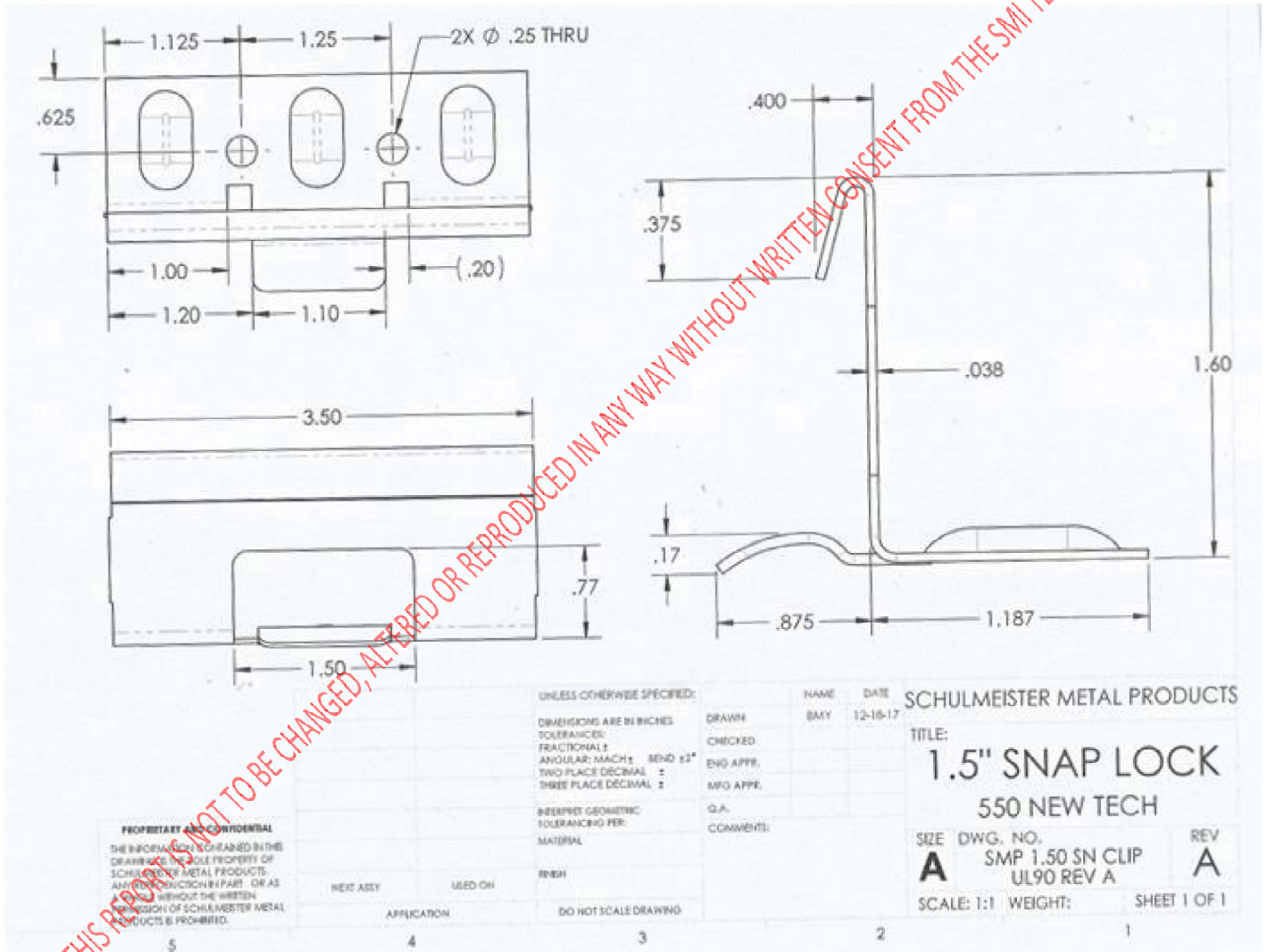
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SECTION 11 DRAWING

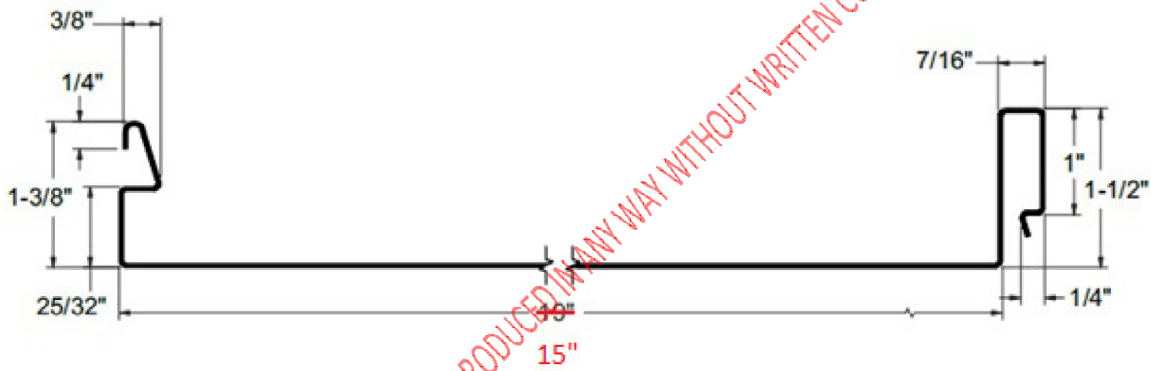


Drawing No. 1
Clip Details

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Drawing No. 2
Panel Details

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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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