Architectural Testing

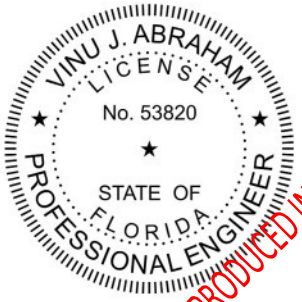
ASTM E 2140
TEST REPORT

Report No.: C9079.07-450-44

Rendered to:

SHEFFIELD METALS INTERNATIONAL
Sheffield Village, Ohio

PRODUCT TYPE: Standing Seam Roof System (24 Ga. Steel)
SERIES/MODEL: SMI 2.0 SCH Mechanical Seam Over Plywood



2014.02.20 10:21:58 -05'00'

Test Date: 12/23/13
Report Date: 02/07/14

1.0 Report Issued To: Sheffield Metals International
5467 Evergreen Parkway
Sheffield Village, Ohio 44054
Voice: 904.413.7425
Contact: Jim Mitchell

2.0 Test Laboratory: Architectural Testing, Inc.
2658 Electronics Way
West Palm Beach, Florida 33407
561.881.0020

3.0 Project Summary:

3.1 Product Type: Standing Seam Roof System

3.2 Series/Model: SMI 2.0 SCH Mechanical Seam Over Plywood

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method. Test specimen description and results are reported herein.

3.4 Test Date: 12/23/2013

3.5 Test Record Retention End Date: All test records for this report will be retained until December 23, 2017.

3.6 Test Location: Architectural Testing, Inc. test facility in West Palm Beach, Florida.

3.7 Test Sample Source: The test specimen was provided by the client. Representative samples of the test specimens will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix A. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

Name	Company
Vinu Abraham, P.E.	Architectural Testing, Inc.
Jeff McGovern	Architectural Testing, Inc.
Steve Clemson	Architectural Testing, Inc.
Alan Rule	Architectural Testing, Inc.
John Spallina	Architectural Testing, Inc.

4.0 Test Method(s):

ASTM E 2140-01 (Reapproved in 2009), *Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 5.0 m^2 (54.1 ft^2)	**Width**		**Length**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1753	69	2870	113
Panel size (3)	476	18 3/4	2870	113
Partial panel size (1)	324	12 3/4	2870	113

5.2 Test Deck Construction: The test deck was constructed of Southern Yellow Pine 2x12 lumber. There were four intermediate rafters spaced 24" on center. A single layer of 1/2" (15/32" min) thick 4-ply CDX plywood sheathing was utilized across the entire surface of the specimen.

5.0 Test Specimen Description: (Continued)

5.3 Roof System:

Components	Details	Attachment Method
30# Asphalt saturated organic paper (ASTM D 226) meeting type II requirements.	A single layer of felt paper, lapped 4 inches, attached to the plywood substrate.	The felt paper was secured using roofing nails with tin tabs spaced 16" on center at the seams and at the center of each sheet.
SMI 2.0 SCH Mechanical Seam roof panel	The panels were constructed from 24 gauge steel. One partial width panel and three full width panels were tested. (3 seams were tested).	The roof panels were secured to the deck utilizing 2" Float Clips. The panels overlapped each other and were seamed using a hand seamer to 90° (stage one) and then using a mechanical seamer to 180° (stage two).
Clips	The G-90 galvanized 2" Float Clips measured 2.4" high by 4.3" wide and consisted of a 16 Ga. base and a 22 Ga. tab.	Each clip was attached using two #10 x 1" pancake screws. A clip was used at each panel end and 24" on center thereafter
Seam Sealant	AP® 500 Advanced Polymer Sealant	A continuous 1/8" bead was applied to the first 90 degree bend closest to the vertical leg of the female side of each roof panel.
Perimeter Sealant	Grace Perm-A-Barrier and silicone sealant	The exterior of the specimen was sealed to the test deck to prevent extraneous water leakage.

6.0 Test Results: The temperature during testing was 28°C (83°F). The results are tabulated as follows:

Title of Test	Results	Allowed
Water Head Test, per ASTM E 2140 6" applied water head		
Interval 1: 1 hour	Pass	No leakage observed
Interval 2: 3 hours	Pass	No leakage observed
Interval 3: 6 hours	Pass	No leakage observed

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

7.0 Conclusion: The test specimen successfully resisted a 6" water pressure head for a duration of 6 hours without observed water leakage through the seams of the panel system.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

Digitally Signed for: Alan Rule by Courtney O'Connor

Alan Rule
Project Manager

Digitally Signed by: Vinu Abraham

Vinu J. Abraham, P.E.
Vice President – Southeast Region

Revision Log

Rev. #	Date	Page(s)	Revision(s)
1	02/11/14	Page 1, section 3.9	Added Vinu Abraham, P.E.