Architectural Testing

FM 4471, Section 5.4
TEST REPORT

Rendered to:

SHEFFIELD METALS INTERNATIONAL

MODEL DESIGNATION: SMI 2" Mechanical Seam over 5" Span Steel
PRODUCT TYPE: Standing Seam Roof System (24 Ga. Steel)

This report contains in its entirety:
Cover Page: 1 page
Report Body: 4 pages

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2012.03.12 17:25:49 -04'00'

Report No.: B5170.22-450-18
Test Date: 3/1/12
Report Date: 3/6/12
Test Report Retention End Date: 3/6/16

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Sheffield Metals International

SMI 2" Mechanical Seam over 5' Span Steel (FM 4471, Section 5.4)
Test Report #: B5170.22-450-18

1.0 MANUFACTURER'S IDENTIFICATION

1.1 Name of Applicant: Sheffield Metals International
5467 Evergreen Parkway
Sheffield Village, OH 44054
Voice: 904.413.7425

1.2 Contact Person: Jim Mitchell

2.0 LABORATORY IDENTIFICATION

2.1 Test Notification #: N/A

2.2 Lab Certifications: Miami-Dade County (05-1014.01); Florida Building Code (TST1527); IAS (TL-244); AAMA; WDMA; Keystone Certifications; Texas Department of Insurance

3.0 SCOPE OF WORK

3.1 Introduction: Sheffield Metals International retained Architectural Testing, Inc. (ATI) to conduct foot traffic resistance testing on their SMI 2" Mechanical Seam over 5' Span Steel System per the requirements of FM.

3.2 Report Information: Table 1 provides the test date for this specimen.

Table 1: Specimen Test Date

Mock-Up	Specimen #	Test Date
SMI 2" Mechanical Seam over 5' Span Steel	11	3/1/2012

4.0 PRODUCT IDENTIFICATION

4.1 Product Type: Standing Seam Roof System

4.2 Model Designation: SMI 2" Mechanical Seam

4.3 Overall Size: Table 2 provides the overall size for this specimen.

Table 2: Specimen Overall Size

Mock-Up	Specimen #	Panel Assembly Size
SMI 2" Mechanical Seam over 5' Span Steel	11	141-1/4" (wide) x 312-1/4" (long

4.4 General Description: This specimen consisted of a structural support frame fabricated from 16 Ga. A36 steel. The roofing panels were fastened directly to the steel support frames.

4.5 Sample Source: Sheffield Metals provided the test specimen.

5.0 COMPONENT DESCRIPTION

5.1 Structural Support Frame:

The structural support frame members were comprised of 16 Ga. A36 steel. There were six (6) intermediate purlins that were spaced 5' on center.

5.2 Metal Roof System:

Table 3 provides the metal roof system components used in the test specimen.

Table 3: Metal Roof System Components

Item	Overall Cross-Section	Material	Coil Width	Description
Mechanical Seam Panel	Please see part drawing labeled "SMI 2" Mechanical Seam" for dimensions	24 Ga. steel	24"	Each panel had an effective covering width of 18". Each finished roof panel featured two (2), 2" vertical legs (one w/return flap). The roof panels were 312-1/4" long.
Float Clip 2" (Base)	2.390" x 4.300" (long) assembled size	16 Ga. G90 galvanized steel	N/A	Each two-piece panel clip (Part # M0413-MOD) consisted of a base and a tab that were each fabricated from two different thickness of steel. Each clip base had two (2) holes capable of accommodating 1/4" hex head screws.
Float Clip 2" (Tab)		22 Ga. G90 galvanized steel	N/A	

6.0 SPECIMEN CONSTRUCTION

6.1 Specimen Construction:

Table 4 provides the specimen construction.

Table 4: Specimen Construction

Location	Description
Roof panel	Each finished roof panel featured an inside leg and an outside leg. These legs were overlapped around a float clip. There was one (1) clip per intermediate purlin at each panel seam. Each clip was mechanically attached to the steel support frame using two (2), 1/4-14 x 1-3/8" #2 point Weather Gard® self-drilling hex head screws. The legs were then mechanically seamed 180 degrees.
Panel edges	The panel edges at the perimeter of each roof panel assembly were attached to the steel support frame using a single row of 1/4-14 x 1-3/8" #2 point Weather Gard® self-drilling hex head screws spaced at 4" on center.
Panel end	The panel ends at the perimeter of each roof panel assembly were attached to the steel support frame using a single row of 1/4" x 1" pan head screws spaced at 2" on center.

7.0 TEST RESULT SUMMARY

Table 5 provides a summary of the test results for the tests conducted per FM 4471.

Table 5: Summary of Test Results

Specimen #	Test Method	Test Conditions	Conclusion
11	Foot Traffic Resistance Test (FM 4471, Section 5.4)	200 lbs.	PASS

8.0 TEST SEQUENCE

Table 6 provides the test sequence for the specimen.

Table 6: Test Sequence

Specimen # 11
1. Foot traffic resistance test

9.0 FOOT TRAFFIC RESISTANCE TEST RESULTS

9.1 Test/Verification

The purpose of this test was to evaluate the structural performance of the metal panel when a concentrated load was placed on the panel at mid span. The specimen was tested for foot traffic resistance by subjecting the specimen to a series of 200 lb. loads. The 200 lb. load incorporated a 3" square steel plate base with rounded corners. The base was positioned in the approximate center of the specimen adjacent to the panel side lap.

The 200 lb. load was placed on the specimen, lifted off the specimen, and reloaded four additional cycles.

9.2 Conclusion

There was no puncture of the roof panel and no separation or disengagement of the side laps. As such, the ability of the roof panel assembly to resist foot traffic has been verified.

10.0 CERTIFICATION AND DISCLAIMER STATEMENT

All tests performed on this test specimen were conducted in accordance with the specifications of the applicable codes, standards and test methods listed below by ATI. ATI does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products tested at ATI. ATI is not owned, operated or controlled by any company manufacturing or distributing products it tests. This report is only intended for the use of the entity named in Section 1.0 of this report. Detailed assembly drawings showing panel/clip thicknesses, panel/clip profiles, accessories, fasteners and all other applicable layouts are on file and have been compared to the test specimen submitted. ATI 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 ATI for the entire test record retention period.

If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen can be made. 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

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11.0 APPLICABLE CODES, STANDARDS, AND TEST METHODS

FM 4471, Section 5.4 – Approval Standard for Class I Panel Roofs (Class Number 4471)

12.0 WITNESSES (ALL OR PARTIAL)

Vinu J. Abraham, P.E.	Vice President – Southeast Region	ATI
Jeff McGovern	Director – Regional Operations	ATI
Kristin Norville, E.I.	Operations Engineer	ATI