Architectural Testing

AAMA 508 TEST REPORT

Rendered to:

ALTECH PANEL SYSTEMS, L.L.C.

And

MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.

SERIES/MODEL: Accu-Trac® DS System
PRODUCT TYPE: Rain Screen Wall Panel System

Report No.:	A4561.01-109-44
Test Date:	10/28/10
And:	10/29/10
Report Date:	11/10/10
Expiration Date:	10/29/14

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
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www.archtest.com

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AAMA 508 TEST REPORT

Rendered to:

ALTECH PANEL SYSTEMS, L.L.C.
One Johnson Street, Suite 118
Cartersville, Georgia 30120

And

MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.
401 Volvo Parkway
Chesapeake, Virginia 23320

Report No.:	A4561.01-109-44
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Project Summary: Architectural Testing, Inc. was contracted by Altech Panel Systems, L.L.C. and Mitsubishi Plastics Composites America, Inc. to perform testing in accordance with AAMA 508-07, *Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems*. General construction details and test results are included herein. The sample was provided by the client.

Test Methods:

Air Infiltration: ASTM E 283-04, *Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.* Testing was conducted at 1.57 psf positive static air pressure difference.

Cyclic Static Air Pressure Differential: ASTM E 1233-00, *Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.* Testing was conducted at 25.0 psf in 100 three-second cycles.

Static Pressure Water Resistance: ASTM E 331-00, *Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.* Testing was conducted at 25.0 psf positive static air pressure difference for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft^2/hr.

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Test Methods: (Continued)

Dynamic Pressure Water Resistance: AAMA 501.1-05, *Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water Penetration Using Dynamic Pressure.* Testing was conducted with a dynamic pressure equivalent of 25.0 psf for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft^2/hr.

Structural Loads: ASTM E 330-02, *Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.*

Test Specimen Description:

Series/Model: Accu-Trac® DS System

Product Type: Rain Screen Wall Panel System

Overall Size: 96" wide by 96" high

Top Panel Sizes (2): 47-1/4" wide by 47-1/4" high

Bottom Panel Size (2): 47-1/4" wide by 47-1/4" high

Rain Screen Construction: The test specimen was constructed of four aluminum composite panels that were 4 mm (0.157") thick. The panels were constructed with a 0.118" thick plastic core and two 0.020" thick aluminum interior and exterior skins, adhered to the plastic core. A 90° bend was utilized on all four sides of the panels. The panel edges were mitered and keyed with an aluminum corner key and secured with silicone. The edges of all panels utilized a perimeter extrusion, secured with 1/8" pop rivets. The sill utilized a 5-1/4" piece of flashing with a 90° bend. Each panel utilized extruded clips that were slid onto the perimeter extrusion. The sill utilized a "J" shaped starter strip, secured through the sill flashing to the steel studs with #12 x 1" long Tek screws, spaced 16" on center. The bottom panels were slid into the "J" starter and secured to the steel studs through the extruded aluminum clips on the panel edges with one #12 x 1" long Tek screw. The top panels were then slid into the top clips of the bottom panels and fastened to the steel studs through the extruded aluminum clips on the panel edges with one #12 x 1" long Tek screw. Each panel utilized two 1/8" diameter weepholes through the bottom rail. An open cell baffle was used at each weephole. An ACM panel strip was utilized in the vertical and horizontal joints.

Test Specimen Description: (Continued)

Test Set-Up: An 8' wide by 8' high steel stud wall was constructed with 18 gauge steel studs secured to the head and sill steel track with #12 x 1" long pan cake head self-tapping screws on the interior. The steel studs were spaced 16" on center inside a 2x12 wood buck. The stud wall was covered with 1/4" thick clear lexan, sealed and secured to the exterior of the wall to simulate an air/water barrier. The wall panel system was then installed onto the clear polycarbonate in a manner consistent with normal construction procedures for the system. The clear polycarbonate was calibrated to a pre-determined air leakage rate by drilling 1/8" diameter holes on the backside in a uniform pattern, making sure to create an even pressure drop and leakage rate across the wall and in each quadrant. The exterior of the test unit was sealed to the wood buck with silicone.

Test Results: The following results have been recorded:

Title of Test - Test Method	Results	Allowed
Air Infiltration per ASTM E 283 1.57 psf (25 mph)	0.12 cfm/ft^2	0.11 cfm/ft^2 min. 0.13 cfm/ft^2 max.
Observations: *The calibrated leakage was achieved with sixty-six 1/8" diameter holes drilled through the polycarbonate.*		
Pressure Cycling per ASTM E 1233 100 cycles from 5.0 psf to 25.0 psf	<0.08 sec.* PASS	0.08 sec.
Observations: *Pressure tap was attached through the air barrier at center point between first and second studs.*		
Water Penetration per ASTM E 331 25.0 psf	2.14 ft^2 PASS	3.2 ft^2
Observations: *A small amount of water measuring 1" by 1" was observed on the polycarbonate. There was no uncontrolled streaming of water on polycarbonate.*		
Water Penetration per AAMA 501.1 25.0 psf	1.56 ft^2 PASS	3.2 ft^2
Observations: *A small amount of water measuring 1" by 1" was observed on the polycarbonate. There was no uncontrolled streaming of water on polycarbonate.*		

**See Pressure Cycling graph in Appendix A.*

Test Results: (Continued)

Title of Test - Test Method	Results	Allowed
ASTM E 330	Uniform Load Deflection (Deflections reported were taken on the panel edge) (Loads were held for 10 seconds)	
	75.19 psf (positive)	0.93"
	75.19 psf (negative)	1.04"
ASTM E 330	Uniform Load Structural (Permanent sets reported were taken on the panel edge) (Loads were held for 10 seconds)	
	105.26 psf (positive)	0.01"
	105.26 psf (negative)	0.06"

Test Equipment:

- Computerized control panel to run positive pressures, cyclic pressures, and measure air leakage rates.
- Structural test chamber to mount the test wall, as to evaluate the performance of the wall panel system for static and cyclic pressures, as well as water penetration. The wall was situated such that the interior side of the polycarbonate test wall was accessible to observe air and water leakage.
- Dynamic wind generator to create a wind pressure to test the wall panel system for dynamic water penetration.
- Computerized data management equipment to read, log, and graph differential pressures.

Test Witnesses: The following representatives witnessed all or part of the testing:

Name	Company
Jerry L. Radford	Altech Panel Systems, L.L.C.
Larry Creswell	Altech Panel Systems, L.L.C.
William Yannetti	Mitsubishi Plastics Composites America, Inc.
Thomas Lawlor	Architectural Testing, Inc.
Russell W. Clark	Architectural Testing, Inc.
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Jeremy R. Bender	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. 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(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Jeremy R. Bender

Jeremy R. Bender
Technician

Digitally Signed by: Michael D. Stremmel

Michael D. Stremmel, P.E.
Senior Project Engineer

JRB:dem

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Graph (1)
Appendix-B: Drawing (1) Complete drawings packet on file with Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

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For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Jeremy R. Bender

Jeremy R. Bender
Technician

Digitally Signed by: Michael D. Stremmel

Michael D. Stremmel, P.E.
Senior Project Engineer

JRB:dem

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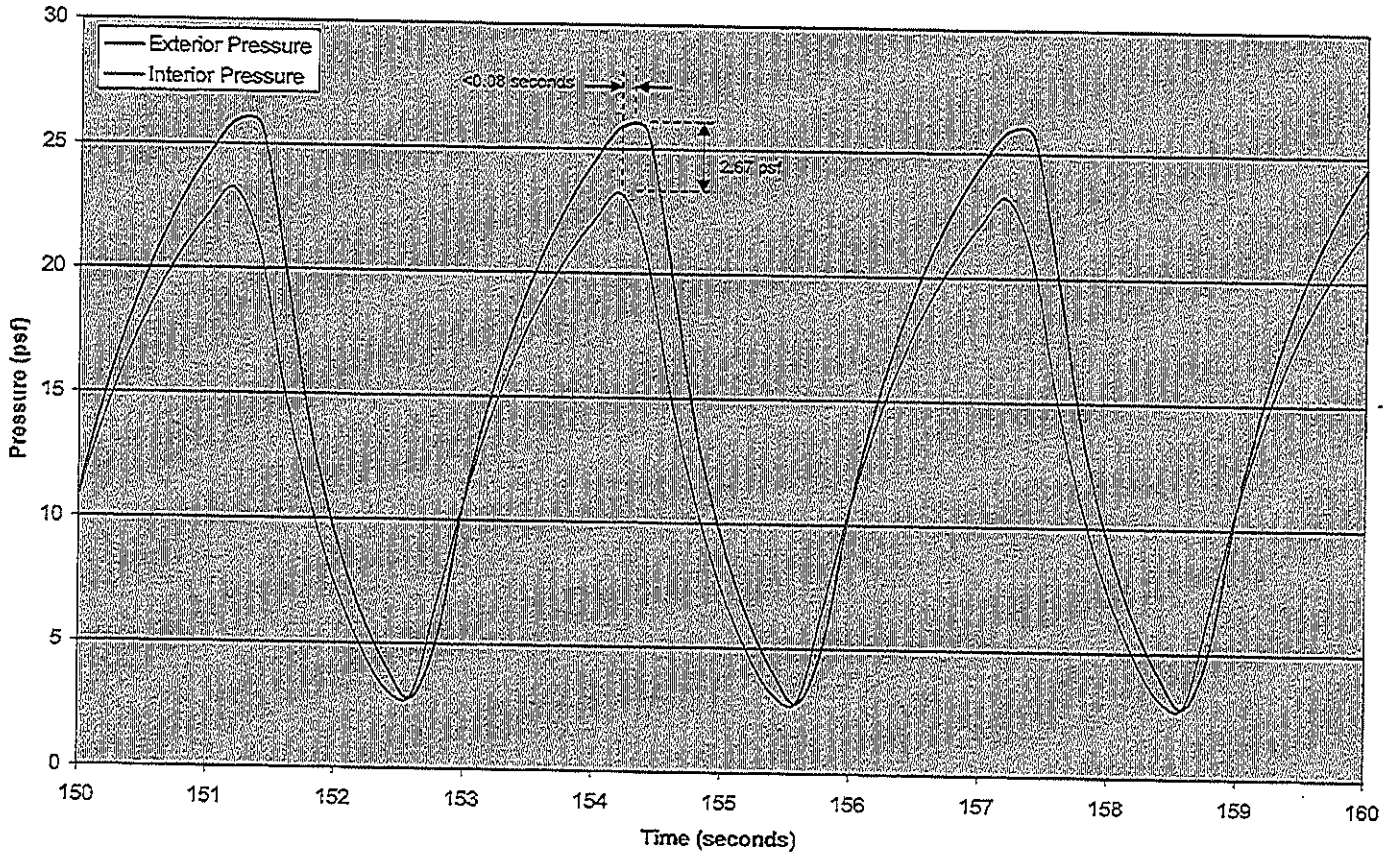
Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	11/10/10	N/A	Original report issue

Appendix A

Graph

AAMA 508
ASTM E 1233 Pressure Cycling



Appendix B

Drawing

Note: Complete drawings packet on file with Architectural Testing, Inc.