

PERFORMANCE TEST REPORT

Rendered to:

ALLIED METAL

SERIES/MODEL: H500

PRODUCT TYPE: Wall Panel System

Title	Summary of Results
Air Infiltration	<0.01 cfm/ft ²
Water Resistance Test Pressure	15.05 psf
Design Pressure	+75.0 psf/-66.7 psf
Uniform Load Deflection Test Pressure	+75.0 psf/-70.0 psf
Uniform Load Structural Test Pressure	+112.5 psf/-100.0 psf

Reference should be made to Architectural Testing, Inc. Report No. A0591.01-109-44 for complete test specimen description and data.

PERFORMANCE TEST REPORT

Rendered to:

ALLIED METAL
3114 Tonnelle Avenue
North Bergen, New Jersey 07047

Report No.: A0591.01-109-44
Revision 1: 05/20/10
Test Dates: 04/30/10
And: 05/10/10
Report Date: 05/20/10
Expiration Date: 05/10/14

Project Summary: Architectural Testing, Inc. was contracted by Allied Metal to perform testing on a Series/Model H500, wall panel system. The system tested met the requirements in the referenced specification for a Design Pressure of +75.0 psf/-66.7 psf. Test specimen description and results are reported herein. The sample was provided by the client.

Test Methods: The test specimen was evaluated in accordance with the following:

ASTM E 283-04, Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

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

ASTM E 331-00, Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

Test Specimen Description:

Series/Model: H500

Product Type: Wall Panel System

Overall Size: 8' 0" wide by 8' 0" high

Top Panel Size (2): 3' 11-3/8" wide by 3' 11-3/8" high

Bottom Panel Size: 7' 10-1/2" wide by 3' 11-3/8" high

Test Specimen Description: (Continued)

Overall Area: 64.0 ft²

Panel Construction: The ACM panel measured 4 mm (5/32") thick and was comprised of two sheets of 0.020" thick aluminum bonded to both sides of a black 0.12" thick composite core material. The core around the perimeter of all panels was routed out approximately 1/4" deep.

Test Wall Construction: The test wall was fabricated from 16 gauge steel studs with a 2x10 Spruce-Pine-Fir wood wrap. The steel studs were spaced 16" on center and was secured to the top and bottom track with #8 x 2" long self-drilling screws. The stud wall was sheathed with 5/8" thick DensGlass, secured with #8 x 1-1/4" long self-drilling screws, spaced 16" on center along the studs. A self-adhesive air/water barrier was utilized on the exterior of the DensGlass.

Panel Installation: An aluminum plate, measuring 0.090" thick by 3" wide, was utilized at the perimeter, each stud, and vertical joints and were secured through the DensGlass to the steel studs with #10 x 2" long hex head self-drilling screws, located 16" on center. The perimeter steel studs utilized extruded aluminum "J" shaped channel over the aluminum plate, measuring 0.090" thick and was secured with #10 x 7/8" long hex-head self-drilling screws into web of the perimeter steel studs. Extruded aluminum hat channels were utilized at each stud and the vertical and horizontal joints, measuring 0.090" thick, and were secured to the aluminum plate with two #10 x 7/8" long hex-head self-drilling screws 16" on center.

A continuous extruded aluminum installation bar was utilized at the sill and jambs and secured to hat and "J" channels with #10 x 7/8" long hex head self-drilling screws, located at each end and spaced 16" on center. The horizontal and vertical joints utilized an extruded aluminum installation bar, (reference Drawing #H500-Detail 1 and #H500-Detail 2). The panels slid into installation bars on all sides which was sealed and secured to the panel with silicone, (reference Drawing #H500-Detail 4A). The top panels slid into the horizontal installation bar of the panel below it and the top panels were terminated at the head with the same installation bar as utilized in the jambs and sill. The exterior perimeter was sealed to the wood buck with silicone.

The panels utilized an extruded aluminum stiffener at each stud secured to the hat channel with #10 x 7/8" long hex-head self-drilling screw spaced 16" on center, secured and sealed to the panel with silicone, (reference Drawing #H500-Detail 2).

Test Results: The temperature during testing was 74°F. The results are tabulated as follows:

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
ASTM E 283	Air Infiltration 1.57 psf (25 mph) 6.24 psf (50 mph)	<0.01 cfm/ft ² 0.01 cfm/ft ²
ASTM E 283	Air Exfiltration 1.57 psf (25 mph) 6.24 psf (50 mph)	<0.01 cfm/ft ² <0.01 cfm/ft ²
ASTM E 331	Water Resistance 15.05 psf	No leakage
ASTM E 330	Uniform Load Deflection (Deflections reported were taken on the stiffener) (Loads were held for 10 seconds) 75.0 psf (positive) 70.0 psf (negative)	0.06" 0.04"
ASTM E 330	Uniform Load Deflection (Deflections reported were taken between the stiffener) (Loads were held for 10 seconds) 75.0 psf (positive) 70.0 psf (negative)	0.09" 0.09"
ASTM E 330	Uniform Load Structural (Permanent sets reported were taken on the stiffener) (Loads were held for 10 seconds) 112.5 psf (positive) 100.0 psf (negative)	<0.01" 0.09"
ASTM E 330	Uniform Load Structural (Permanent sets reported were taken between the stiffener) (Loads were held for 10 seconds) 112.5 psf (positive) 100.0 psf (negative)	<0.01" 0.08"

Note: A total of four 4-1/4" diameter holes were cut into the back of the DensGlass and air/water barrier to allow pressure to be applied to the panels.

General Note: All testing was performed in accordance with the referenced standards.

Tape and film were not used to seal against air leakage during structural testing.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Henry Bilge	Allied Metal
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Russell W. Clark	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. If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in the 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 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:

Russell W. Clark
Technician

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

RWC:dem

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Test Equipment (1)

Appendix-B: Photographs (2)

Appendix-C: Drawings (4)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	05/20/10	N/A	Original report issue
1	05/20/10	Summary Page and Page 1	Corrected HR-500 to H500

Appendix A
Test Equipment

Instrument	Manufacturer	Asset #
Control Panel	Architectural Testing, Inc.	005644
Control Panel	Architectural Testing, Inc.	005406
Spray Rack	Architectural Testing, Inc.	003956E
Spray Rack	Architectural Testing, Inc.	003956F
Linear Transducer	Celesco	62187
Linear Transducer	Celesco	62182
Linear Transducer	Celesco	Y002637
Linear Transducer	Celesco	003439
Linear Transducer	Celesco	Y002774
Linear Transducer	Celesco	62184
Linear Transducer	Celesco	004336
Linear Transducer	Celesco	003625
Linear Transducer	Celesco	62185
Linear Transducer	Celesco	Y003060
Linear Transducer	Celesco	Y002772
Linear Transducer	Celesco	Y003027

Appendix B

Photographs



Photo No. 1
Water Penetration Testing



Photo No. 2
Structural Wind Load Testing

Appendix C

Drawings

ESTOLGA H-500

Base Condition Option #2

ALUMINUM
COMPOSITE
PANEL

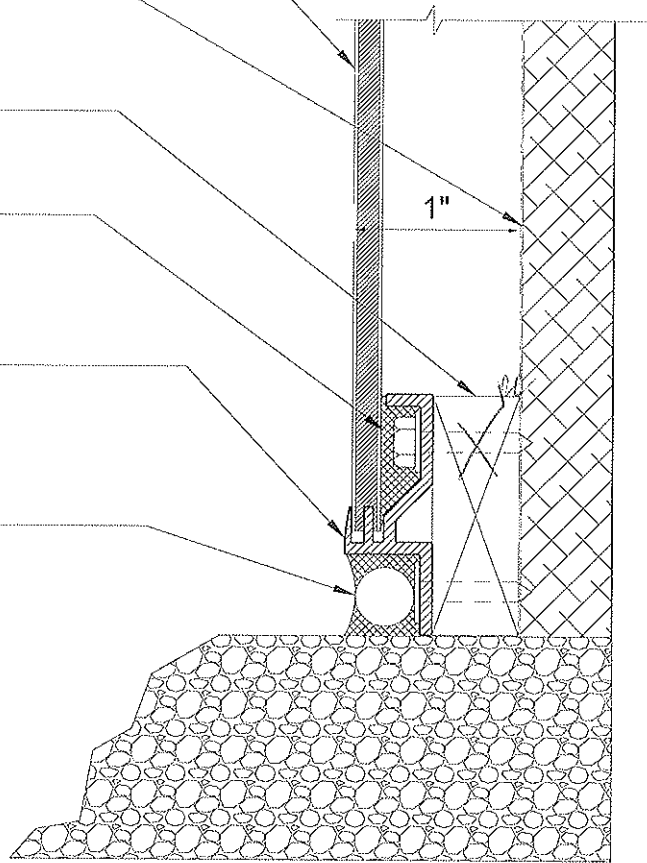
EXTERIOR WEATHER
BARRIER DONE BY
OTHERS

SHIM AS REQUIRED

STRUCTURAL
ADHESIVE

ESTOLGA H500
ATTACHMENT SYSTEM

BACKER ROD WITH
SEALANT TO
WATERPROOF



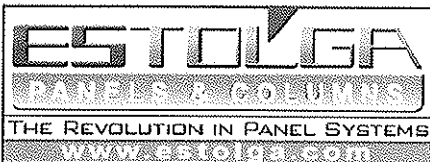
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# A0591

Date 9/11/10 Tech R. Clark

Drawing #H500-Detail 4A



The Revolution in Panel Systems

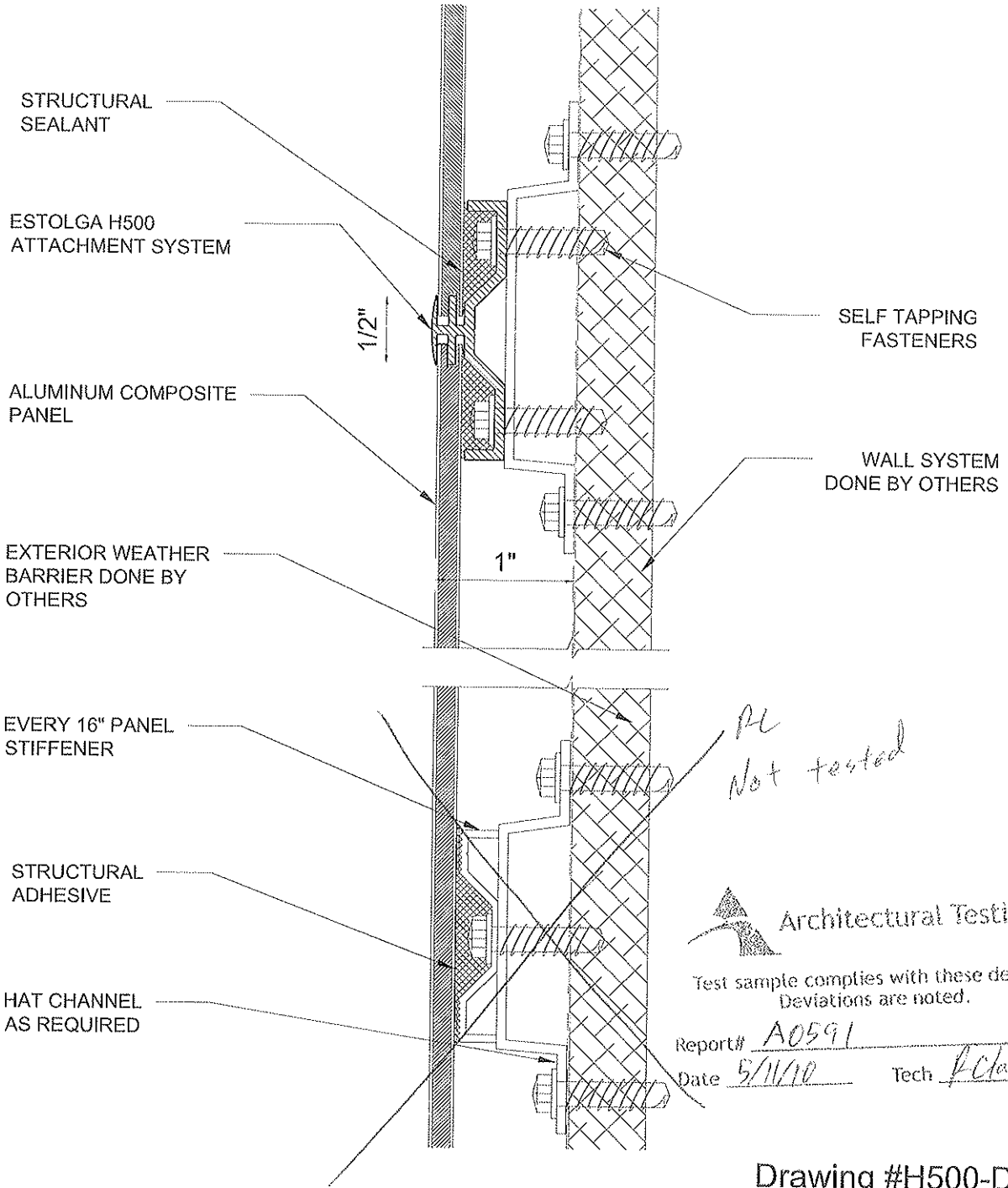
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ESTOLGA H-500

Horizontal Joint



PL Not tested

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# A0591

Date 5/11/10 Tech F. Clark

Drawing #H500-Detail 1

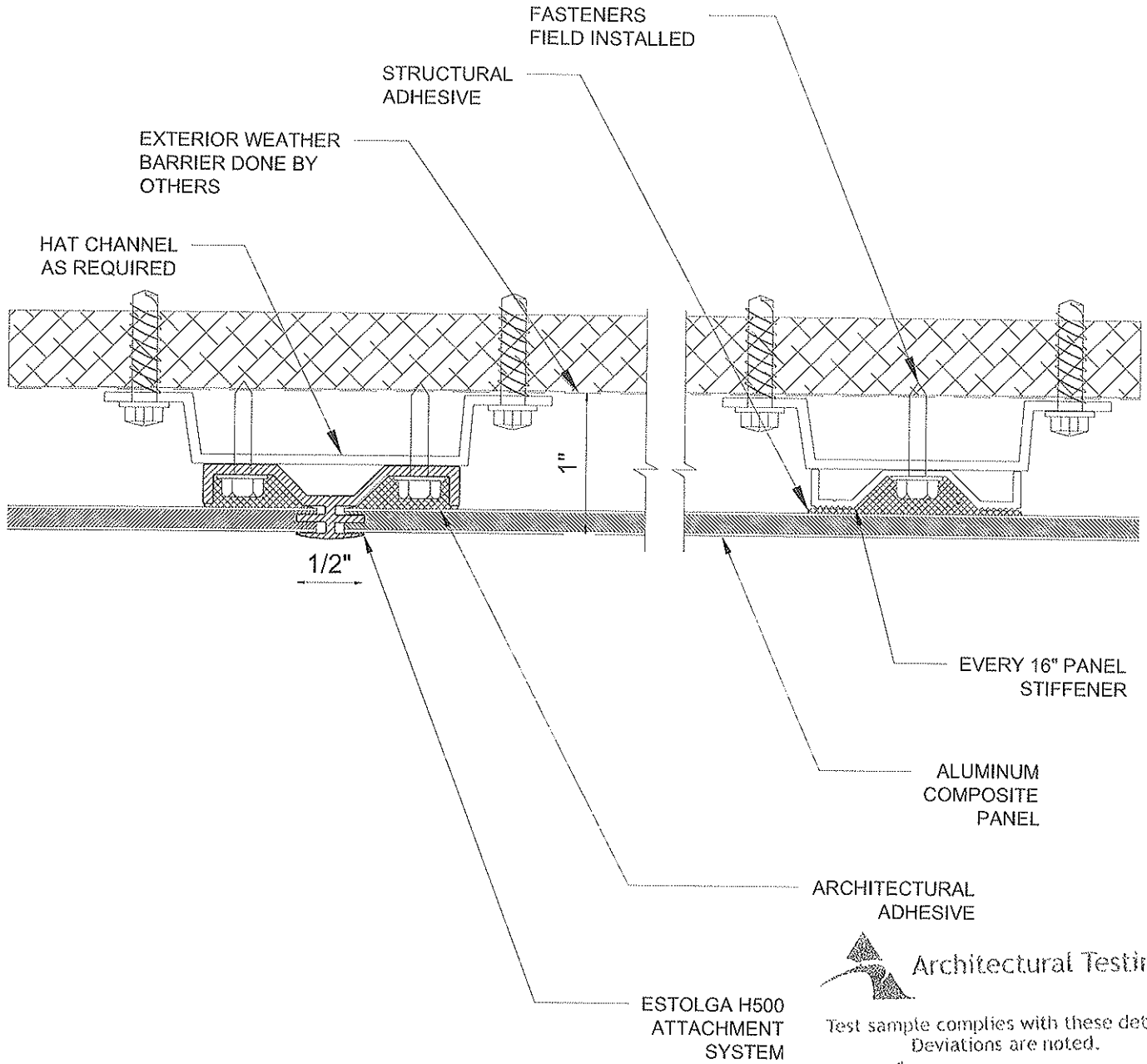
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ESTOLGA H-500

Vertical Joint



ARCHITECTURAL ADHESIVE



Architectural Testing

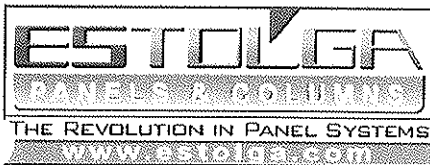
Test sample complies with these details. Deviations are noted.

Report# A0591

Date 5/11/10

Tech R. Clark

Drawing #H500-Detail 2



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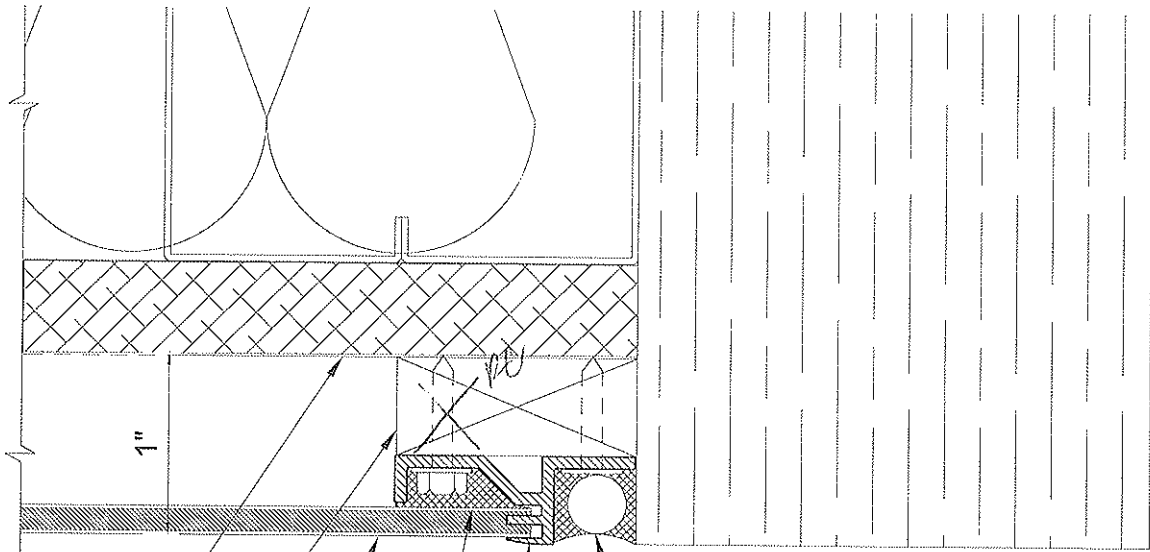
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ESTOLGA H-500

Jamb Detail Option #2



EXTERIOR WEATHER
BARRIER DONE BY
OTHERS

SHIM AS
REQUIRED

ALUMINUM
COMPOSITE
PANEL

STRUCTURAL
ADHESIVE

ESTOLGA H500
ATTACHMENT
SYSTEM



Architectural Testing

Test sample complies with these details.
Deviations are noted.

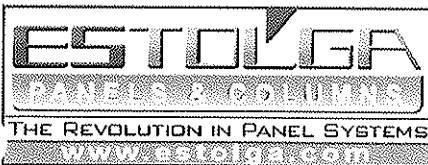
Report# A0591

Date 5/1/10

Tech R. Clark

BACKER ROD
AND SEALANT

Drawing #H500-Detail 5A



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