

PERFORMANCE TEST REPORT

Rendered to:

ALLIED METAL

SERIES/MODEL: ESTOLGA Wet Seal

PRODUCT TYPE: Wall Panel System

Title	Summary of Results
Air Infiltration	<0.01 cfm/ft ²
Water Resistance Test Pressure	15.05 psf
Uniform Load Deflection Test Pressure	+120.0/-80.0 psf
Uniform Structural Load Test Pressure	+180/-100.0 psf

Reference should be made to Architectural Testing, Inc Report No. 96663.02-109-44 for complete test specimen description and data.

PERFORMANCE TEST REPORT

Rendered to:

ALLIED METAL
3114 Tonnelle Avenue
North Bergen, New Jersey 07047

Report No.: 96663.02-109-44
Test Date: 01/15/10
And: 05/12/10
Report Date: 05/20/10
Expiration Date: 05/12/14

Project Summary: Architectural Testing, Inc. was contracted by Allied Metal to perform testing on a Series/Model ESTOLGA wet seal, wall panel system. The system tested met the requirements in the referenced specification for a Design Pressure of +120.0/-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: ESTOLGA Wet Seal

Product Type: Wall Panel System

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

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

Bottom Panel Size (2): 3' 10" wide by 3' 10" 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 0.020" thick aluminum skins, bonded to both sides of a black 0.12" thick composite core material. The panels utilized a 90° bend on all sides with a 1-1/2" long leg with corners sealed with silicone. The leg utilized a 3/16" high by 1/8" deep route 1/4" from the end of the leg. A 0.082" thick extruded aluminum "U" channel stiffener was utilized 16" on center in the 4' by 4' panels and 19-1/4" on center on the 8' by 4' panel, sealed and secured to the panels with silicone.

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 and head and sill. A self-adhesive air/water barrier was utilized on the exterior of the DensGlass.

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

An extruded aluminum mounting bar, measuring 0.090" thick, was utilized at the perimeter, vertical and horizontal joints, secured to the hat channel with #10 x 7/8" long hex-head self-drilling screws, spaced 16" on center into each interior steel stud.

The panels slid into the mounting bars on all sides. The mounting bar utilized an extruded aluminum "U" channel to compress the panels to the mounting bar on either side and was secured through mounting bar to the hat channel with #10 x 2" long hex-head self-drilling screws located 16" on center. The "U" channel was sealed with backer rod and silicone between the panels. The exterior perimeter was sealed to the wood buck with silicone.

Test Results: The temperature during testing was 67°F. The results are tabulated as follows:

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
ASTM E 283	Air Infiltration 1.60 psf (25 mph) 6.27 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) (Span = 46") (Loads were held for 10 seconds) 120.0 psf (positive) 80.0 psf (negative)	0.33" 0.70"
ASTM E 330	Uniform Load Deflection (Deflections reported were taken between stiffeners) (Span = 46") (Loads were held for 10 seconds) 120.0 psf (positive) 80.0 psf (negative)	0.51" 0.82"
ASTM E 330	Uniform Load Structural (Permanent sets reported were taken on the stiffener) (Span = 46") (Loads were held for 10 seconds) 180.0 psf (positive) 100.0 psf (negative)	0.01" 0.19"
ASTM E 330	Uniform Load Structural (Permanent sets reported were taken between stiffeners) (Span = 46") (Loads were held for 10 seconds) 180.0 psf (positive) 100.0 psf (negative)	0.02" 0.18"

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: Photograph (1)

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

Appendix A
Test Equipment

Instrument	Manufacturer	Asset #
Control Panel	Architectural Testing, Inc.	3921
Control Panel	Architectural Testing, Inc.	005644
Spray Rack	Architectural Testing, Inc.	3956E
Spray Rack	Architectural Testing, Inc.	3956F
Linear Transducer	Celesco	003625
Linear Transducer	Celesco	Y002772
Linear Transducer	Celesco	Y003027
Linear Transducer	Celesco	62186
Linear Transducer	Celesco	003420
Linear Transducer	Celesco	62184

Appendix B

Photograph

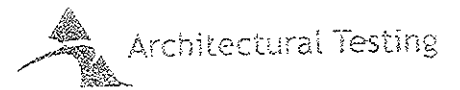
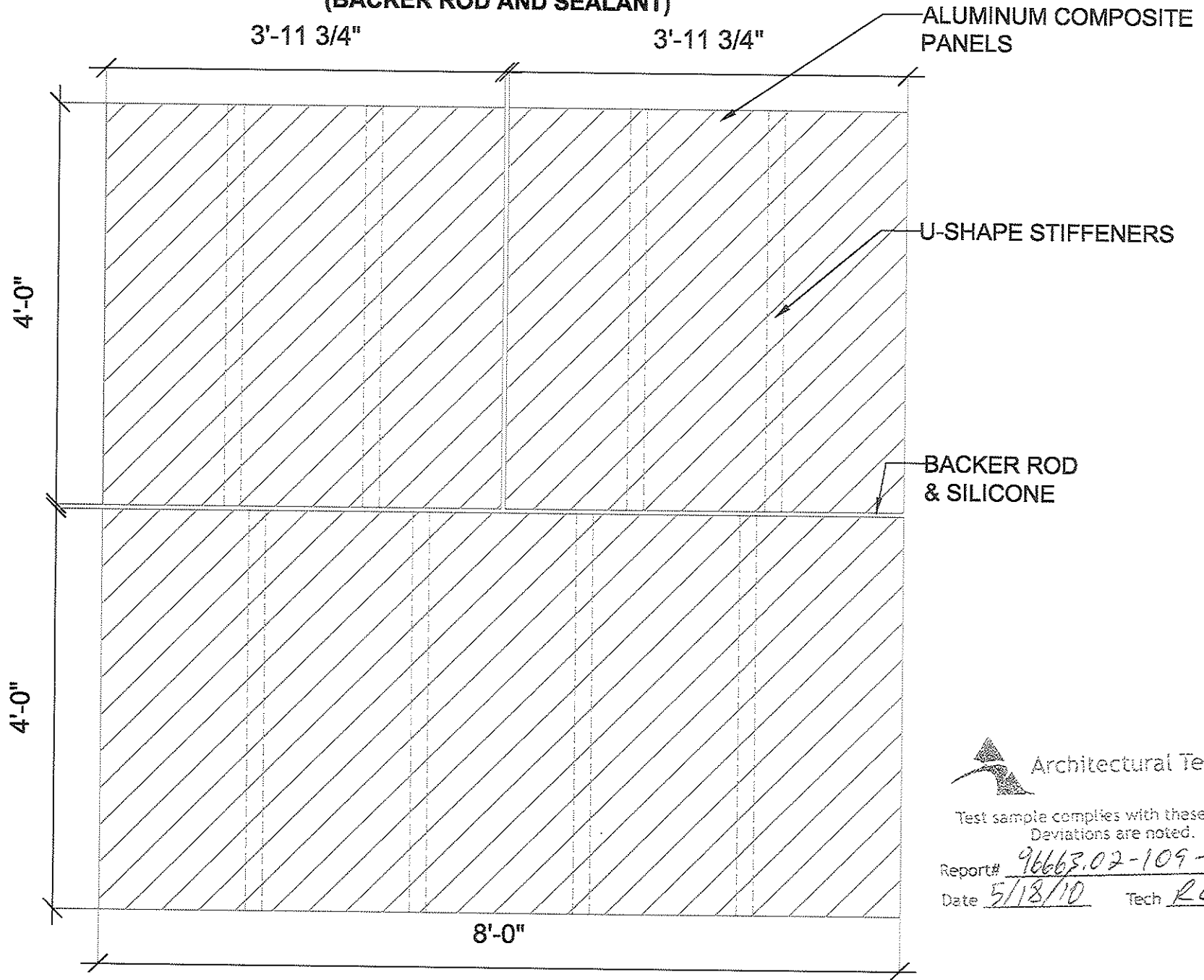


Structural Load Testing

Appendix C

Drawings

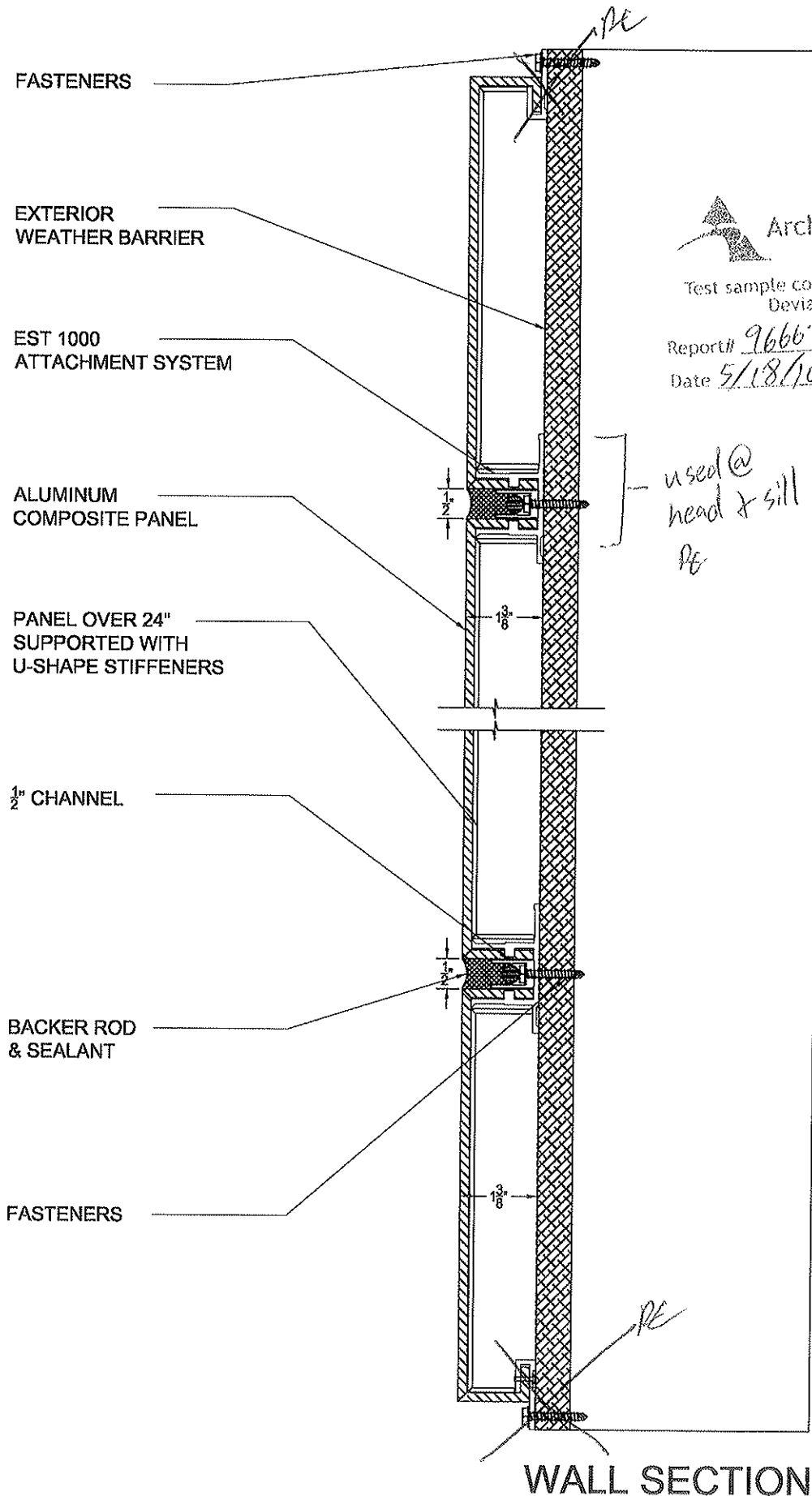
**EST 1000 WET SEAL SYSTEM
(BACKER ROD AND SEALANT)**



Test sample complies with these details.
Deviations are noted.

Report# 96663.02-109-44
Date 5/18/10 Tech R. C. DeWitt

EST 1000 WET SEAL SYSTEM



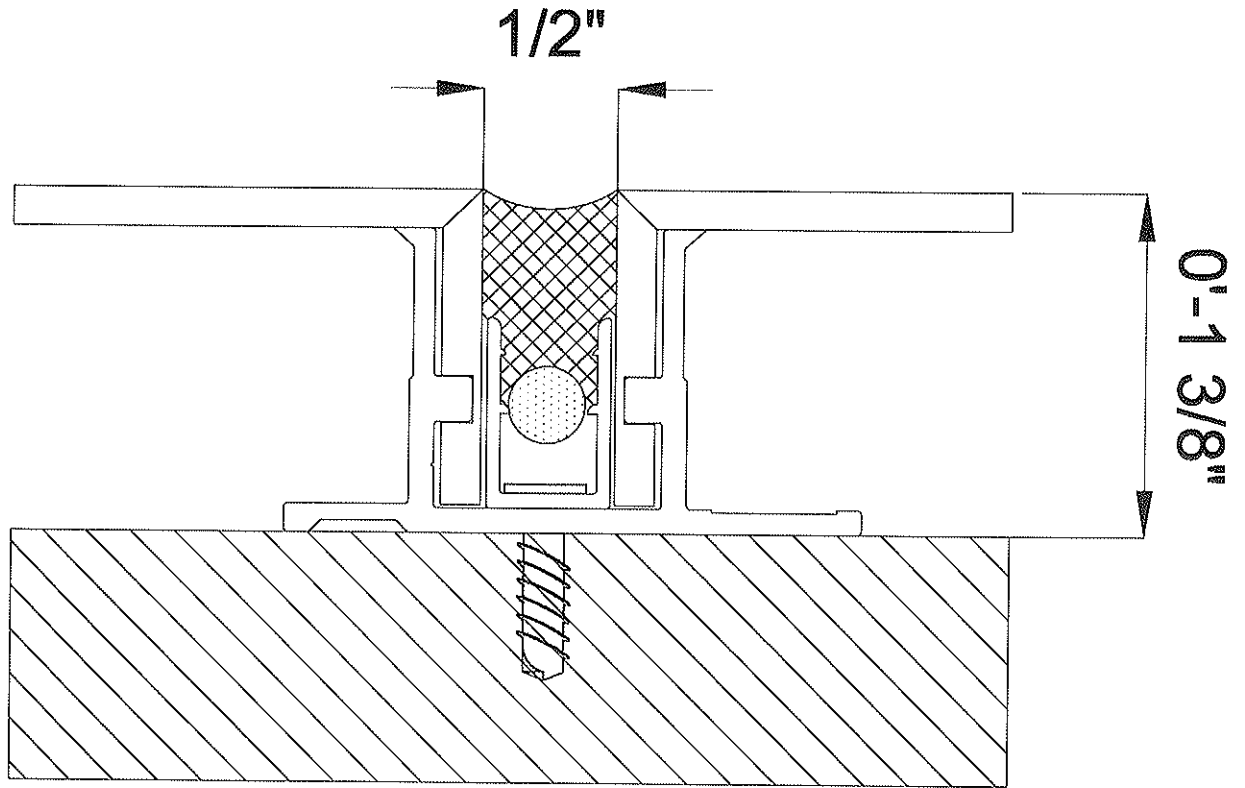
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 96663.02-109-44
Date 5/18/10 Tech P. Clark

used @
head & sill
PE

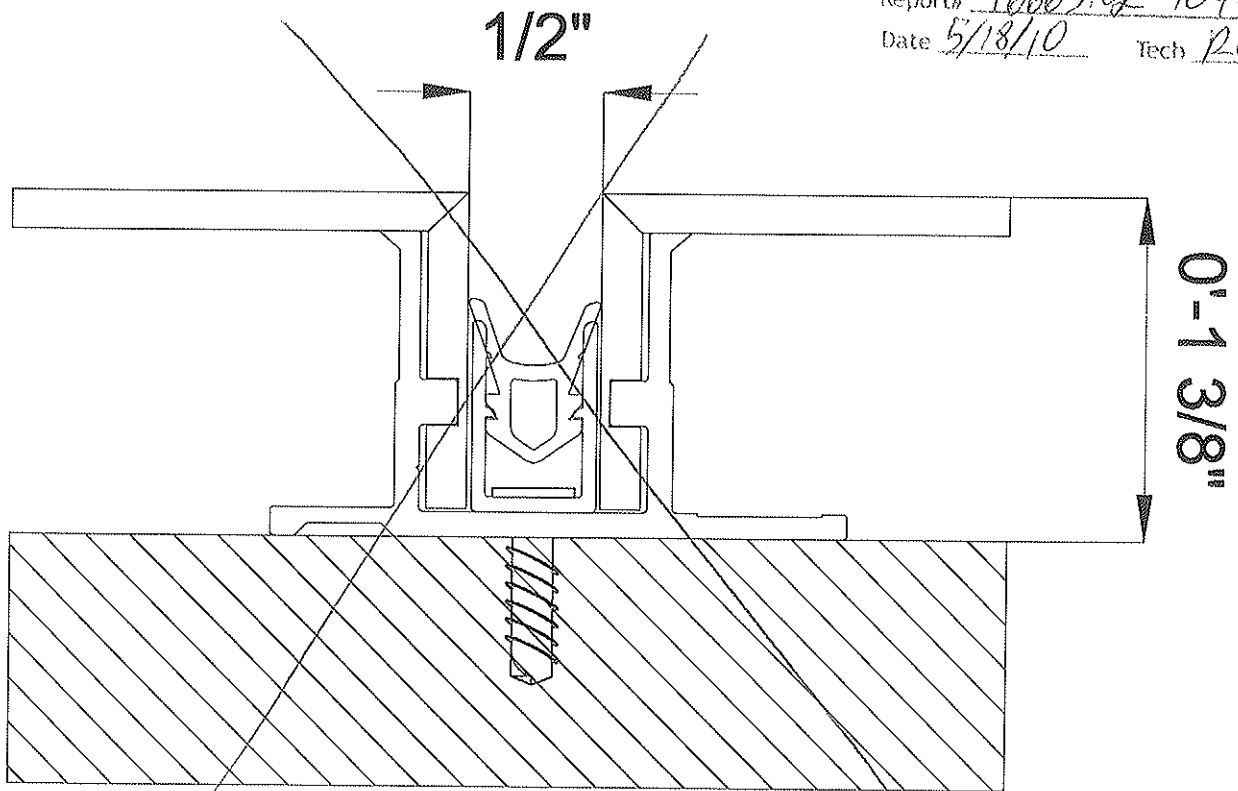
WALL SECTION



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 96663.02-109-44
Date 5/18/10 Tech P. Clark



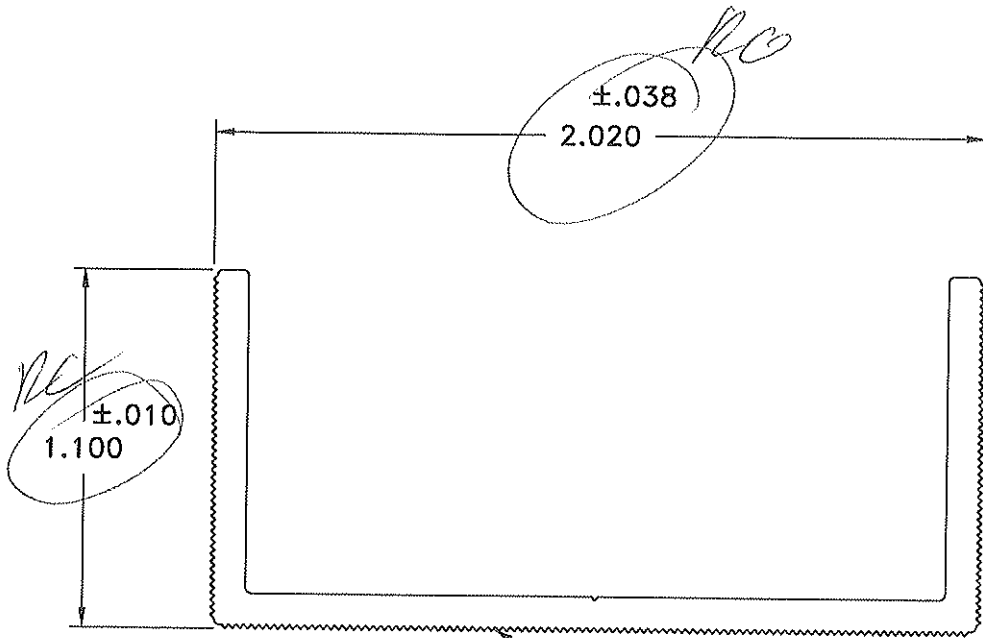


Architectural Testing

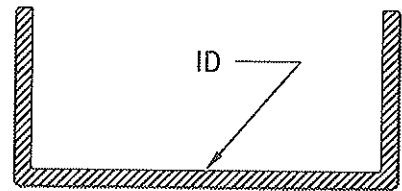
Test sample complies with these details.
Deviations are noted.

Report# 96663, Q-109-44
Date 5/18/10 Tech R. Clark

2" U-CHANNEL



SERRATIONS
.010 HIGH X 90°
(3) SIDES



ALLOY/TEMPER 6063-T6
ALL CORNERS .015 RADIUS UNLESS SPECIFIED
UNSPECIFIED WALL THICKNESS .082

ACTUAL
SIZE

ID MARK
.010 DP X 90°

RC