



TEST REPORT

Report No.: D7177.02-901-44

Rendered to:

NORTHCLAD RAINSCREEN SOLUTIONS
Everett, Washington

PRODUCT TYPE: Aluminum Cladding System
SERIES/MODEL: NorthClad AL Plate

| Title | Summary of Results |
|---------------------------------------|---------------------------|
| Design Pressure | ±3600 Pa (75.19 psf) |
| Uniform Load Structural Test Pressure | ±5400 Pa (112.78 psf) |

Reference must be made to Report No. D7177.02-901-44, dated 02/09/15, for complete test specimen description and detailed test results.

1.0 Report Issued To: NorthClad Rainscreen Solutions
11831 Beverly Park Road, Building C
Everett, WA 98204

2.0 Test Laboratory: Architectural Testing, Inc.
22155 68th Ave. South
Kent, Washington 98032
253-395-5656

3.0 Project Summary:

3.1 Product Type: Aluminum Cladding System

3.2 Series/Model: NorthClad AL Plate

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

3.4 Test Dates: 05/12/14 – 01/16/15

3.5 Test Record Retention End Date: All test records for this report will be retained until 01/16/19.

3.6 Test Location: Architectural Testing facility located in Kent, Washington.

3.7 Test Sample Source: The test specimen was provided by the client.

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 the appropriate Appendix. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

| <u>Name</u> | <u>Company</u> |
|-----------------|--------------------------------|
| Michael Evers | NorthClad Rainscreen Solutions |
| Brian Rasmussen | Architectural Testing, Inc. |
| Arbind Raj | Architectural Testing, Inc. |

4.0 Test Method:

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

5.0 Test Specimen Description:

5.1 Product Sizes:

| Overall Area: 5.9 m ² (64.0 ft ²) | Width | | Height | |
|---|-------------|--------|-------------|--------|
| | millimeters | inches | millimeters | inches |
| Overall size | 2438 | 96 | 2438 | 96 |
| Panels (4) | 1200 | 47-1/4 | 1200 | 47-1/4 |

5.2 Panel Construction: The test specimen was constructed of four aluminum panels that were 3 mm (1/8") thick. The panel edges were bent and aluminum extrusions were secured to the perimeter of the panels with #8 by 3/4" flathead screws at approx. 406 mm (16") spacing on center. The bottom of each panel utilized six 25.4 mm x 6.4 mm (1" x 1/4") weeps per panel.

5.3 Test Wall Construction: The 96" wide by 96" high test wall was constructed of 2 x 6 Douglas-fir wood studs. The studs were spaced 16" on center inside a 2x8 wood buck. The stud wall was covered with 1/8" thick clear polycarbonate and sealed and secured to the exterior of the wall to simulate an air/water barrier. The polycarbonate was penetrated with twenty-four 64 mm (2-1/2") holes, allowing an even pressure drop across the back of the cladding system.

5.4 Reinforcement: Two 1" x 1" aluminum stiffeners were secured vertically to the back of each panel with adhesive sealant.

5.5 Installation: Installation was performed by the client.

The wall panel system was installed onto the polycarbonate in a manner consistent with normal construction procedures for the system. The panels were installed in a bottom to top and left to right order. The sill utilized metal flashing and a continuous "C" shaped starter strip, which was secured to the studs with #12 x 1-1/2" pan head screws at approximately 16" spacing on center. The bottom panels were slid into the "C" channel starter strip. 152 mm (6") long aluminum clips/spacers were fit onto the remaining panel edges, three evenly spaced along each edge. The clips/spacers across the top of the panels were secured to the studs/buck with #12 x 1-1/2" screws at approximately 16" spacing on center. Aluminum 'splines' were sealed to the panel edges at the tops of the panels only. Perimeter splines were also butted against the wood buck and sealed to the buck only.

6.0 Test Results: The temperature during testing was 19°C (67°F). The results are tabulated as follows:

| Pressure | Results | Note |
|---|-----------------------------------|------|
| Taken at vertical stud +3600 Pa (75.19 psf) -3600 Pa (75.19 psf) | 6.1 mm (0.24") 6.4 mm (0.25") | 1 |
| Taken between panel anchors at horizontal mid-span +3600 Pa (75.19 psf) -3600 Pa (75.19 psf) | 1.0 mm (0.04") 0.5 mm (0.02") | 1 |
| Taken at panel center +3600 Pa (75.19 psf) -3600 Pa (75.19 psf) | 10.8 mm (0.43") 7.8 mm (0.31") | 1 |

| Pressure | Results | Note |
|---|--|------|
| Taken at vertical stud +5400 Pa (112.78 psf) -5400 Pa (112.78 psf) | <0.25 mm (<0.01") <0.25 mm (<0.01") | 1 |
| Taken between panel anchors at horizontal mid-span +5400 Pa (112.78 psf) -5400 Pa (112.78 psf) | <0.25 mm (<0.01") 0.3 mm (0.01") | 1 |
| Taken at panel center +5400 Pa (112.78 psf) -5400 Pa (112.78 psf) | 0.3 mm (0.01") <0.25 mm (<0.01") | 1 |

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

Note #1: Loads were held for 10 seconds.

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.

Brian L. Rasmussen
Technician

Jeffrey L. Dideon
Director – Regional Operations

BLR:pac

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

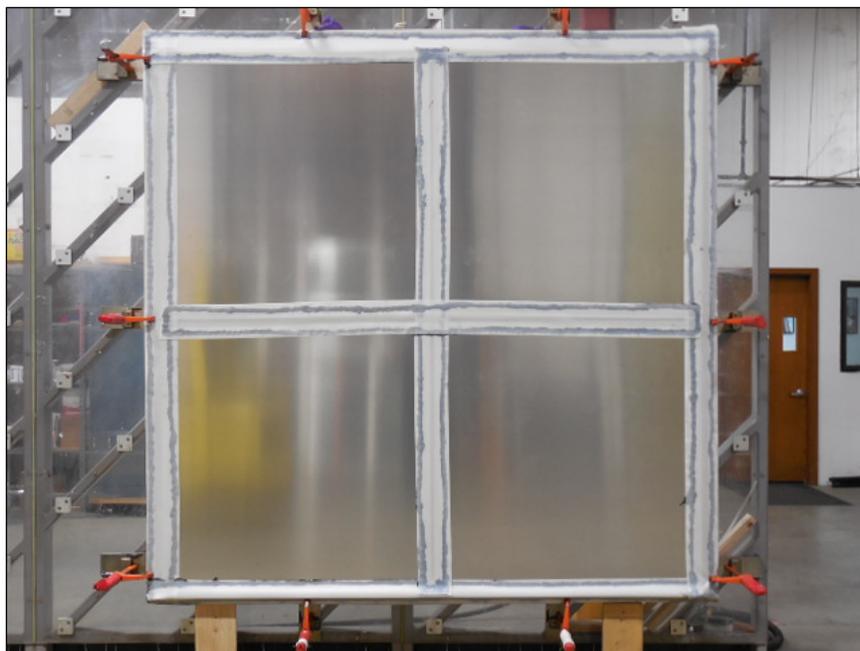
Appendix-A: Photographs (1)

Appendix-B: Drawings (12)

Appendix A
Photographs



Test Wall Interior



Test Wall Exterior

Appendix B
Drawings

NorthClad

Project Name: AAMA 508 Testing for NorthClad AL Plate System

Project No: NC0001
Address: 22155 68th Ave S
City/Zip: Kent, WA 98032-1937

Address: NorthClad
 11831 Beverly Park Rd, Bldg C
City/Zip: Everett, WA 98204

Project Manager: Michael Evers E-Mail: eversm@northclad.com
Project Engineer: Michael Evers E-Mail: eversm@northclad.com
Phone: (425) 740-3702 **Fax:** (425) 485-3503

Testing Agency: Architectural Testing

Address: 22155 68th Ave S
City/Zip: Kent, WA 98032-1937

Project Manager: Jeff Dideon E-Mail: jdideon@archtest.com
Phone: (253) 395-5656 **Fax:** (717) 764-4129 **Cell:** (206) 940-5660

Installer: NorthClad Rainscreen Solutions

Address: 11831 Beverly Park Rd, Bldg C
City/Zip: Everett, WA 98204

PM/Contact: Michael Evers E-Mail: eversm@northclad.com
Phone: (425) 740-3702 **Fax:** (425) 485-3503 **Cell:**



Architectural Testing

Test sample complies with these details.
 Deviations are noted.

Report# 07177
 Date 2/3/15 Tech DLR



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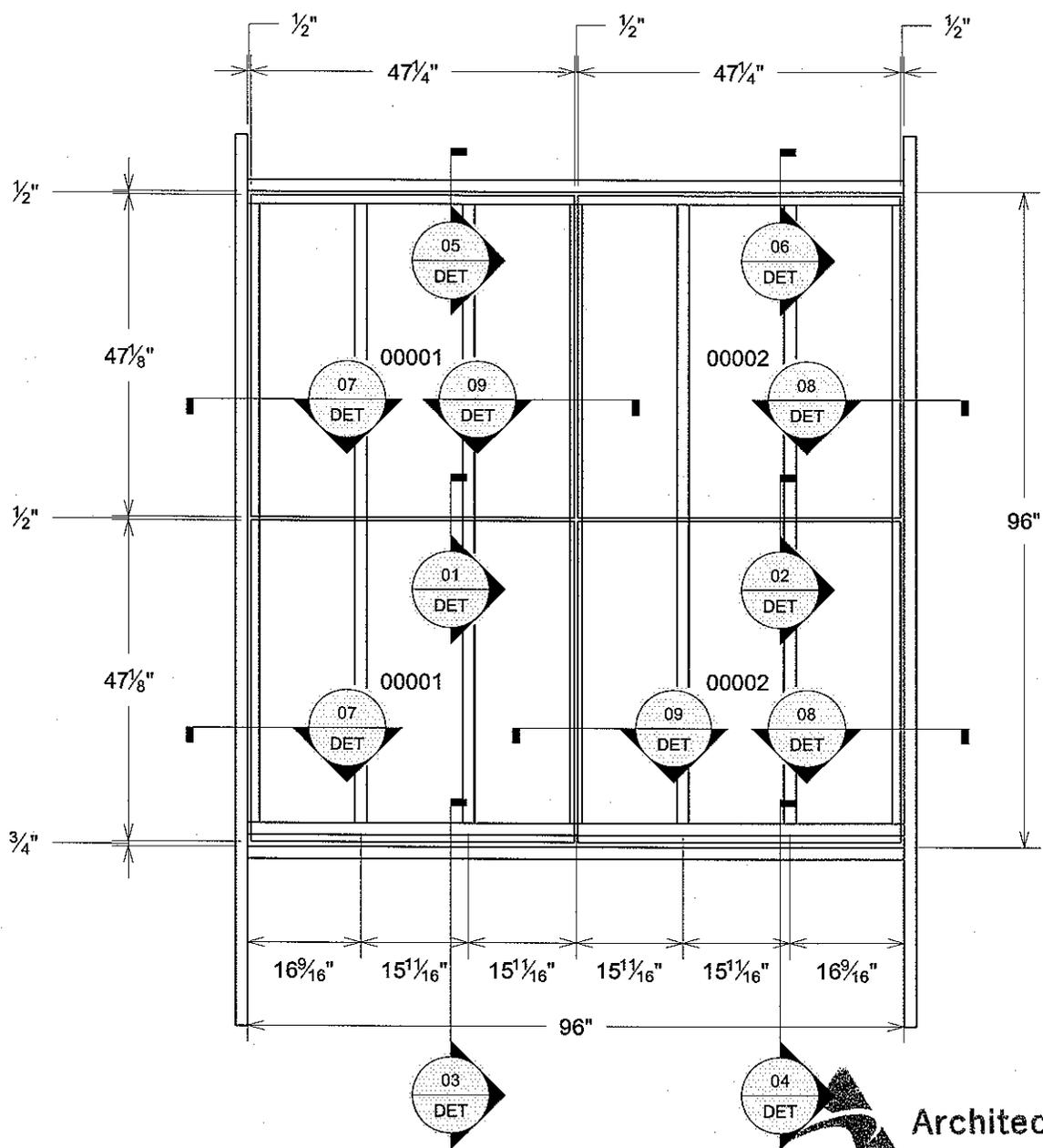
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Project
**AAMA 508 Testing
 for NorthClad AL
 Plate System**

22155 68th Ave S
 Kent, WA 98032-1937

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| Sheet Title | DET |
| Scale | |
| Job Number | NC0001 |
| Sheet | COVER |
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Architectural Testing

Test sample complies with these details.
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Key Elev NorthClad ALP Testing

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Project
**AAMA 508 Testing
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| Sheet Title | DET |
| Scale | 1/2" = 1'-0" |
| Job Number | NC0001 |
| Sheet | Key Elev |
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INDEX 1

| | |
|---|----------------------------|
| 01. Section - Horizontal Joint at Formed Return | NorthClad AL Plate Testing |
| 02. Section - Horizontal Joint at Back Routed Return | NorthClad AL Plate Testing |
| 03. Section - Base of Wall at Formed Return | NorthClad AL Plate Testing |
| 04. Section - Base of Wall at Back Routed Return | NorthClad AL Plate Testing |
| 05. Section - Top of Wall at Formed Return | NorthClad AL Plate Testing |
| 06. Section - Top of Wall at Back Routed Return | NorthClad AL Plate Testing |
| 07. Plan - Edge of Wall at Formed Return | NorthClad AL Plate Testing |
| 08. Plan - Edge of Wall at Back Routed Return | NorthClad AL Plate Testing |
| 09. Plan - Vertical Joint Between Formed Return and Backrouted Return | NorthClad AL Plate Testing |



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Architectural Testing

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Report# D7177
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0.160" Aluminum Spline

1 3/8" at Spline

2"
7/8"

"ACMFCM" Extrusion Provided In 6" Pieces, Located at 16" O.C., Attached with (1) #12 Screw

"ACMP4M" Extrusion Set in Sealant at Edge of Panel

1/4" x 1" Weep Holes 8" O.C. Typical

Countersunk Screws at 16" O.C.

SikaLastomer-511 at Spline Slot of "ACMP4M", Shop Applied, at Top of Panel, Only

"ACMP4M" Extrusion Set in Sealant at Edge of Panel

"ACMFCM" Extrusion Attached To Top "ACMP4M" Extrusion with #10 Fastener

1/8" NorthClad AL Plate Panel

Panel Dimension

Panel Dimension

1/2"

01 Section - Horizontal Joint at Formed Return
DET NorthClad AL Plate Testing



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| Sheet Title | DET |
| Scale | 3" = 1'-0" |
| Job Number | NC0001 |
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Test sample complies with these details.
Deviations are noted.

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0.160" Aluminum Spline

1 3/8" at Spline

2"
7/8"

"ACMFCM" Extrusion Provided In 6" Pieces, Located at 16" O.C., Attached with (1) #12 Screw

"ACMP4M" Extrusion Set in Sealant at Edge of Panel

1/4" x 1" Weep Holes 8" O.C. Typical

Countersunk Screws at 16" O.C.
SikaLastomer-511 at Spline Slot of "ACMP4M", Shop Applied, at Top of Panel, Only

"ACMP4M" Extrusion Set in Sealant at Edge of Panel

"ACMFCM" Extrusion Attached To Top "ACMP4M" Extrusion with #10 Fastener

1/8" NorthClad AL Plate Panel

Panel Dimension

Panel Dimension

1/2"

02 Section - Horizontal Joint at Back Routed Return
DET NorthClad AL Plate Testing



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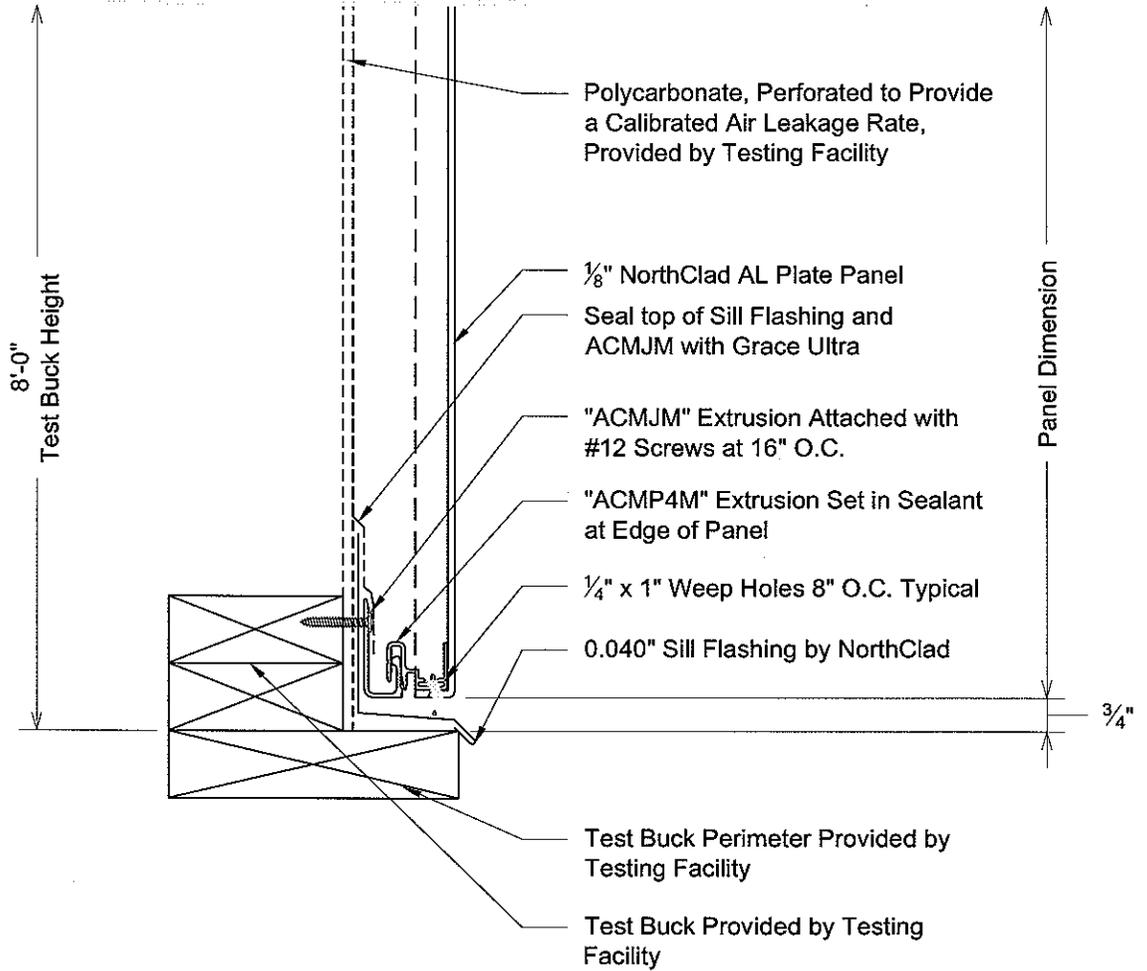
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Architectural Testing

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03 Section - Base of Wall at Formed Return
DET NorthClad AL Plate Testing



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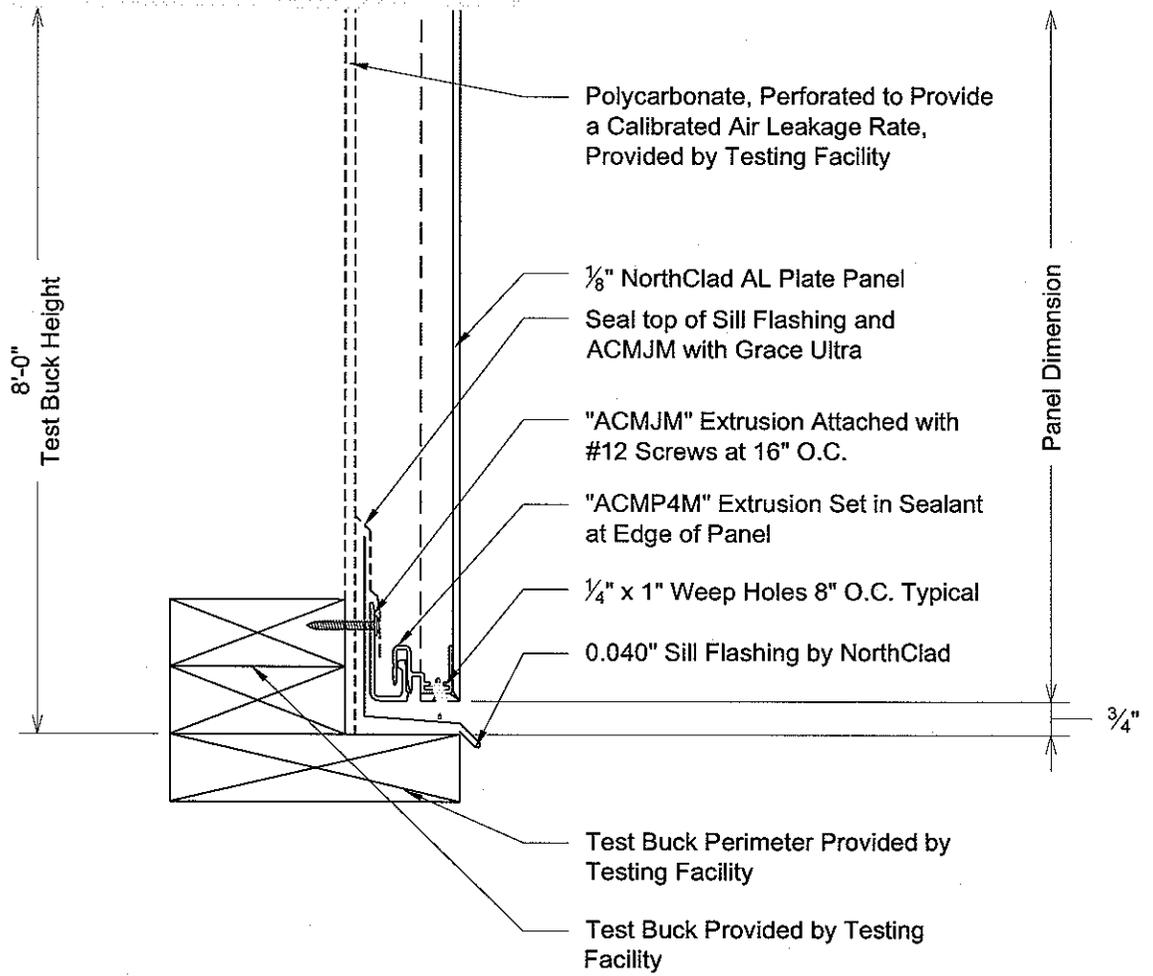
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04 Section - Base of Wall at Back Routed Return
DET NorthClad AL Plate Testing



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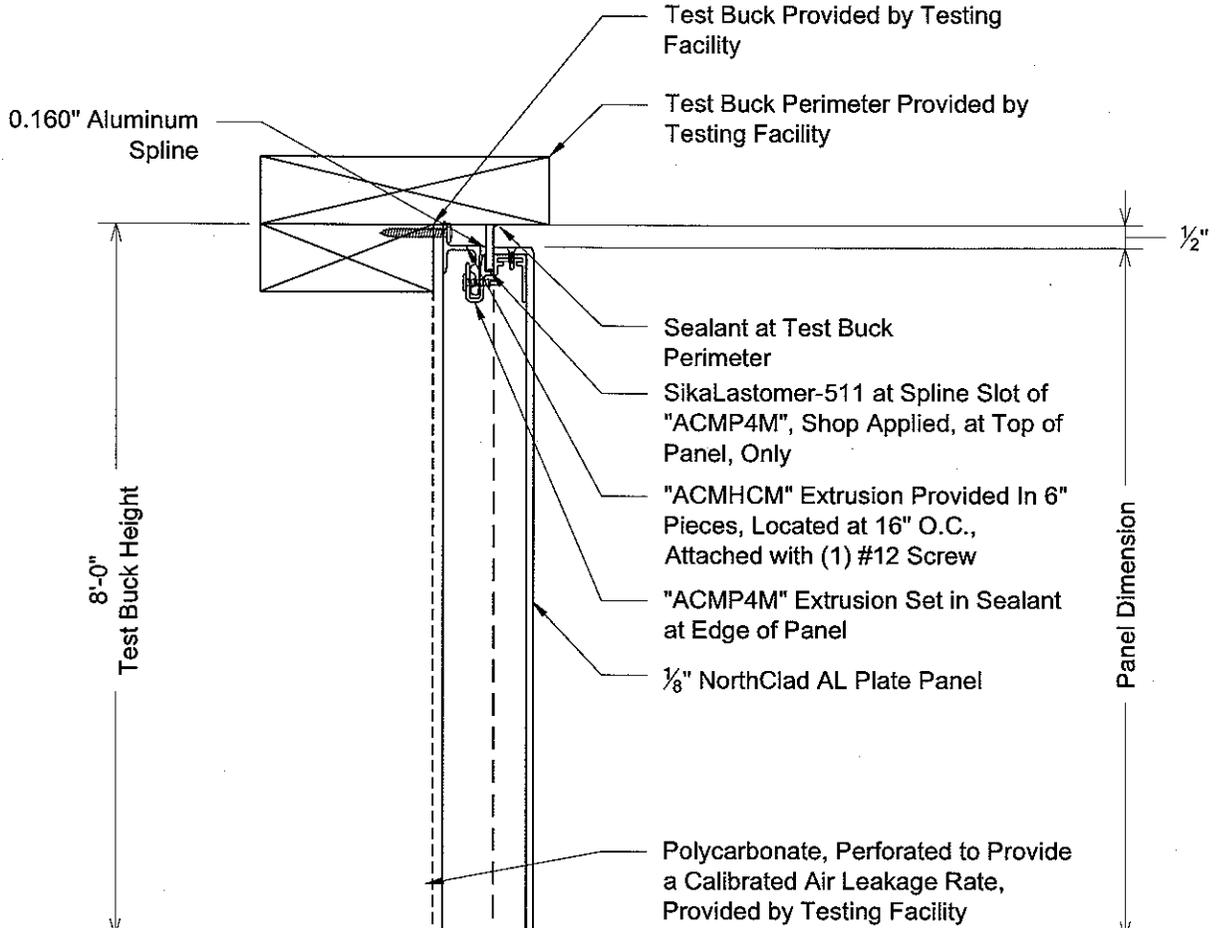
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05 Section - Top of Wall at Formed Return
DET NorthClad AL Plate Testing



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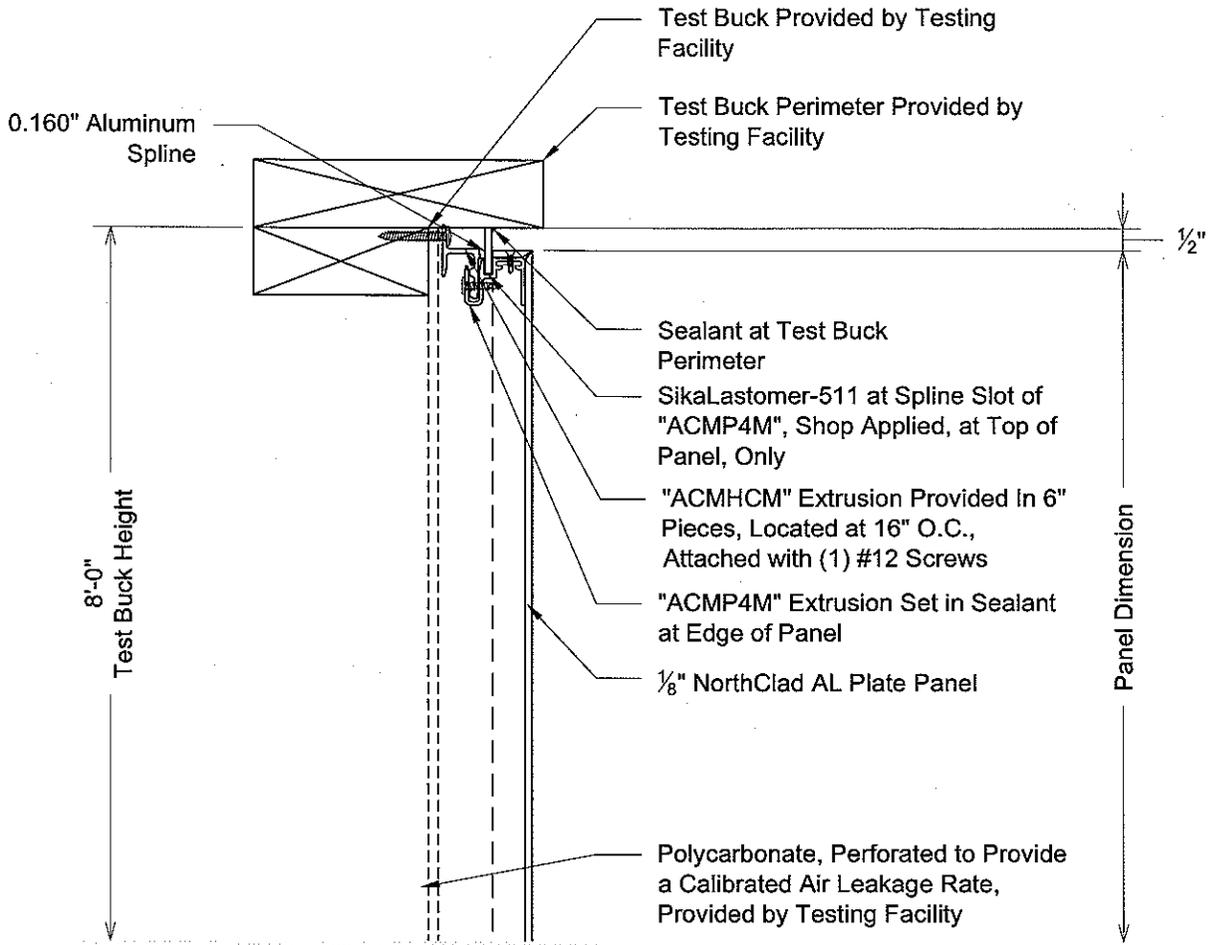
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Project
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| Sheet Title | DET |
| Scale | 3" = 1'-0" |
| Job Number | NC0001 |
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06 Section - Top of Wall at Back Routed Return
 DET NorthClad AL Plate Testing

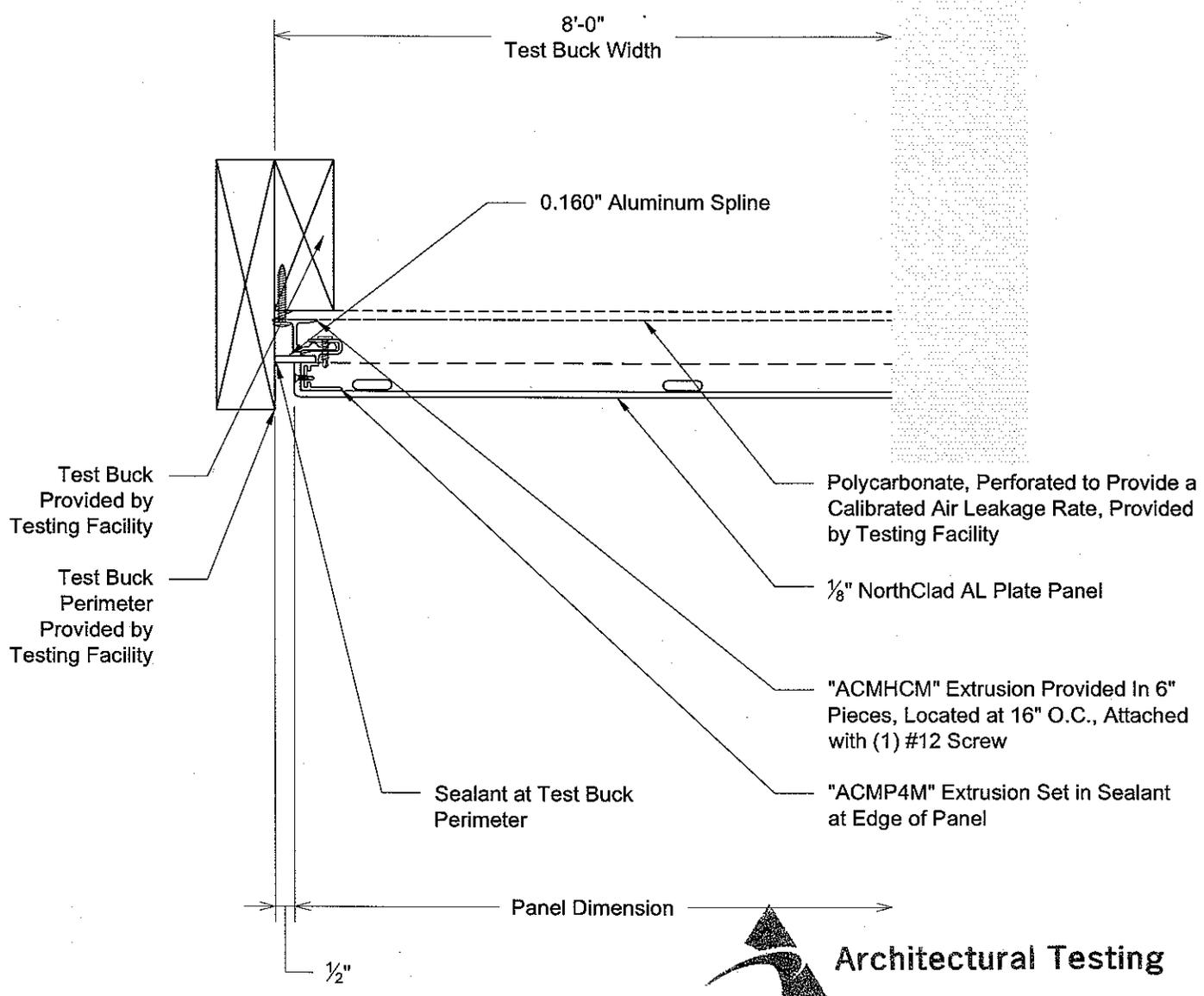
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07 Plan - Edge of Wall at Formed Return
DET NorthClad AL Plate Testing



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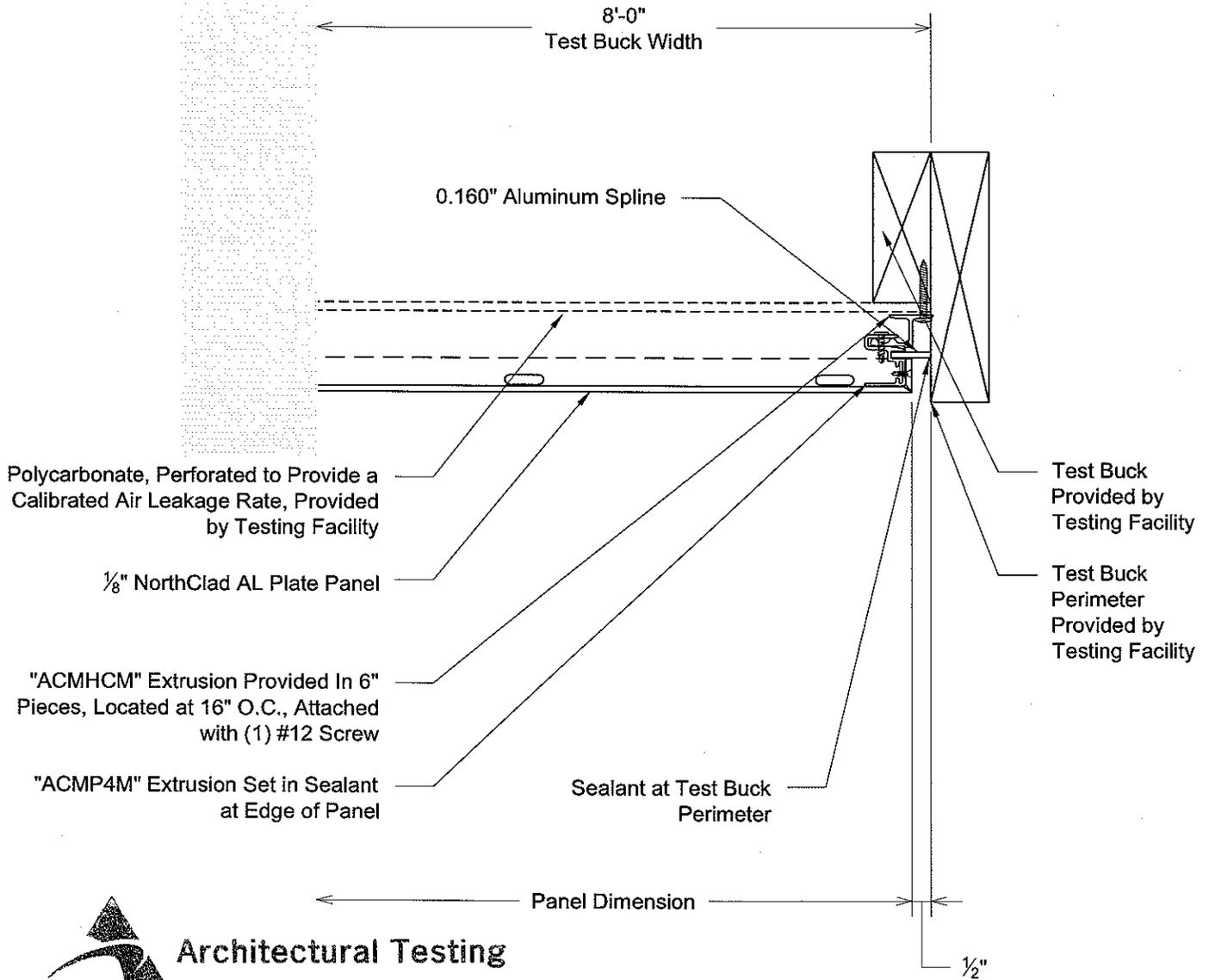
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Project
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08 Plan - Edge of Wall at Back Routed Return
DET NorthClad AL Plate Testing



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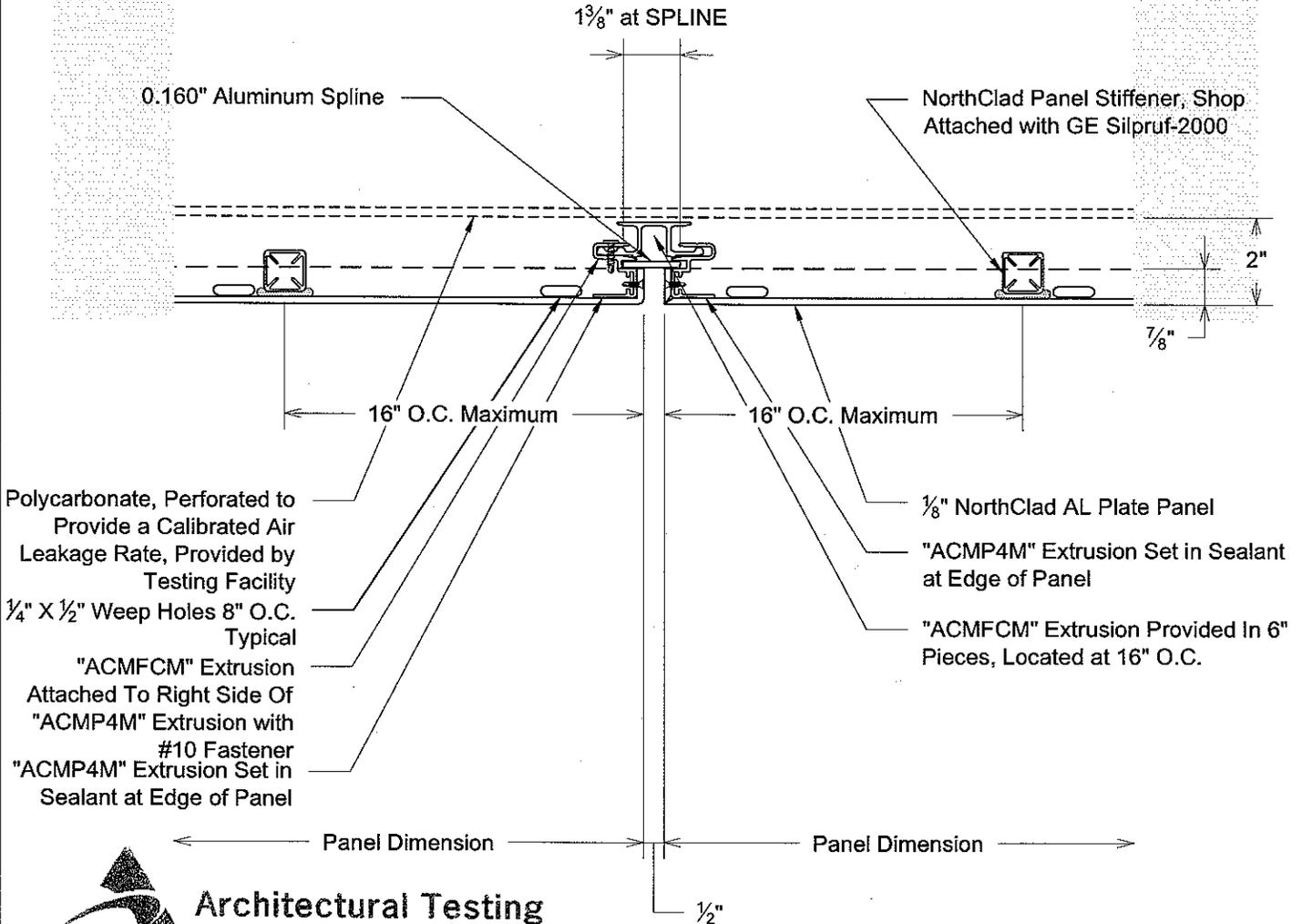
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Project
**AAMA 508 Testing
for NorthClad AL
Plate System**

22155 68th Ave S
Kent, WA 98032-1937

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| Sheet Title | DET |
| Scale | 3" = 1'-0" |
| Job Number | NC0001 |
| Sheet | 08 |
| APPROVED | |



Polycarbonate, Perforated to Provide a Calibrated Air Leakage Rate, Provided by Testing Facility
 1/4" X 1/2" Weep Holes 8" O.C. Typical
 "ACMFCM" Extrusion Attached To Right Side Of "ACMP4M" Extrusion with #10 Fastener
 "ACMP4M" Extrusion Set in Sealant at Edge of Panel

NorthClad Panel Stiffener, Shop Attached with GE Silpruf-2000

1/8" NorthClad AL Plate Panel
 "ACMP4M" Extrusion Set in Sealant at Edge of Panel
 "ACMFCM" Extrusion Provided In 6" Pieces, Located at 16" O.C.



Architectural Testing

Test sample complies with these details.
 Deviations are noted.

Report# D7177
 Date 2/3/15 Tech BLR

09 Plan - Vertical Joint Between Formed Return and Backrouted Return
 DET NorthClad AL Plate Testing



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| Sheet | 09 |
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