
**VOLUNTARY TEST AND CLASSIFICATION METHOD FOR DRAINED AND
BACK VENTILATED RAIN SCREEN WALL CLADDING SYSTEM OF THE**

“DIZAL ARCHITECTURAL ALUMINUM PANEL”

**IN ACCORDANCE WITH ASTM E283-04 (2012) AND
IN CONJUNCTION WITH AAMA 509-14 WALL CLADDING SYSTEM**

Report to:	Dizal 4000 Jean-Marchand, Suite 108 Quebec, QC G2C 1Y6
Attention:	Mr. Joël Côté-Cright
Telephone:	418-915-9400 Ext. 309
E-mail:	jcote@dizal.com
Report No.:	19-06-B0208-1 5 Pages, 1 Appendix
Proposal No.:	19-006-111940 RV1
Date:	May 7, 2020

1.0 INTRODUCTION

Element Materials Technology Inc. was retained to evaluate the "Dizal Architectural Aluminum Panel" rain screen cladding system in accordance with ASTM E283-04 (2012) and in conjunction with AAMA 509-14 as outlined in Proposal number 19-006-111940 RV1.

Note: The contents of this document refer to only the air leakage subsection as outlined in AAMA 509-14.

Upon receipt, the specimen was assigned the following Element Specimen Number:

Client Specimen Description

Dizal Architectural Aluminum Panel
(Equal Panel Scheme / 4 panels)

Element Specimen No.

19-06-B0208-1

2.0 PROCEDURE

Test Description	Test Method
Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen	ASTM E283-04 (2012)
Voluntary Test Method and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems Air Leakage Quantification	AAMA 509-14, Section 5.3 – <i>Referencing ASTM E283-04 (2012)</i>
Voluntary Test Method and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems Air Leakage Measurement	AAMA 509-14, Section 5.7 – <i>Referencing ASTM E283-04 (2012)</i>

Note: SI units are the primary units of measure.

2.0 PROCEDURE (CONTINUED)

Test Wall Section Description & Details:

The back-up test wall section (air / water barrier) was constructed in an Element test frame as per the detail drawing below in accordance with AAMA 509-14, Section 5.0.

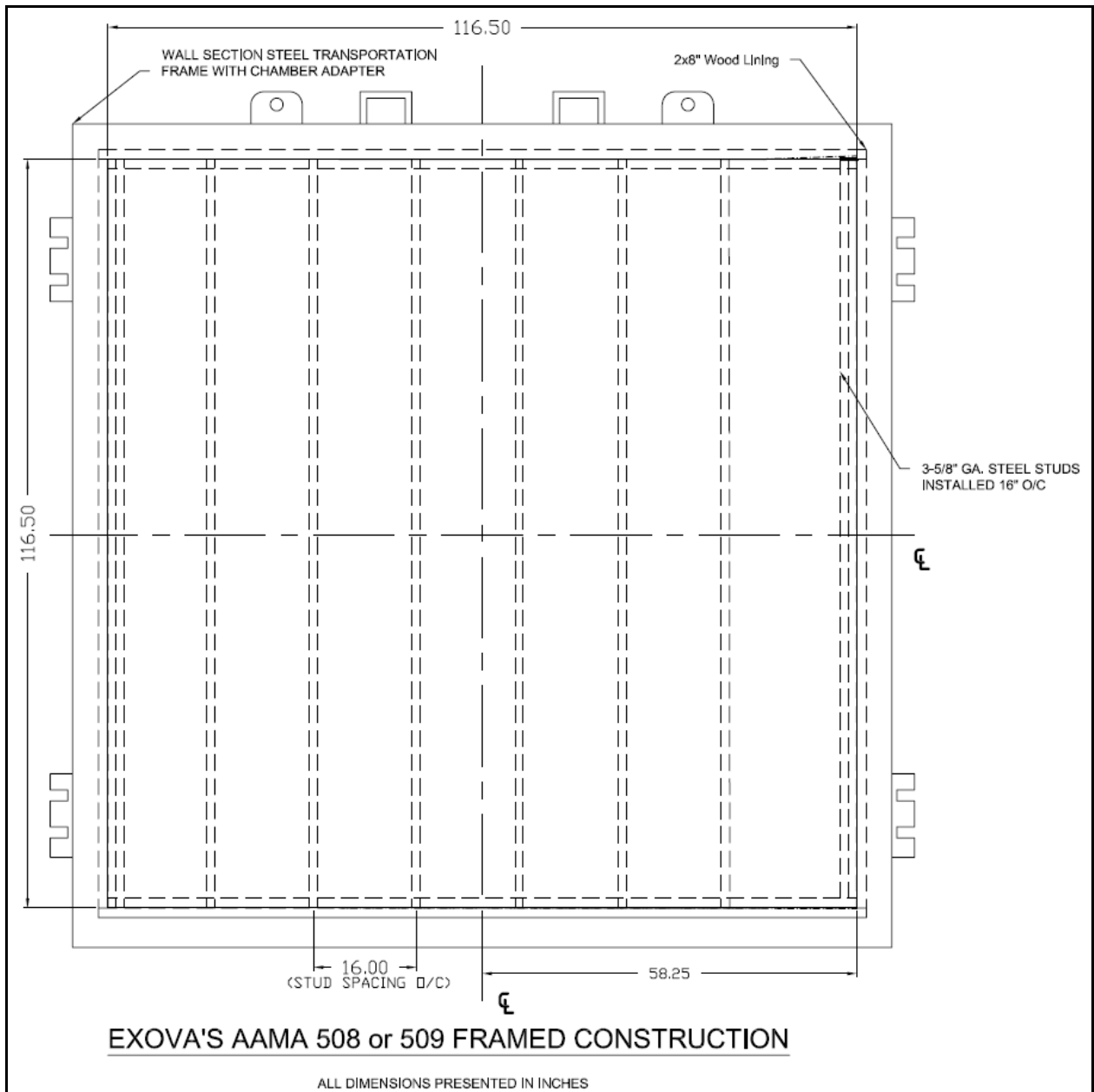


Figure 1 – Back-up Test Wall Framing Construction

2.0 PROCEDURE (CONTINUED)

Upon completion of the back-up wall, the Plexiglas joints and screw-heads were sealed to ensure the assembly was air-tight. The water drainage trough or collection system was installed onto the simulated AWB assembly, and a gate valve was installed in the upper section of the specimen.

After the air leakage validation for tightness was completed, as prescribed by AAMA 509-14, Section 5.4.1, 3 mm (0.118 inch) diameter holes were introduced equally spaced along the collection trough in order for the air / water barrier to have an air leakage rate of $0.6 \text{ L/s}\cdot\text{m}^2$ (0.12 cfm/ft^2) $\pm 10\%$ at 75 Pa (1.57 psf).

The application of the cladding system on the test back-up wall was performed by Dizal, authorized personnel on March 11, 2020, see Section 3.0 for details. As permitted by AAMA 509-14, Note 5, the perimeter of the specimen was sealed to the fixture that the wall section was constructed into. No drainage/vent holes or critical areas of the specimen that would be affected by water infiltration / drainage or differential pressure were obstructed.

3.0 TEST PANEL DESCRIPTION AND CONSTRUCTION

The following description and construction was provided by Dizal.

Rain Screen Panel Description: Aluminum composite panels were 4 mm (0.165") thick. The panels were constructed with a 3.2 mm (0.125") thick plastic core and two 0.4 mm (0.015") thick aluminum interior and exterior skins, adhered to the plastic core. The edges of all panels utilized a "J" shaped, aluminum perimeter extrusion, which is adhered to the aluminum composite panel with continuous 3M VHB tape. An "H" shaped aluminum extrusion "stiffener", 20 mm (0.78") wide x 13.55 mm (0.53") thick was adhered to the back of each panel with 3M VHB tape.

Rain Screen Wall Construction Description: The sill utilized a two-piece "starter strip base and finishing cap" along the entire length of the wall, secured to the steel studs with #8 x 1" long Tek screws, spaced 406 mm (16") on center. The bottom panels were slid into the "starter strip" and secured to the steel studs with 609 mm (24") long "double fastening strip" using #8 x 1" long Tek screws, spaced 406 mm (16") on center. The top panels were then slid into the horizontal "double fastening strips" and secured at the head with 1218 mm (48") long "starter strips" using #8 x 1" long Tek screws, spaced 406 mm (16") on center. An aluminum extrusion "screw cover strip" was used in the vertical and horizontal joints to conceal the screws and "double fastening strips".

For details of the rain screen panel system, see Appendix A.

4.0 RESULTS

Table 1 – AAMA 509-14, Section 5.4, Referencing ASTM E283-04 (2012) Summarized Air Leakage Results ⁽¹⁾ Element Specimen No.: 19-06-B0208-1 (Test Date: April 6, 2020)	
Test Pressure Differential	Infiltration
75 Pa (1.57 psf)	0.61 L/s m ² (0.12 cfm/ft ²) ⁽²⁾

⁽¹⁾ Thirty-Six (36) 3 mm diameter holes were drilled through the Plexiglas substrate, equally spaced, 6" above the drainage tracks. These penetrations were employed to simulate an air / water resistive barrier sheathing membrane imperfections in general accordance with AAMA 509-14, Section 5.2.2.

Table 2 – AAMA 509-14, Section 5.7, Referencing ASTM E283-04 (2012) Air Flow Measurement Across Cladding Elements Element Specimen No.: 19-06-B0208-1 (Test Date: April 6, 2020)								
Data	Head	Horizontal (Centre)	Sill	Vertical (Left)	Vertical (Centre)	Vertical (Right)	Sum L/s (cfm)	L/s/m ² (cfm/ft ²)
L/s (cfm)	2.18 (4.63)	2.15 (4.55)	2.43 (5.16)	2.35 (4.98)	2.14 (4.53)	2.15 (4.57)	13.41 (28.42)	2.19 (0.43)
L/s/m (cfm/ft)	0.89 (0.58)	0.90 (0.58)	0.99 (0.64)	0.98 (0.64)	0.89 (0.58)	0.90 (0.58)	Not Required	Not Required

- Air Leakage of Back-Up Wall (air / water barrier): **0.61 L/s m² (0.12 cfm/ft²)**

5.0 SYSTEM MODIFICATIONS

No modifications were made to the system as shown respectively in Appendix A.

6.0 DISCUSSION

The Dizal, "Dizal Architectural Aluminum Panel" (Element Specimen No. 19-06-B0208-1) identified in this report was tested to ASTM E283-04 (2012) and the results are reported herein.

7.0 REVISION HISTORY

Report No:
19-06-B0208-1

Date:
May 7, 2020

Description of Revisions:
Original Document

Reported & Authorized by:

Reviewed by:



Allan Lawrence, Ext. 11212
Supervisor, Building Science
Building Science Division

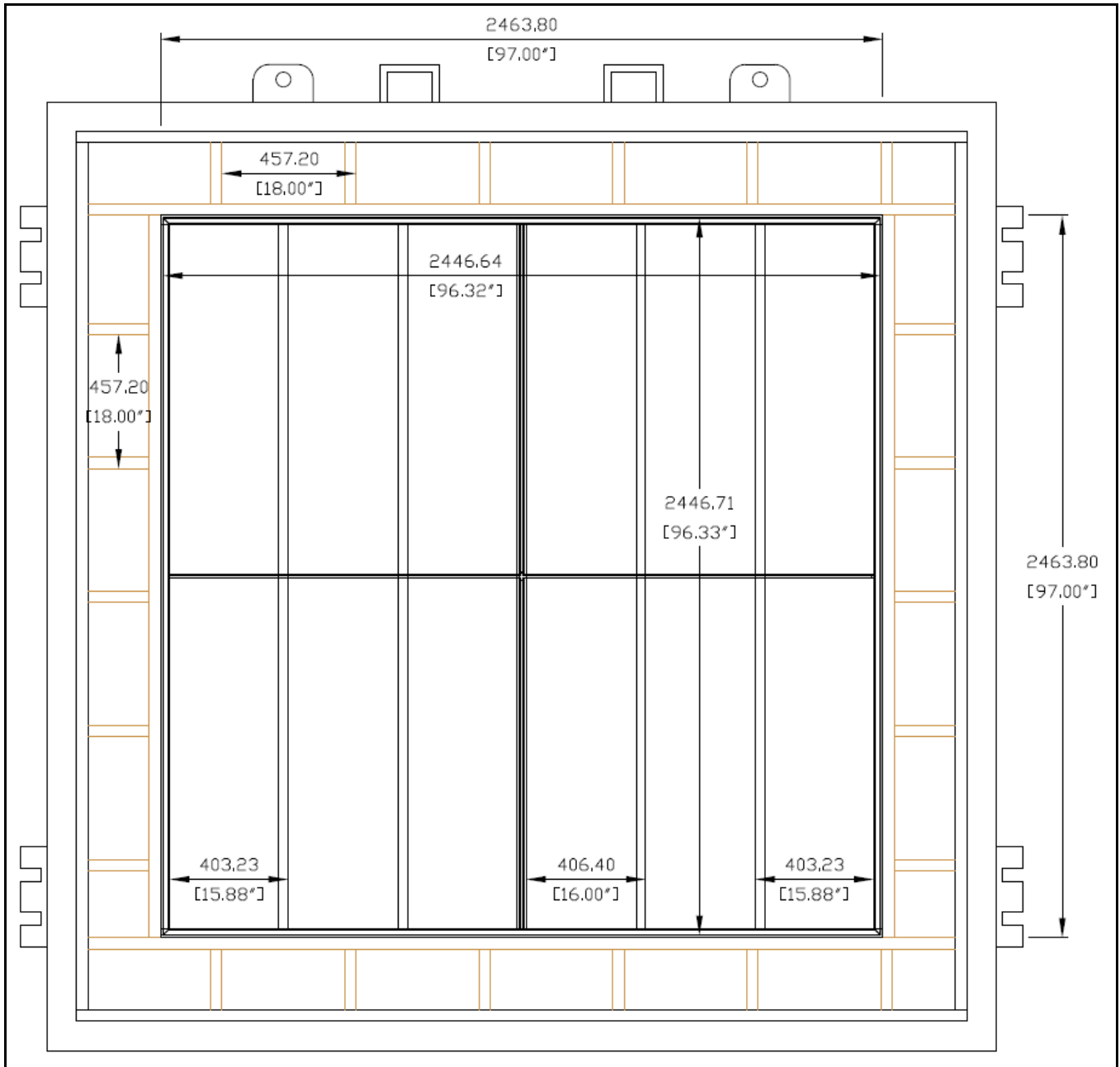


Jordan Church, B. Tech., Ext. 11546
Ops. Manager, Building Science & Fire Testing
Technical Manager, Building Systems
Building Science Division

APPENDIX A

Mock-Up Rain Screen Drawings and Product Information

(4 Pages)



HIGH DEFINITION PRINTING

ALUMINUM

Highly resistant commercial grade, fire-resistant aluminum. Exceptional strength to weight ratio, perfect for all types of applications, interior and exterior.

PRIMER COAT

Specially formulated primer coat assures optimal adhesion between ACM panels and digital inkjet print.

HD PRINTING

A high-definition digital inkjet printer is used to print images of a wide range of scanned textures and outstanding color variations.

Z-CLEAR

A protective clear coat is applied to provide long-term protection against UV rays and fading.



TESTS & CERTIFICATIONS*

- . ASTM E84 - Fire Resistance
- . ASTM G155 - UV Resistance
- . ASTM E283 - Static air infiltration
- . ASTM E330 - Structural performance
- . ASTM D6578 - Graffiti Resistance
- . ASTM D3359 - Adhesion Testing
- . ASTM E331 - Static water contacting AWB
- . AAMA 501.1 - Dynamic Water infiltration test
- . AAMA 509 - Rain Screen Performance
- . ASTM D4060 - Abrasion Resistance
- . LEED V4

* visit our website at www.dizal.com for more information

PARTS AND ACCESSORIES

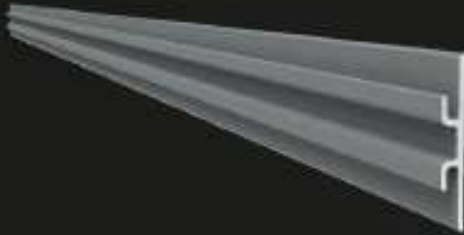
STARTER STRIP AND FINISHING PART



- Two-part aluminum extrusion snapped together to hide screws.
- Color matching aluminum extrusion and joint.
- Innovative starter strip and finishing part creating unrivalled aesthetics.



DOUBLE FASTENING STRIP



- Double-sided insertion rail allows for a fast and easy installation.
- Symmetrical part can be used in any direction.
- Predetermined joint spacing of 3/8" (9,5 cm) between panels.

SCREW COVER STRIP



- Aluminum extrusion painted to match joint color
- Symmetrical part can be used in any direction.

