TEST REPORT

ASTM E330

REPORT NO.: 11123.01-106-11-R1

RENDERED TO: DESANA PARTNERS
Cranston, Rhode Island

PRODUCT TYPE: Brick Rainscreen System (without mortar)

SERIES / MODEL: RWD

Test	Summary of Results
Positive Design Pressure	+4800 Pa (+100.25 psf)
Negative Design Pressure	- 2840 Pa (-80.20 psf)

Test Completion Date: 1/12/2022

Reference must be made to Report No. 11123.01-106-11-R1, dated 7/28/2025 for complete test specimen description and detailed test results.

CLIENT INFORMATION: DESANA PARTNERS
68 Fox Run
Cranston, Rhode Island 02920

TEST LABORATORY: Molimo, LLC
1410 Eden Road
York, Pennsylvania 17402
717-900-6034

PROJECT SUMMARY:

PRODUCT TYPE: Brick Rainscreen System (without mortar)

SERIES / MODEL: RWD

PROJECT SUMMARY:

Molimo, LLC was contracted to perform testing on the above referenced product. The results are tested values and were secured by using the designated test method.

PROJECT DETAILS:

Test Dates: 1/12/2022

Test Record Retention End Date: 1/12/2026

Test Location: Molimo, LLC test facility in York, Pennsylvania.

Test Specimen Source: The test specimen was provided by the client. Representative samples of the test specimen will be retained by Molimo for a minimum of four years from the test completion date.

Drawing Reference: The test specimen drawings were supplied by the client. The test specimen construction was verified by Molimo and was found to be representative of the product tested. Test specimen drawings are located in Appendix B of this report.

WITNESSES:

The following representatives witnessed all or part of the testing.

Name	Company
Steve Collins	Desana Partners
Michael D. Stremmel, P.E.	Molimo, LLC
Robert J. Beatty	Molimo, LLC

TEST METHOD:

ASTM E330/E330M-21 – *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

TEST SPECIMEN DESCRIPTION:

PRODUCT SIZES:

Test Specimen #1				
Overall Area: 5.9 m^2 (64.0 ft^2)	**Width**		**Height**	
	Millimeters	**Inches**	**Millimeters**	**Inches**
Overall Size:	2438	96	2438	96

INSTALLATION: The specimen was installed onto a 2x6 16-gauge steel stud wall with studs located 16" on center and sheathed with 1/2" thick dens glass.

RAINSCREEN CONSTRUCTION AND INSTALLATION:

Rainscreen Member	Material	Detail
Field clips	Aluminum	1-9/16" base by 3-3/8" high by 2-3/8" deep, 0.10" thick 6063-T66 extruded aluminum angles. The field clips were secured with two #10 x 2" self-tapping stainless-steel fasteners per clip fastened through the clip into the studs. The clips were located 32" on center (vertically) at each stud location.
Head clips	Aluminum	1-9/16" base by 6-1/4" high by 2-3/8" deep, 0.10" thick 6063-T66 extruded aluminum. The head clips were secured with four #14 x 2" self-tapping stainless-steel fasteners per clip fastened through the clip into the studs. The clips were located at the top of each stud.
Vertical rails	Aluminum	1-1/2" wide by 1-7/8" high by 96" long, L shaped, aluminum angle. The vertical rails were secured to the field and head clips, spaced 16" on center, with two #10 x 3/4" self-tapping hex head washer screws.

TEST SPECIMEN DESCRIPTION: (Continued)

RAINSCREEN CONSTRUCTION AND INSTALLATION:

Rainscreen Member	Material	Detail
Horizontal rails	Stainless steel	96" wide by 2-1/2" high by 5/8" deep formed stainless steel with a serrated edge (teeth) at the top edge. The horizontal trays were secured WO/W, #8 x 3/4" stainless-steel, self-tapping, Phillips head screws located 16" on center (horizontally) though the horizontal trays into the vertical profile.
Brick	Clay	7-5/8" wide by 2-1/4" high by 3/4" thick. The bricks were inserted into the serrated trays with a rubber mallet and Tremco Spectrum 2 Structural Silicone between the brick and the tray.

TEST PROCEDURE:

All testing was performed in general accordance with ASTM E330. In order to facilitate testing for the rainscreen system, 4-1/2" diameter holes were cut into the Densglass exterior gypsum that was utilized on the base wall. Two holes were located in the center of each stud cavity, evenly spaced to allow for uniform distribution of pressure.

Negative Pressure Test Setup

A 2-mil plastic film was applied to the exterior side of the base wall prior to installation of the horizontal trays that held the thin brick. The plastic film was secured to the sides of the base wall with duct tape to ensure all pressure was applied to the back-side of the rainscreen system.

Positive Pressure Test Setup

The 2-mil thick plastic film that placed between the base wall and the horizontal trays was pulled through several of the holes in the base wall. The film was then cut to ensure the positive pressure was able to flow directly to the backside of the rainscreen system. A 2-mil plastic film was applied to the exterior side of the test specimen to ensure that pressure test was applied to rainscreen system.

Test Procedure

All loads were held for a duration of 10 seconds in accordance with ASTM E330. For the positive pressure test, the test pressure was increased in uniform increments until testing was stopped after achieving a Design Pressure of 100 psf. For the negative pressure test, the pressure was increased in 10 psf increments until failure of the system or base wall occurred. Deflection was measured and recorded at each load step, and permanent set was recorded after each load step.

TEST RESULTS: The temperature during testing was 16° C (60° F).

UNIFORM LOAD TESTING: (per ASTM E 330)

Design Pressure Test	Results	Allowable	Note
Deflection measured at the horizontal rail +4800 Pa (+100.25 psf) -3840 Pa (-80.20 psf)	 6.9 mm (0.27") 10.4 mm (0.41")	Report Only	1,2
Deflection measured at the horizontal rail between studs +4800 Pa (+100.25 psf) -3840 Pa (-80.20 psf)	 0.3 mm (0.01") 0.3 mm (0.01")	Report Only	1,3

#1: All loads were held for 10 seconds.

#2: The measurement span for the horizontal rail was 96".

#3: The measurement span for the horizontal rail between studs was 16".

Structural Test	Results	Allowable	Note
Permanent set at the horizontal rail +7200 Pa (+150.38 psf) -5760 Pa (-120.30 psf)	 1.5 mm (0.06") 5.1 mm (0.20")	Report Only	4,5,7
Permanent set measured at the horizonal rail between studs +7200 Pa (+150.38 psf) -5760 Pa (-120.30 psf)	 0.5 mm (0.02") <0.3 mm (<0.01")	Report Only	4,6,7

#4: All loads were held for 10 seconds.

#5: The measurement span for the horizontal rail was 96".

#6: The measurement span for the horizontal rail between studs was 16".

#7: There was not visible damage to the system at the conclusion of the test. All bricks remained firmly secured to the horizontal trays.

#8: Testing was stopped due to deformation of the back-up wall while trying to achieve the -135 psf test pressure.

***General Note**: All testing was performed in accordance with reference test methods.*

A copy of this report, detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Molimo, LLC for the entire test record retention period. At the end of this retention period, the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. This test 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 permission of Molimo, LLC.

For MOLIMO, LLC:

Robert J. Beatty
Project Manager – Product Testing

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

RJB:mds

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Photographs (1)
Appendix-B: Drawings (4)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
1	7/28/2025	Page 4	Added a test procedure section to clarify how the specimen was tested

Appendix A

Photograph

Photo No. 1
Brick Rainscreen System (without mortar)

Appendix B

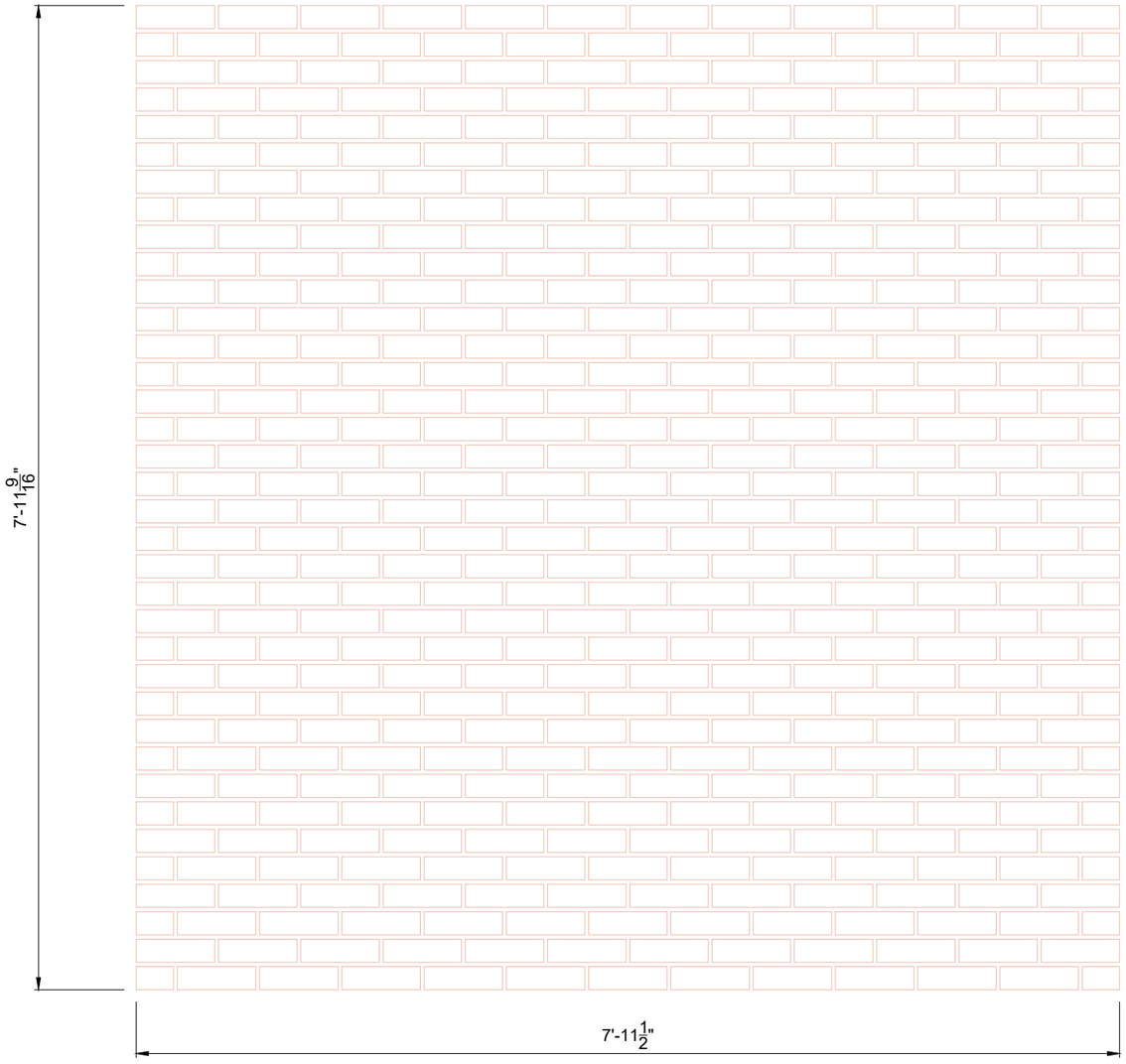
Drawings

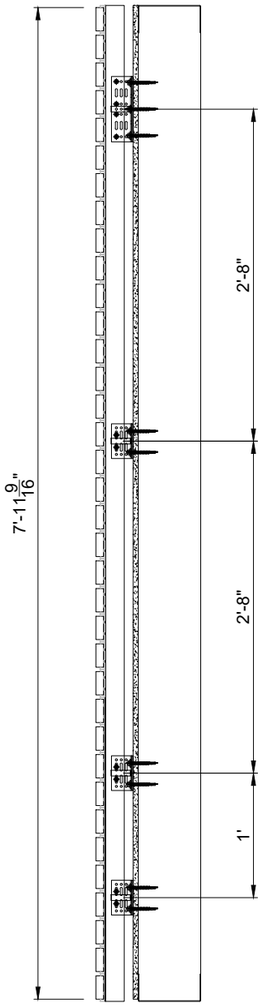
ALL ELEVATIONS ARE VIEWED FROM OUTSIDE UNLESS OTHERWISE STATED

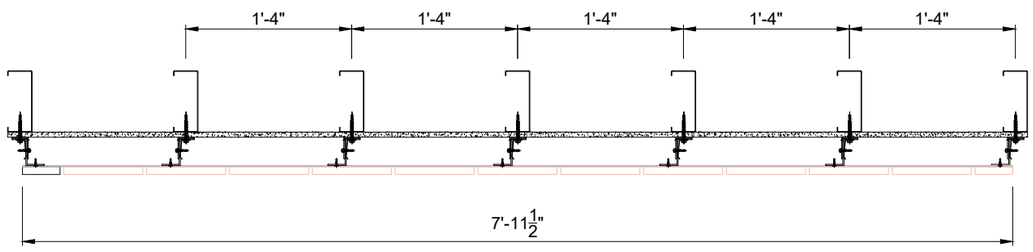
Brackets to be spaced at 32" centres max

Vertical rails space at 16" centers max

Bricks to be stack bonded
$7\frac{5}{8}$ x $2\frac{1}{4}$ x $\frac{3}{4}$"







-	04-02-22	CDB	Approval
Rev.	Date	By	Comments

Drawing Status :

FOR INFORMATION

Contract :

Desana Brick SlipTest Rig

Desana Partners
– Engineered Rainscreen Systems –

Molimo™ Architectural Product Testing

Report #:	11123.01-106-11
Date:	2/21/2022
By:	M. Stremmel

Do not scale from this drawing. If in doubt ask

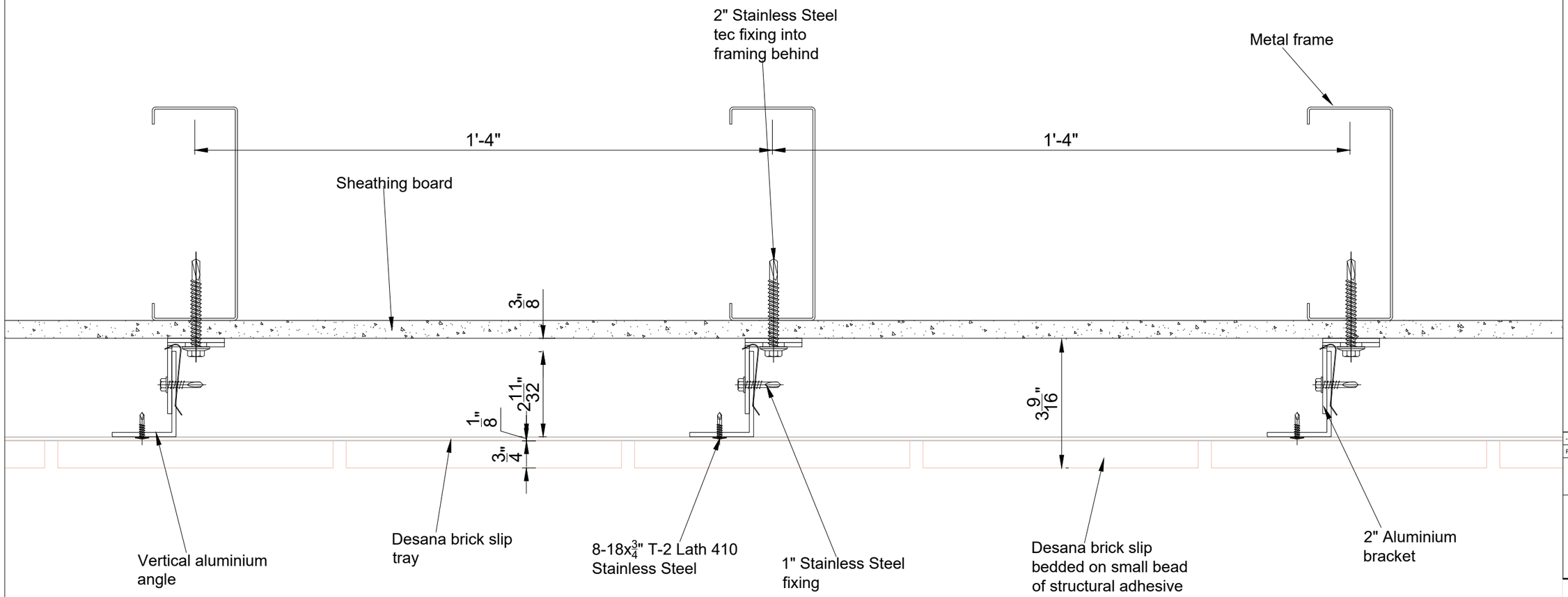
Drawing Title :

Elevation setting out to Desana Brick slip open joints

Scale : 1:7.5	Checked :	Drawn : CB
	Date :	Date : 04-02-22

Size	Drawing No.	Rev.
A1	DEN-TR-EL-001	/

ALL ELEVATIONS ARE VIEWED FROM OUTSIDE UNLESS OTHERWISE STATED



Rev.	Date	By	Comments
-	04-02-22	CDB	Approval

Drawing Status :

FOR INFORMATION

Contract :

Desana Brick SlipTest Rig

Desana Partners
– Engineered Rainscreen Systems –

Molimo™ Architectural Product Testing

Report #:	11123.01-106-11
Date:	2/21/2022
By:	M. Stremmel

Do not scale from this drawing. If in doubt ask

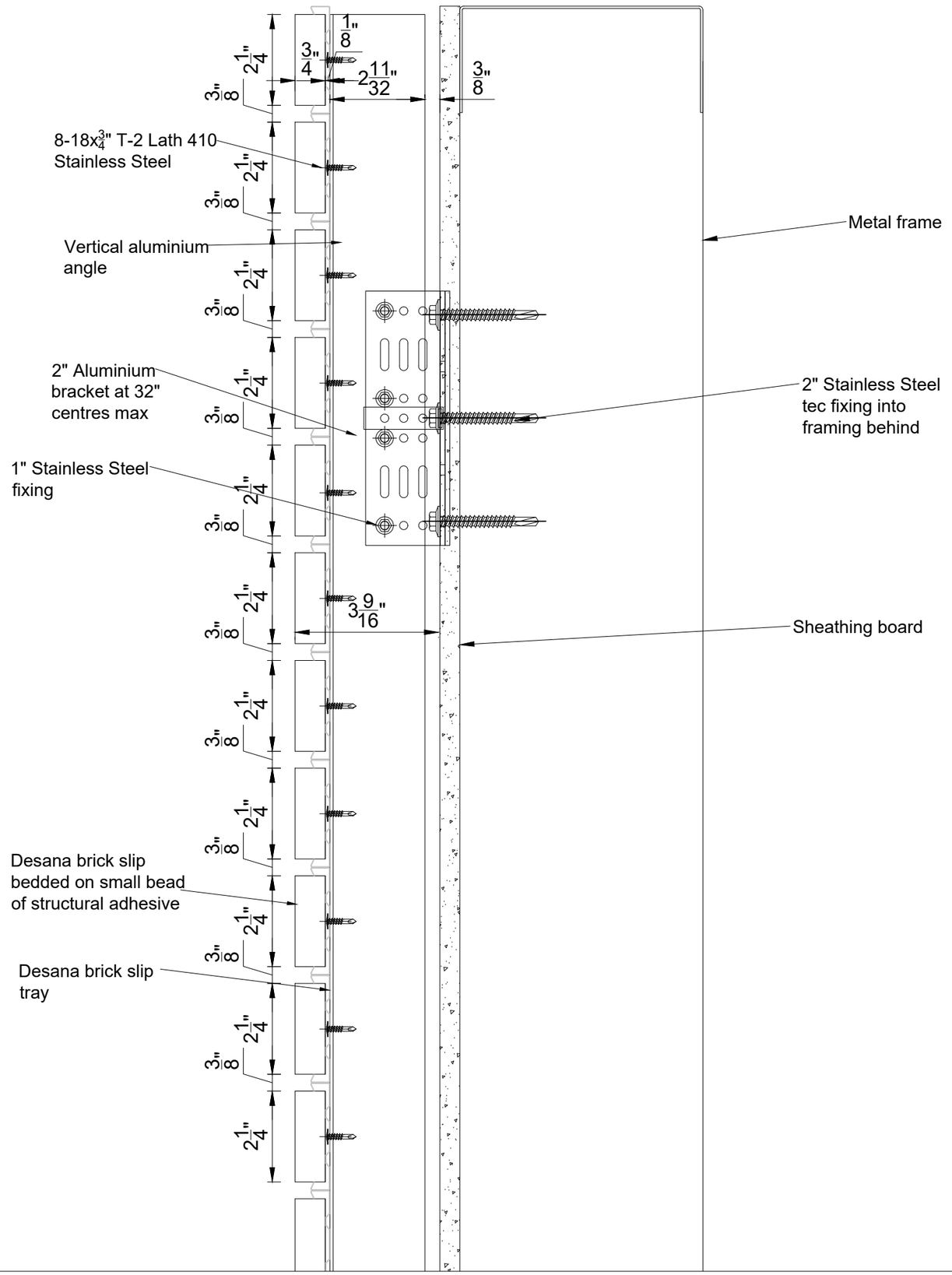
Drawing Title :

Horizontal section detail through Desana brick slip

Scale :	Checked :	Drawn : CB
1:3	Date :	Date : 04-02-22

Size	Drawing No.	Rev.
A3	DEN-TR-DT-003	/

ALL ELEVATIONS ARE VIEWED FROM OUTSIDE UNLESS OTHERWISE STATED



Rev.	Date	By	Comments
-	04-02-22	CDB	Approval

Drawing Status :

FOR INFORMATION

Contract :

Desana Brick SlipTest Rig

Desana Partners – Engineered Rainscreen Systems –

Molimo™ Architectural Product Testing

Report #:	11123.01-106-11
Date:	2/21/2022
By:	M. Stremmel

Do not scale from this drawing. If in doubt ask

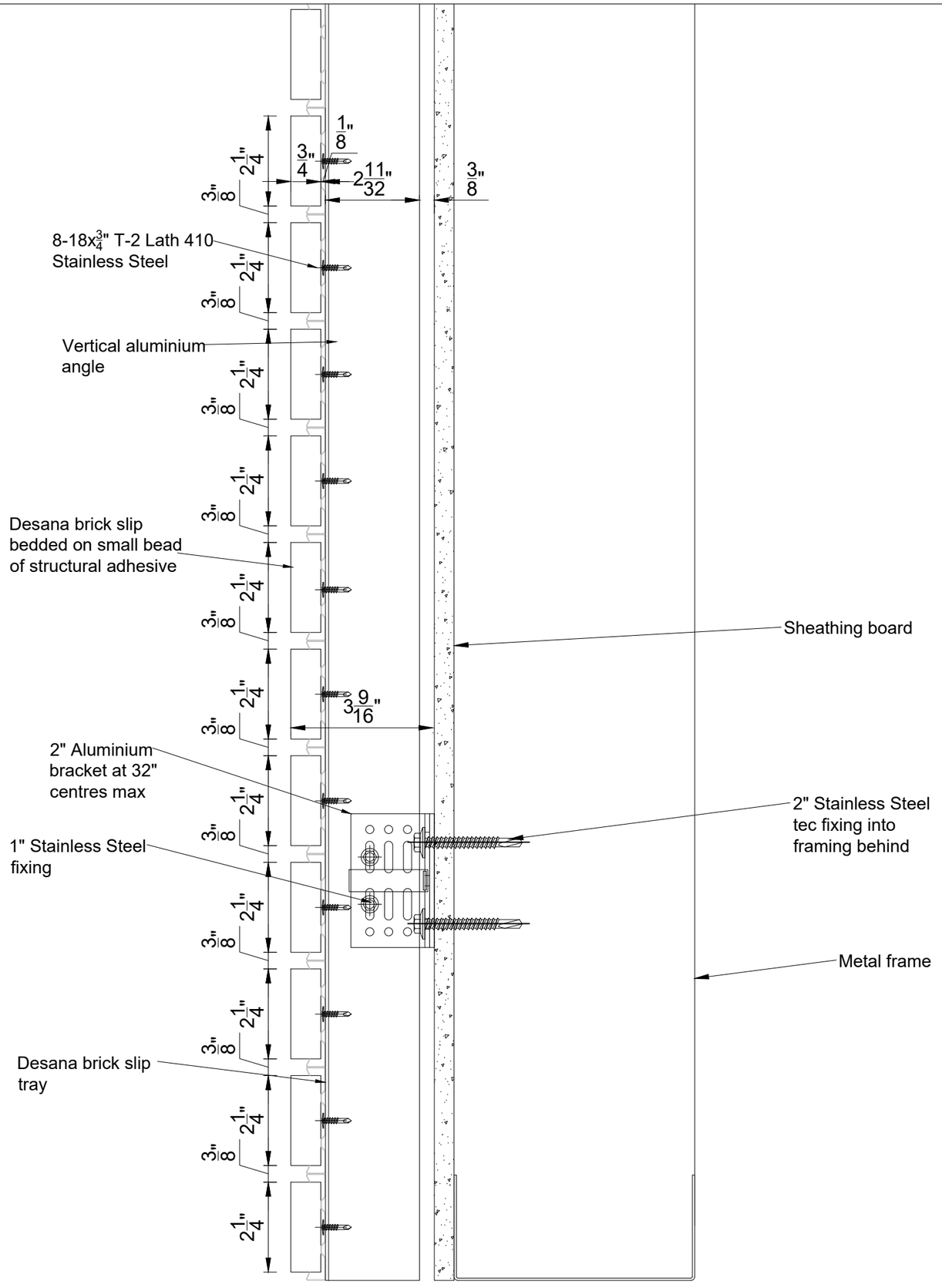
Drawing Title :

Vertical section detail through Desana brick slip head

Scale :	Checked :	Drawn : CB
1:3	Date :	Date : 04-02-22

Size	Drawing No.	Rev.
A3	DEN-TR-DT-002	/

ALL ELEVATIONS ARE VIEWED FROM OUTSIDE UNLESS OTHERWISE STATED



-	04-02-22	CDB	Approval
Rev.	Date	By	Comments

Drawing Status :

FOR INFORMATION

Contract :

Desana Brick SlipTest Rig

Desana PARTNERS – ENGINEERED RAINSCREEN SYSTEMS –

Molimo™ Architectural Product Testing

Report #: 11123.01-106-11

Date: 2/21/2022

By: M. Stremmel

Do not scale from this drawing. If in doubt ask

Drawing Title :

Vertical section detail through Desana brick slip base

Scale :	Checked :	Drawn : CB
1:3	Date :	Date : 04-02-22

Size	Drawing No.	Rev.
A3	DEN-TR-DT-001	/