

SCRENEZE, A DIVISION OF HOME IMPROVEMENT SYSTEMS, INC.

TEST REPORT

SCOPE OF WORK

DYNAMIC WIND LOAD TESTING ON SCREEN WALL SYSTEM

REPORT NUMBER

I5261.01-119-16 R0

TEST DATE(S)

06/26/18

ISSUE DATE

08/02/18

RECORD RETENTION END DATE

06/26/22

PAGES

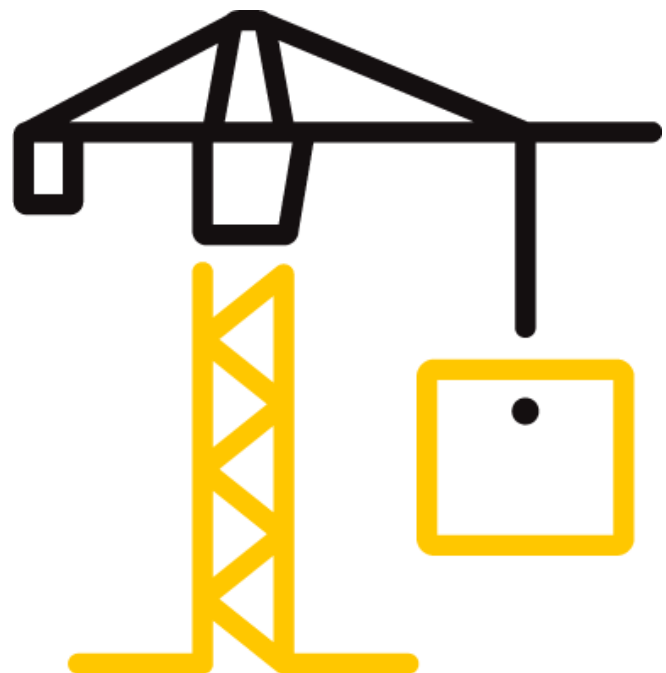
12

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RT-R-AMER-Test-2797

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TEST REPORT FOR SCREENEZE, A DIVISION OF HOME IMPROVEMENT SYSTEMS, INC.

Report No.: I5261.01-119-16 R0

Date: 08/02/18

REPORT ISSUED TO

SCREENEZE, A DIVISION OF HOME IMPROVEMENT SYSTEMS, INC.

2530 Spring Grove Avenue

Cincinnati, OH 45214

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by SCREENEZE, A Division of Home Improvement Systems, Inc. to perform dynamic wind load testing on their screen wall system. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

For INTERTEK B&C:

| | |
|----------------------|-----------------|
| COMPLETED BY: | Robert G. Spayd |
| TITLE: | Technician II |
| SIGNATURE: | |
| DATE: | 08/02/18 |

| | |
|---------------------|------------------|
| REVIEWED BY: | Travis A. Hoover |
| TITLE: | Program Manager |
| SIGNATURE: | |
| DATE: | 08/02/18 |

RGS:tah/aaa

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SECTION 2

MATERIAL SOURCE/INSTALLATION

The test sample was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of four years from the test completion date.

Client assembled the test specimen at Intertek B&C in York, Pennsylvania. A steel test fixture was designed and fabricated to simulate a rigid post embedment.

SECTION 3

EQUIPMENT

Wind Load Testing

A propeller fan wind generator was utilized for testing. The propeller was 84 in diameter and was comprised of four Kevlar composite airfoil units belt-driven by a high-output V8 engine. Wind speeds for the wind generators were calibrated according to AAMA 501.1-05. Deflections were measured with linear displacement transducers accurate to 0.01 inch.

SECTION 4

LIST OF OFFICIAL OBSERVERS

| NAME | COMPANY |
|------------------|--------------------------------|
| David Seuberling | Home Improvement Systems, Inc. |
| Robert Spayd | Intertek B&C |
| Scott Gladfelter | Intertek B&C |

SECTION 5

TEST PROCEDURES

Wind Load Testing

One screen wall section measuring approximately 89 in wide by 96 in high was tested.

Wind load testing began at 50 mph and increased until failure or a maximum wind speed of 140 mph. Wind loads were performed with a relaxation period following 80 mph, and 115 mph to record permanent set measurements. The duration of the applied wind load at each wind speed was determined by using the following equation:

$$t = 3600 / V_{fm} \text{ (Equation 1)}$$

where:

t = duration (s), required for a one mile long sample of air to pass

V_{fm} = "fastest mile" wind speed (mph)

Wind speeds used in testing correlate with "fastest mile" wind speeds (V_{fm}) for reference to codes and design standards. Maximum deflections were recorded at each load level.

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Limitations of Test

Test setup and procedure provides information for evaluation of the fence assembly to resist sustained wind speeds indicated in the test results. This evaluation includes the transfer of wind loads to the mesh screen infill, rails, and support posts. The posts only support a single section of fence in this simulation and are therefore not fully evaluated for actual field conditions.

SECTION 6

TEST SPECIMEN DESCRIPTION

| | |
|---------------------|---|
| SERIES/MODEL | Screen Wall System |
| DESCRIPTION | The 89 in wide x 96 in high mesh screen wall was installed into a pressure treated 4x4 frame. The screen wall consists of aluminum molding angle with PVC perimeter strip that secures the mesh screen in place. The aluminum molding angle was fastened to the preservative treated 4x4 frame using #10-12 x 1-1/4 in square-drive, pan head, self-drilling screws at 12 in on-center. At the corners of the screen wall, PVC corner brackets are used to maintain a secure fit of the screen and the perimeter frame members. The corner bracket was fastened using a #6-18 x 1-1/4 in phillips-drive, flat-head screw. Refer photographs in Section 9 and drawings in Section 10 for additional details. |

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SECTION 7

TEST RESULTS

Wind Load Testing

Test Date: 06/26/18

Ambient Air Temperature: 27°C (81°F)

| WIND SPEED | DURATION | MAXIMUM DEFLECTION (inches) | | |
|---------------|----------|-----------------------------|-----------------|--------|
| | | TOP | MID | BOTTOM |
| 50 mph | 72 sec | 1.21 | 4.16 | 0.17 |
| 60 mph | 60 sec | 1.57 | 4.89 | 0.23 |
| 70 mph | 51 sec | 2.01 | 5.74 | 0.27 |
| 75 mph | 48 sec | 2.26 | 5.85 | 0.30 |
| 80 mph | 45 sec | 2.62 | 6.44 | 0.34 |
| Permanent Set | 60 sec | 0.53 | 0.61 | 0.10 |
| 90 mph | 40 sec | 4.02 | 7.70 | 0.43 |
| 100 mph | 36 sec | 4.41 | 8.13 | 0.46 |
| 115mph | 33 sec | 7.02 | 10.00 | 0.58 |
| Permanent Set | 60 sec | 0.93 | 1.17 | 0.16 |
| 120 mph | 30 sec | 7.63 | 10.48 | 0.62 |
| 130 mph | 28 sec | 10.21 | 16.14 | 0.73 |
| 140 mph | 26 sec | 13.42 | -- ¹ | 0.90 |

Observation: No visible damage at the completion of the test.

Maximum Sustained Wind, $V_{fm} = 140$ mph (equivalent $V_{3s} = 158$ mph)

¹ Linear transducer disconnected from the screen wall system.

SECTION 8

CONCLUSION

Intertek-ATI will service this report for the entire test record retention period, a period of four years from the original test date. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek B&C for the entire test record retention period.

Results obtained are tested values and were secured using the designated test methods. 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 specimens tested. This report may not be reproduced, except in full, without the written approval of Intertek B&C.

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SECTION 9 PHOTOGRAPHS



Photo No. 1

Test Setup - Screen Wall System Installed in Rigid Steel Test Fixture

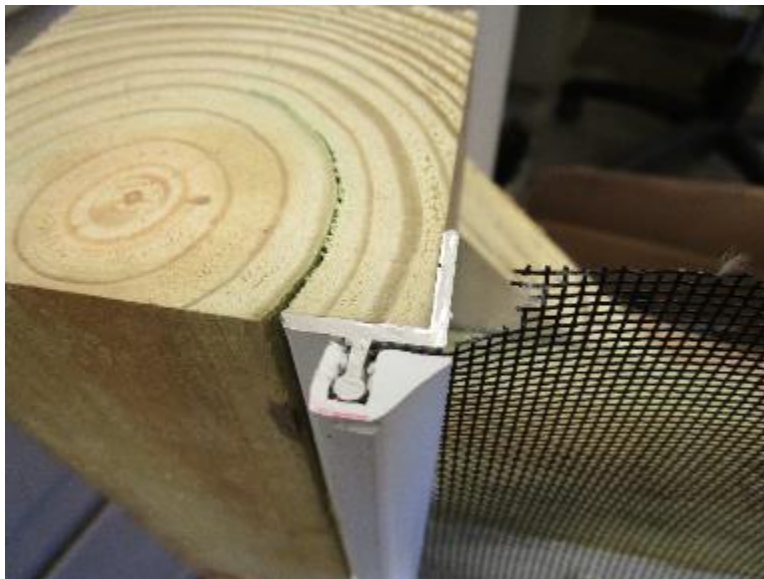


Photo No. 2

Aluminum Molding / PVC Perimeter Strip Installation with Mesh Screen

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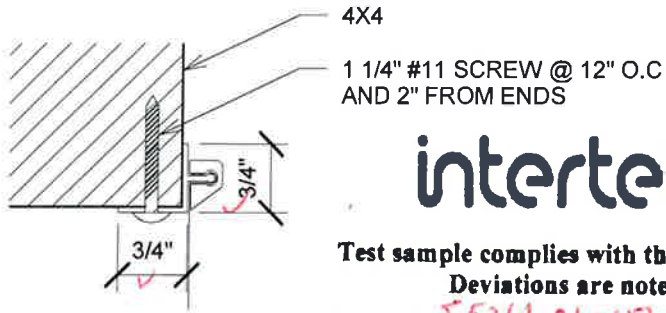
Date: 08/02/18



Photo No. 3
Corner Bracket Installation

SECTION 10 **DRAWINGS**

The "As-Built" drawings for the screen wall system which follow have been reviewed by Intertek B&C and are representative of the project reported herein. Project construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

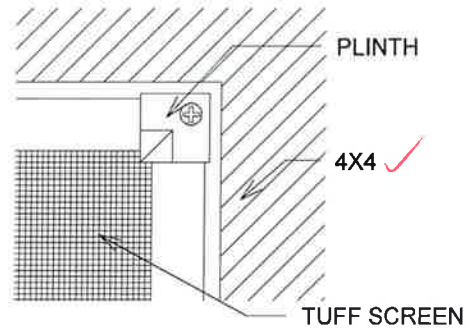


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**Test sample complies with these details.
Deviations are noted.**

Report # I5261.01-117-16

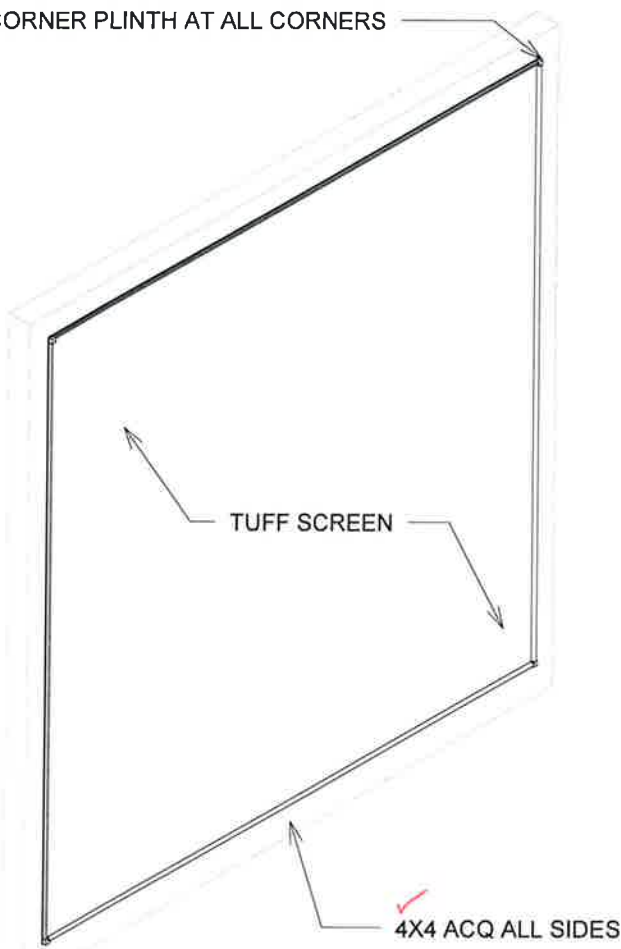
Date 8/2/18 Tech 516



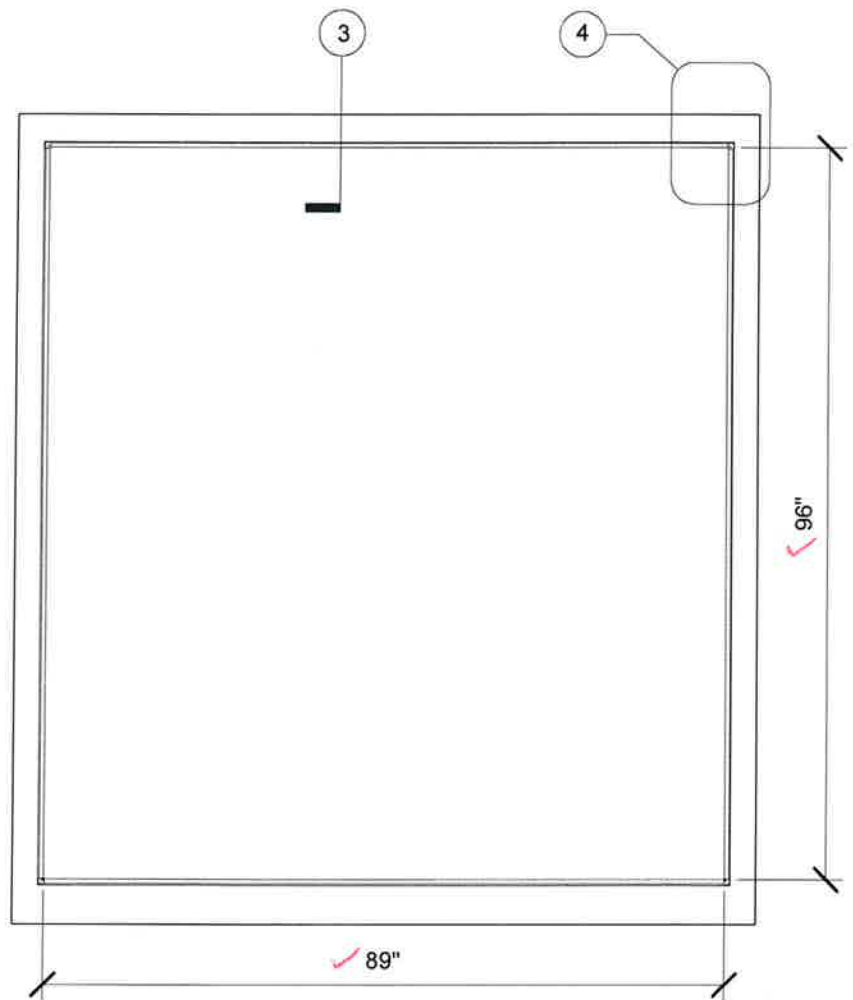
③ EXTERIOR CORNER MOUNT DETAIL

④ CORNER PLINTH DETAIL

CORNER PLINTH AT ALL CORNERS



① 3D ISOMETRIC



② ELEVATION

WIND

TESTING ILLUSTRATIONS FOR INTERTEK

DATE : 08.02.18

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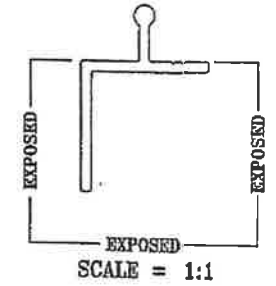
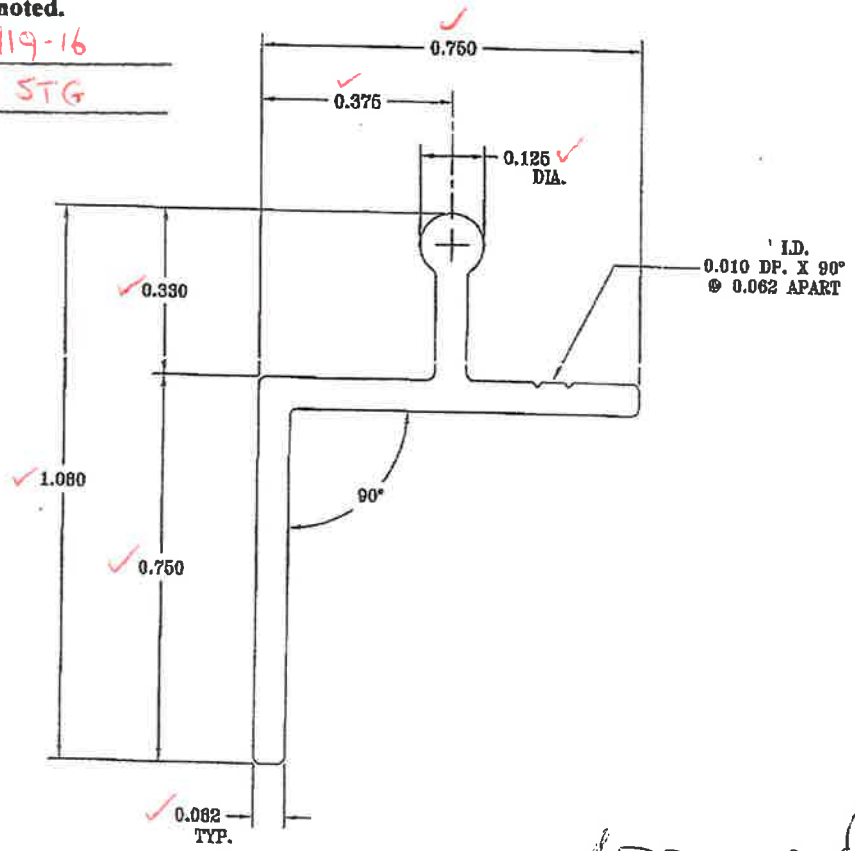
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Test sample complies with these details.
Deviations are noted.

Report # I5261.01-119-16

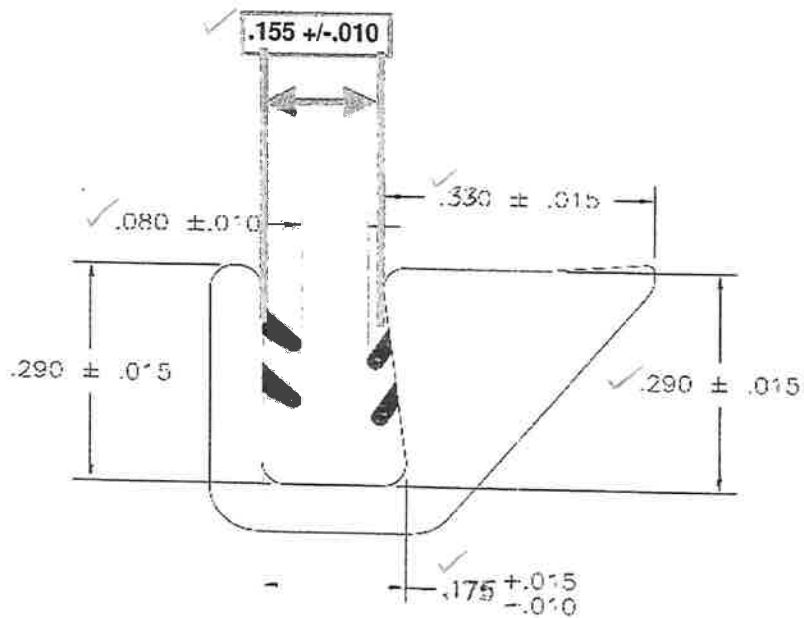
Date 7/18/18 Tech STG



APPROVED *[Signature]*
9/11/13

Accepted By: *[Signature]*
Date: 9-11-13

| | | | | | | | | |
|---|-----------------------------|---------------|------------------------|-----------|------------|----------------------|--------|-------|
| STANDARD TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE | Area: | 0.114 sq.in. | Full Perimeter: | 3.665 in. | Customer: | EASTERN METAL SUPPLY | | |
| | Weight: | 0.137 lb./ft. | Fin. Perimeter: | 2.241 in. | Part Name: | MOLDING ANGLE | | |
| | Unspecified Wall Thickness: | 0.082 | All R/S Corner Radius: | 0.015 | Part #: | Series Title: | | |
| | | | | | Factor: | 27 | Type: | SOLID |
| | | | | | Material: | 6005-T5 | | |
| | | | | | Date: | 07/16/13 | Scale: | 3 : 1 |
| | | | | | Design: | MOLDING ANGLE.dwg | | |
| | | | | | Designer: | J HALTERMAN | | |



| | |
|----------------|-----|
| R _F | 510 |
| R _L | 510 |
| R _F | 510 |
| R _L | 510 |

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Test sample complies with these details.
Deviations are noted.

Report # I5261.01-1A-16

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SECTION 11
REVISION LOG

| REVISION # | DATE | PAGES | REVISION |
|------------|----------|-------|-----------------------|
| 0 | 08/02/18 | N/A | Original Report Issue |