NEGATIVE WIND PRESSURE TEST ON EXTERIOR SHEATHING
FOR MANUFACTURED HOUSING APPLICATIONS:
SINGLE 2X4 STUD GRADE SPF ON 16-IN. CENTERS SHEATHED ON THE EXTERIOR WITH
3/8-IN. APA SPAN RATED 24/0 OSB AND
CLIPSTONE LEDGESTONE BLACK RUNDER FLATS SIDING FOR
96-IN. TALL EXTERIOR WALLS WIND ZONE II, CORNER

Prepared for:
Environmental StoneWorks
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Phone: (303) 309-3040
Web: www.estoneworks.com

Test Report: ESW071417-1
Issued: November 9, 2017

Prepared By:
Brad Wear
Test Engineer

Reviewed By:
Douglas Berger, P.E.
Test Engineer

This report contains only findings and results arrived at after employing the specific test procedures listed herein. It does not constitute a recommendation for, endorsement of, or certification of the product or material tested. NTA, Inc. makes no warranty, expressed or implied, except that the test has been performed, and a report prepared, based upon the specimen furnished by the client. Extrapolation of data, from the test data provided herein, to the batch or lot from which the specimens were obtained may not correlate and should be interpreted with extreme caution. NTA, Inc. assumes no responsibility for variations in quality, composition, appearance, performance, or other features of similar materials produced by the client, other persons, or under conditions over which NTA, Inc. has no control. NTA, Inc. has issued this report for the exclusive use of the client to whom it is addressed. Any use or duplication of this report shall not be made without their consent. This report shall only be reproduced in its entirety.

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1. INTRODUCTION

Environmental StoneWorks retained NTA, Inc. to perform negative wind pressure load tests on wall assemblies constructed with their exterior siding. The purpose of this evaluation was to assess the suitability of sheathing wall assemblies for use in manufactured home construction when subjected to simulated negative wind pressure in accordance with Section 3280.401(b) of the Federal Manufactured Home Construction and Safety Standards (FMHCSS). General test parameters and pass/fail criteria, in accordance with the FMHCSS, are summarized in Table 1, below. All tests were conducted at the NTA, Inc. test facility located in Nappanee, Indiana.

<table>
<thead>
<tr>
<th>Table 1: Test Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
</tr>
<tr>
<td>FMHCSS Wind Zone</td>
</tr>
<tr>
<td>Corner/Non-Corner</td>
</tr>
<tr>
<td>Design Pressure</td>
</tr>
<tr>
<td>Deflection Limit</td>
</tr>
<tr>
<td>Clear Height, ( h )</td>
</tr>
<tr>
<td>Specimen Width, ( w )</td>
</tr>
<tr>
<td>Uniform Load Application</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

2. TEST PROGRAM

2.1. DEVIATIONS FROM TEST STANDARD

The testing detailed herein was performed with no modifications to the test standard.

2.2. DESCRIPTION OF TEST SPECIMENS

Three similar test assemblies were constructed from the sample siding material provided by the client. A diagram of the test assembly is provided in Figure 1. Additional photographs of materials and construction of specimens are provided in Figures 2 through 13.

NTA, Inc. randomly selected lumber for constructing specimens to represent average quality. NTA, Inc. provided commonly available construction materials and assembled each specimen to the client’s specifications.

Representative material was sampled from inventory by Quality Control Consultants, LLC personnel on August 1, 2017 at the client’s manufacturing facility located in North Branch, MN. As necessary, NTA, Inc. provided commonly available construction materials and assembled each specimen to the client’s specifications.
Table 2: Materials

<table>
<thead>
<tr>
<th>Location</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studs</td>
<td>Single 2 x 4 Stud Grade SPF at 16-in. oc</td>
</tr>
<tr>
<td>Top Plate</td>
<td>Single 1 x 4 Ungraded SPF</td>
</tr>
<tr>
<td>Bottom Plate</td>
<td>Single 1 x 4 Ungraded SPF</td>
</tr>
</tbody>
</table>
| Exterior Sheathing| 3/8-in. APA Span Rated 24/0, Exposure 1 OSB  
(1) 96-in. x 48-in. Sheet Applied Vertically  
Strength Axis Parallel to Length |
| Exterior Siding   | ClipStone Ledgestone Black Runder Flats, 4-in. tall x 1-1/2-in. Thick x 
Lengths of 15-1/2, 13-1/2, 11-3/4, 10-1/2, or 7-3/4-in.  
Model MN 160224  
SKU CSM.11.010.30 |
| Interior Sheathing| 5/16-in. x 48-in. x 96-in. Square Edge USG Gypsum                       |

Table 3: Fastening Schedule

<table>
<thead>
<tr>
<th>Connection</th>
<th>Fastener</th>
<th>Quantity or Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Plate-to-Studs</td>
<td>7/16-in. x 1-3/4-in. x 15 Ga. Senco Staple #Q19BRB</td>
<td>3</td>
</tr>
<tr>
<td>Bottom Plate-to-Studs</td>
<td>7/16-in. x 1-3/4-in. x 15 Ga. Senco Staple #Q19BRB</td>
<td>3</td>
</tr>
<tr>
<td>Exterior Sheathing-to-Studs</td>
<td>7/16-in. x 1-1/2-in. x 16 Ga. Senco Staple #N17BRB</td>
<td>6/6 a (3/8-in. Edge Distances)</td>
</tr>
<tr>
<td>Exterior Siding</td>
<td>#8 x 1-1/4-in. Buildex Teks Lath Screws, Part #21512, #2 Phillips Head</td>
<td>Through hole in the top of each of the (2) metal hangers the back of each ClipStone piece, except the bottom row of stone which had a fastener in each of the (2) metal hangers above the stone and a fastener in each of the (2) hangers below the stone, fasteners were driven into exterior sheathing only (NOT into studs)</td>
</tr>
</tbody>
</table>
| Interior Sheathing-to-Framing     | Pemco 3100 by Alpha Systems, LLC  
Expiration: 12-16-17  
Adhesive Manufacturer Stated Minimum Cure Time: 24 hours | $\frac{3}{4}$-in. bead per framing member |
| Interior Sheathing-to-Framing     | 3/16-in. x $\frac{3}{4}$-in. x 19 Ga.              | 6/0 a (3/8-in. Edge Distances) |

* Given as edge spacing/field spacing

2.3. TEST PROCEDURE
The test procedure is based on ASTM E722, Section 11; however, the loading stages were modified to correspond with those required in the ultimate load test procedures found in Section 3280.401(b) of the Federal Manufactured Home Construction and Safety Standards. Accordingly, the test setup consists of a vacuum chamber with an open side slightly larger than the test assembly, as shown in Figure 3. A vacuum pump and
manometer connection provide a means to apply and monitor the applied pressure. The samples are placed with the exterior sheathing and siding facing into the vacuum chamber, thereby placing a negative force on the exterior sheathing. The polyethylene sheathing is pleated to accommodate the specimen deflection and then sealed to the chamber.

Instrumentation consists of a water manometer and dial indicators. The water manometer has a resolution of 0.1 inches of water for pressures up to ±72.0 inches of water. Dial indicators, with a resolution of 0.001 in., are positioned along selected studs to take deflection readings at mid-span and at the supports. For specimens with studs spaced at 16 in. centers, the center two studs are gauged, using a total of six dial gauges. For studs spaced at 24 in. centers, only the middle stud is gauged, using a total of three gauges. Figure 9 provides an example of a test setup.

For testing, each specimen is loaded monotonically at approximate ¼ live load pressure increments. Upon reaching each loading stage, applied load is maintained for not less than 10 minutes prior to reading the dial indicators. Once the dial indicators have been read, the pressure is increased to the next loading stage. This procedure is followed through pressure corresponding to 1.25 times live load. After which, the dial gauges are removed and the pressure is increased to ultimate load. At ultimate load, the peak pressure and mode of failure are noted. Ultimate load is taken as the point where the specimen exhibits rupture, fracture, or excessive yielding. Any failure or observations at any point during the test are duly noted.

The applied pressure, in inches of water, is converted to pounds per square foot (psf) using the following conversion: 1 inch of water column = 5.2 psf.

3. TEST RESULTS

A total of three specimens were tested using the procedure outlined herein. The ultimate loads and service load deflections for each specimen are presented in Table 4, below. This table also provides average values, which are compared to the required pass/fail criteria.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Ultimate Pressure (psf)</th>
<th>Service Load Deflection (in.)</th>
<th>Failure Mode at Ultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>94991</td>
<td>171</td>
<td>0.330</td>
<td>Stud to plate fastener failure and exterior sheathing to framing fastener withdrawal</td>
</tr>
<tr>
<td>94992</td>
<td>148</td>
<td>0.370</td>
<td>Stud to plate fastener failure and exterior sheathing to framing fastener withdrawal</td>
</tr>
<tr>
<td>94993</td>
<td>172</td>
<td>0.328</td>
<td>Stud to plate fastener failure and exterior sheathing to framing fastener withdrawal</td>
</tr>
<tr>
<td>Average</td>
<td>163</td>
<td>0.343</td>
<td>--</td>
</tr>
<tr>
<td>Evaluation Criteria&lt;sup&gt;a&lt;/sup&gt;</td>
<td>120</td>
<td>0.533</td>
<td>--</td>
</tr>
<tr>
<td>Overall Result</td>
<td>Pass</td>
<td>Pass</td>
<td>--</td>
</tr>
</tbody>
</table>

<sup>a</sup> As required by the FMHCSS<sup>1</sup>, which requires a factor of safety of 2.5 against failure and L/180 deflection limit under service level loads.
4. CONCLUSION

Environmental StoneWorks retained NTA, Inc. to perform testing on negative wind assemblies in accordance with procedures in Section 3280.401(b) of the Federal Manufactured Home Construction and Safety Standards (FMHCSS)\(^1\). Conclusions from this testing are provided in Table 5 below.

The data provided herein were obtained and assessed in accordance with FMHCSS test procedures and criteria and should not be used for other types of construction. For use in manufactured housing, these findings and results are subject to DAPIA review and approval.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Test Conditions</th>
<th>Overall Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single 2x4 Stud Grade SPF on 16-in. centers with 3/8-in. APA Span Rated 24/0, Exposure 1 OSB exterior sheathing and Clipstone Ledgestone Black Rundle Flats 1-1/2-in. thick x 4-in. tall stone siding for 96-in. tall exterior walls, fastened and constructed as detailed herein.</td>
<td>Wind Zone II Corner</td>
<td>PASS</td>
</tr>
</tbody>
</table>

Table 5: Conclusion

PREPARED BY: Brad Wear
Test Engineer

REVIEWED BY: Douglas Berger, P.E.
Test Engineer

11-09-17 Date
REFERENCES

Figure 1: Specimen Diagram

Siding-to-Sheathing
#8 x 1-1/4-in. Buildex Teks
Lath Screws through top (2) holes in wire hangers
(Except bottom row, which was fastened at top (2) holes and bottom (2) holes for each stone)
Into exterior sheathing only (NOT into Framing)

Stud-to-Plate
(3) 7/16" x 1-3/4" x 15 Ga.
Staples each Stud

1x4 Un-Graded SPF
Top Plate

Clipstone Ledgestone Black Rundle
Flats, 4-in. tall x 1-1/2-in. thick

2x4 Stud Grade SPF
at 16" oc

3/8" OSB, Rated 24/0, Exposure 1

Sheathing-to-Stud
7/16-in. x 1-1/2-in. x 16 Ga.
Staples, 6/6 (Edge/Field)
parallel to edge members within 45°

Stud-to-Plate
(3) 7/16" x 1-3/4" x 15 Ga.
Staples each Stud

2x4 Ledger Board

1x4 Un-Graded SPF
Bottom Plate

Section A-A

16" 16" 16" 16" 4'-1\frac{1}{2}"
Figure 2: Clipstone Received

Figure 3: Close-Up View of a Box of ClipStone
Figure 4: Close-Up Views of ClipStone

Figure 5: Information on a Box of ClipStone Received
Figure 6: Construction of Wood Framing

Figure 7: OSB Exterior Sheathing Attached to Framing
Figure 8: Attaching the First Row of ClipStone (Fastened both above and below the ClipStone)

Figure 9: Edge View of ClipStone Attachment

Figure 10: Continuing to Attach Rows of ClipStone (All rows above the first row were only fastened above the ClipStone)
Figure 11: A Specimen after Finish of ClipStone Attachment
Figure 12: Adhesive Application to Interior of Wood Framing
Figure 13: Interior Sheathing (Gypsum) Attachment
Figure 14: Test Setup

Figure 15: Photograph of a Test Setup

Figure 16: Specimen #94991 after Ultimate
APPENDIX

SUMMARY DATA
HUD 04-01
Negative Wind Test for Wall Assemblies to be used in Manufactured Homes:
Specimen 1

Client: Environmental StoneWorks
Job Number: ESW071417-1
Test Method: FMHCSS, Section 3280.401(b), Ultimate Load Test Procedure

Performed By: Keith Hassell  
Witnessed By: Bradley Wear

General:  
| Received: 8/17/2017 | Length Measure: 01384 | Ambient Temp.: 75.2 deg. F |
| Fabrication Date: 9/28/2017 | Vacuum Table: 00023 | Ambient R.H.: 48.2% |
| Test Date: 10/11/2017 | Manometer: 423, 337 | Sensor Asset No.: 01355 |
| Test Location: NTA, Inc. | Moisture Meter: 00830 | |
| Nappanee, IN | Balance: 00468 | |

Apparatus:  

<table>
<thead>
<tr>
<th>Asset No.</th>
<th>Ambient Test Conditions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3280.401(b)</td>
<td>Ultimate Load Test Procedure</td>
</tr>
</tbody>
</table>

Loading Conditions:

| Specimen No.: 94991 | HUD Wind Zone: Zone II (Corner) |
| Clear Span: 96-in. | Design Pressure: 48 psf |
| Width: 49.5-in. | Deflection Limit (L/180): 0.533-in. |
| Dead Weight: 12.37 psf | Test Orientation: Vertical |

Framing:  
(4) 2 x 4 Stud SPF 16-in. oc  
Ext. Sheathing: 3/8-in x 48-in x 96-in Georgia Pacific OSB Applied Vertically (vertical to length strength axis) 3/8-in. Exposure 1  
16ga x 7/16 x 1 1/2-in. 6/6-in. oc edge/field  
Ext. Siding: Clipstone Ledgestone Black Rundle 1 1/2-in. Stone  
#8 x 1 1/4-in. Buildex Teks Lath Screws, Part #21512, #2 Phillips Head 2 per stone through sheathing only  
and Pemco 3100 Adhesive, expires 12/16/17  
1/4 in. average bead  
Adhesive cure time was 13 days  
Wood MC: 8.2% - 12.8%

Specimen 1 Ultimate Load Test Deflection Data

<table>
<thead>
<tr>
<th>Load Stages</th>
<th>Applied Pressure (psf)</th>
<th>Left Stud Deflection (in.)</th>
<th>Right Stud Deflection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top Support</td>
<td>Mid Span Support</td>
<td>Bottom Support</td>
</tr>
<tr>
<td>Top Support</td>
<td>Mid Span Support</td>
<td>Bottom Support</td>
<td></td>
</tr>
<tr>
<td>0 (REF)</td>
<td>0.0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>1/4LL</td>
<td>12.0</td>
<td>0.078</td>
<td>0.116</td>
</tr>
<tr>
<td>1/2LL</td>
<td>23.9</td>
<td>0.097</td>
<td>0.219</td>
</tr>
<tr>
<td>3/4LL</td>
<td>36.4</td>
<td>0.110</td>
<td>0.350</td>
</tr>
<tr>
<td>LL</td>
<td>47.8</td>
<td>0.123</td>
<td>0.404</td>
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<tr>
<td>5/4LL</td>
<td>60.3</td>
<td>0.137</td>
<td>0.527</td>
</tr>
<tr>
<td>5/2LL</td>
<td>119.6</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: If testing was performed in a horizontal orientation the cladding weight was included in the 5/2LL stage above and the ultimate load below.

Net LL Deflection: 0.33-in. at 48 psf
Ultimate Uniform Load: 171 psf
Failure Mode: Stud to plate fastener failure. Sheathing to framing fastener withdraw.

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# Negative Wind Test for Wall Assemblies to be used in Manufactured Homes:

## Specimen 2

### General:
- **Received:** 8/17/2017
- **Fabrication Date:** 9/28/2017
- **Test Date:** 10/11/2017
- **Test Location:** NTA, Inc.
- **Apparatus:**
  - **Asset No.:**
    - **Length Measure:** 01394
    - **Vacuum Table:** 00023
    - **Manometer:** 423, 337
    - **Moisture Meter:** 00830
    - **Balance:** 00468

### Specimen Description:
- **Specimen No.:** 94992
- **Clear Span:** 96-in.
- **Width:** 49.5-in.
- **Dead Weight:** 11.99 psf
- **Framing:** (4) 2 x 4 Stud SPF 16-in. oc
- **Ext. Sheathing:** 3/8-in x 48-in x 96-in Georgia Pacific OSB Applied Vertically (vertical to length strength axis) 3/8-in. Exposure 1
- **Int. Sheathing:** Clipstone Ledgestone Black Rundle 1 1/2-in. Stone
  - #8 x 1 1/4-in. Buildex Teks Lath Screws, Part #21512, #2 Phillips Head 2 per stone through sheathing only

### Loading Conditions:
- **HUD Wind Zone:** Zone II (Corner)
- **Design Pressure:** 48 psf
- **Deflection Limit (L/180):** 0.533-in.
- **Test Orientation:** Vertical

### Specimen 2 Ultimate Load Test Deflection Data

<table>
<thead>
<tr>
<th>Load Stages</th>
<th>Applied Pressure (psf)</th>
<th>Left Stud Deflection (in.)</th>
<th>Right Stud Deflection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Top Support</td>
<td>Mid Span</td>
</tr>
<tr>
<td>0 (REF)</td>
<td>0.0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>1/4LL</td>
<td>12.2</td>
<td>0.017</td>
<td>0.109</td>
</tr>
<tr>
<td>1/2LL</td>
<td>24.6</td>
<td>0.036</td>
<td>0.238</td>
</tr>
<tr>
<td>3/4LL</td>
<td>36.4</td>
<td>0.051</td>
<td>0.348</td>
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<td>LL</td>
<td>47.8</td>
<td>0.069</td>
<td>0.474</td>
</tr>
<tr>
<td>5/4LL</td>
<td>60.3</td>
<td>0.089</td>
<td>0.643</td>
</tr>
<tr>
<td>5/2LL</td>
<td>119.6</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Note:** If testing was performed in a horizontal orientation the cladding weight was included in the 5/2LL stage above and the ultimate load below.

**Net LL Deflection:** 0.37-in. at 48 psf

**Ultimate Uniform Load:** 148 psf

**Failure Mode:** Stud to plate fastener failure. Sheathing to framing fastener withdraw.

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APPENDIX

Negative Wind Test for Wall Assemblies to be used in Manufactured Homes:

Specimen 3

Client: Environmental StoneWorks
Job Number: ESW071417-1
Test Method: FMHCSS, Section 3280.401(b), Ultimate Load Test Procedure

Performed By: Keith Hassell
Witnessed By: Bradley Wear

General:

<table>
<thead>
<tr>
<th>Apparatus</th>
<th>Asset No.</th>
<th>Ambient Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received: 8/17/2017</td>
<td>Length Measure: 01384</td>
<td>Ambient Temp.: 73.7 deg. F</td>
</tr>
<tr>
<td>Fabrication Date: 9/28/2017</td>
<td>Vacuum Table: 00023</td>
<td>Ambient R.H.: 50.3%</td>
</tr>
<tr>
<td>Test Date: 10/11/2017</td>
<td>Manometer: 423, 337</td>
<td>Sensor Asset No.: 01355</td>
</tr>
<tr>
<td>Test Location: NTA, Inc.</td>
<td>Moisture Meter: 00830</td>
<td></td>
</tr>
<tr>
<td>Nappanee, IN</td>
<td>Balance: 00468</td>
<td></td>
</tr>
</tbody>
</table>

Specimen Description:

Specimen No.: 94993
Clear Span: 96-in.
Width: 49.5-in.
Dead Weight: 12.98 psf

Framing: (4) 2 x 4 Stud SPF 16-in. oc
Ext. Sheathing: 3/8-in x 48-in x 96-in Georgia Pacific OSB Applied Vertically (vertical to length strength axis) 3/8-in. Exposure 1
16 ga x 7/16 x 1 1/2-in. 6/6-in. oc edge/field

Ext. Siding: Clipstone Ledgestone Black Rundle 1 1/2-in. Stone
#8 x 1 1/4-in. Buildex Tek Lath Screws, Part #21512, #2 Phillips Head 2 per stone through sheathing only
1/4 in. average bead
Wood MC: 9.5% - 13%

Loading Conditions:

HUD Wind Zone: Zone II (Corner)
Design Pressure: 48 psf
Deflection Limit (L/180): 0.533-in.
Test Orientation: Vertical

Specimen 3 Ultimate Load Test Deflection Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<td>14LL</td>
<td>11.9</td>
<td>0.038</td>
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<td>0.035</td>
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<td>0.215</td>
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<td>45LL</td>
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<td>0.128</td>
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<td>0.577</td>
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<tr>
<td>52LL</td>
<td>119.6</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: If testing was performed in a horizontal orientation the cladding weight was included in the 5/2LL stage above and the ultimate load below.

Net LL Deflection: 0.328-in. at 48 psf
Ultimate Uniform Load: 172 psf
Failure Mode: Stud to plate fastener failure. Sheathing to framing fastener withdraw.

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APPENDIX

Negative Wind Test for Wall Assemblies to be used in Manufactured Homes:
Results Summary

Client: Environmental StoneWorks
Job Number: ESW071417-1
Test Method: FMHCS, Section 3280.401(b). Ultimate Load Test Procedure

Specimen Description:
- Clear Span: 96-in.
- Width: 49.5-in.
- Framing: (4) 2 x 4 Stud SPF 16-in. oc
- Ext. Sheathing: 3/8-in x 48-in x 96-in Georgia Pacific OSB Applied Vertically (vertical to length strength axis) 3/8-in. Exposure 1 16ga x 7/16 x 1 1/2-in. 6/6-in. oc edge/field
- Ext. Siding: Clipstone Ledgestone Black Rundle 1 1/2-in. Stone
- Wood MC: 8.2% - 13%

Loading Conditions:
- HUD Wind Zone: Zone II (Corner)
- Design Pressure: 48 psf
- Deflection Limit (L/180): 0.533-in.

Construction Description:
Single 2x4 studs at 16 in. oc with 3/8-in x 48-in x 96-in OSB, Exposure 1, Rated 24/0 exterior sheathing applied vertically, fastened at 6/6 with a 3/8-in Edge distance using 7/16-in x 1-1/2-in x 16 gauge staple, Clipstone Ledgestone Black Rundle Flats, fastened with Buildex Teks Lath Screws into exterior sheathing only (NOT into studs) for Wind Zone II-Corner. Product samples by Quality Control Consultants, LLC who was contracted by Environmental Stoneworks, LLC to witness (3) pallets (38 boxes, 304 sq. ft.) of Clipstone Ledgeworks Black Rundle Flats, for HUD testing. Sampled on 8/1/17, samples taken randomly from inventory and are individual pieces witnessed by Brett Wrigley.

Test Variable: Negative Wind Test, Wind Zone II-Corner, specimens tested in a vertical orientation

Procedures Modification: None

<table>
<thead>
<tr>
<th>Overall Test Results</th>
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<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Ultimate Pressure (psf)</th>
<th>Service Deflection (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>171</td>
</tr>
<tr>
<td>2</td>
<td>94992</td>
<td>148</td>
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<tr>
<td>3</td>
<td>94993</td>
<td>172</td>
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</tbody>
</table>

Average Ultimate Pressure: 163 psf, Pass (48 psf x 2.5 - Specimen Dead Load = Min. Ultimate Pressure)

Average Mid-Span Deflection: 0.343-in., Pass (L/180 = 0.533-in.)

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Note: Each individual specimen must pass the criteria above in order for the whole test to be considered passing.

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