MOISTURE TESTING OF
SURE CAVITY DRAINAGE SYSTEM

Prepared for:
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The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.
MOISTURE TESTING OF SURE CAVITY DRAINAGE SYSTEM

INTRODUCTION:

This report presents the results of modified ASTM E2273 tests conducted on wall panels and witnessed by Stork Twin City Testing Personnel. The testing was authorized by Steve Samec of Masonry Technology Incorporated on November 5, 2008. The testing and data analysis were completed on December 19, 2008.

The scope of our work was limited to witnessing construction and testing of modified ASTM E2273 tests on the samples submitted and reporting the results.

SUMMARY OF RESULTS:

<table>
<thead>
<tr>
<th>Test Panel</th>
<th>Amount of Water Applied, Gal</th>
<th>Amount of Water Collected, Gal</th>
<th>Percent Collected, %</th>
<th>Pass / Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.650</td>
<td>7.462</td>
<td>97.5</td>
<td>Pass</td>
</tr>
<tr>
<td>2</td>
<td>7.650</td>
<td>7.464</td>
<td>97.6</td>
<td>Pass</td>
</tr>
<tr>
<td>3</td>
<td>7.650</td>
<td>7.453</td>
<td>97.4</td>
<td>Pass</td>
</tr>
<tr>
<td>4</td>
<td>7.650</td>
<td>7.440</td>
<td>97.3</td>
<td>Pass</td>
</tr>
</tbody>
</table>

SAMPLE IDENTIFICATION:

The samples were identified as Test Panel 1, Test Panel 2, Test Panel 3, and Test Panel 4. Panels were assembled November 12-13, 2008. Construction details are as follows:

Test Panels 1 & 2, configuration by layers:
1. 2 x 6 Studs – 16” on center
2. 4’ x 8’ x ½” A.C. Plywood
3. Brick Mold
4. Drip Plate
5. Drip Plate Flashing
6. 2 Layers of #15 Asphalt Impregnated Construction Paper with caulked edges and perimeter flashing
7. Wall Opening Weeps™ (WOW 9095)
8. Sure Cavity™ (SC 5032)
9. Water Trough with watertight flashing
10. Expanded Metal Lath
11. Scratch Coat
12. Thin Set Brick
SAMPLE IDENTIFICATION (Continued):

Test Panels 3 & 4, configuration by layers:
1. 2 x 6 Studs – 16” on center
2. 4’ x 8’ x ½” A.C. Plywood
3. Weep Screed Deflector™ (WSD 1309)
4. L + R Weep Screed™ (LR 3501)
5. Flashing
6. 2 Layers of #15 Asphalt Impregnated Construction Paper with caulked edges and perimeter flashing
7. 10mm Sure Cavity™ (SCMM 2532)
8. Water Trough with watertight flashing
9. Metal Lath
10. Scratch Coat
11. Thin Set Brick

TEST METHODS:

Test panels were constructed on November 12 & 13, 2008. Testing occurred December 18 & 19, 2008 after a 35 day cure. Construction and testing were all completed by Mike Ollendieck, Terry Gossman and Derek Oyloe at Masonry Technology Incorporated in Cresco, Iowa.

Test Panels 1 and 2 were tested on December 18, 2008 and Test Panels 3 and 4 were tested on December 19, 2008. Immediately prior to testing, the panels were pre-conditioned as follows:

A quantity of water equal to ¾ of the trough capacity was evenly poured into the upper trough and collected at the base of the panels. Starting at 0 minutes, 1.275 gallons of water was applied to the samples every 15 minutes for a period of 75 minutes. After the 75 minute water application period, the samples were allowed to continue draining for an additional 60 minutes. The collected water was then discarded and the actual test started according to ASTM E2273 with modifications stated in ICC EG356.

For the modified ASTM E2273 test, ¾ of the trough capacity was evenly poured into the upper trough and collected at the base of the panels. There were six utility buckets that were used for each panel to equal the six water pours. The buckets were weighed and 10.640 lbs of water was added to each bucket in order to equal 1.275 gallons. Starting at 0 minutes, 1 bucket was poured every 15 minutes for a 75 minute period. At the end of the 75 minute application period, the panels were allowed to continue draining for an additional 60 minutes. At the end of the 60 minutes, the collected water was weighed.

The conditions of acceptance according to IC EG356: “The minimum weight of the collected water shall be equal to 90 percent of the weight of the water poured into the slot fault.”
TEST METHODS (Continued):

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Test Method Title</th>
<th>Deviations from Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM E2273-03</td>
<td>Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation</td>
<td>Modification to water application according to ICC EG356.</td>
</tr>
<tr>
<td></td>
<td>and Finish System (EIFS) Clad Wall Assemblies</td>
<td></td>
</tr>
<tr>
<td>ICC EG356</td>
<td>Evaluation Guideline For A Moisture Drainage System Used With Exterior Wall Veneers</td>
<td>Pre-conditioning immediately prior to testing as outlined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>above.</td>
</tr>
</tbody>
</table>

CALIBRATED TEST EQUIPMENT:

Mettler Toledo Xpress 60lb scale, Model XTCII – 4103, S/N 30003946GK, calibrated 8/08

UNCALIBRATED TEST EQUIPMENT:

- Mortar Mix
- Weather-Resistive Barrier
- Atomic Clock
- Workforce 16’ tape measure
- Variable speed cordless drill/driver
- Assorted hand tools
- Lumber and general hardware
- Pail and water

TEST DATA:

Test Panel #1

<table>
<thead>
<tr>
<th>Bucket Number</th>
<th>Weight of Bucket, lbs</th>
<th>Bucket &amp; Water, lbs</th>
<th>Weight of Water, lbs</th>
<th>Volume of Water, Gal</th>
<th>Weight of Water Collected, lbs</th>
<th>Volume of Water Collected, Gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>11.855</td>
<td>10.640</td>
<td>1.275</td>
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<td>1.215</td>
<td>11.855</td>
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<td>1.275</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>1.230</td>
<td>11.870</td>
<td>10.640</td>
<td>1.275</td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>1.235</td>
<td>11.875</td>
<td>10.640</td>
<td>1.275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.230</td>
<td>11.870</td>
<td>10.640</td>
<td>1.275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.215</td>
<td>11.855</td>
<td>10.640</td>
<td>1.275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>62.275</td>
<td>7.462</td>
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## TEST DATA (Continued):

### Test Panel #2

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<tr>
<th>Bucket Number</th>
<th>Weight of Bucket, lbs</th>
<th>Bucket &amp; Water, lbs</th>
<th>Weight of Water, lbs</th>
<th>Volume of Water, Gal</th>
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<td></td>
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<td>11.915</td>
<td>10.640</td>
<td>1.275</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>63.840</strong></td>
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### Test Panel #3

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<th>Weight of Bucket, lbs</th>
<th>Bucket &amp; Water, lbs</th>
<th>Weight of Water, lbs</th>
<th>Volume of Water, Gal</th>
<th>Weight of Water Collected, lbs</th>
<th>Volume of Water Collected, Gal</th>
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<tbody>
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<td>1.275</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63.840</strong></td>
<td><strong>7.650</strong></td>
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### Test Panel #4

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<tr>
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<th>Weight of Bucket, lbs</th>
<th>Bucket &amp; Water, lbs</th>
<th>Weight of Water, lbs</th>
<th>Volume of Water, Gal</th>
<th>Weight of Water Collected, lbs</th>
<th>Volume of Water Collected, Gal</th>
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</tr>
<tr>
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<td>1.275</td>
<td>11.915</td>
<td>10.640</td>
<td>1.275</td>
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<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63.840</strong></td>
<td><strong>7.650</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### REMARKS:

The test materials remained at customer site.
PHOTOS:

Base for all Test Panels:

Figure 1: Back of Test Panels

Test Panels 1 & 2 Construction:

Figure 3: Installing Brick Mold

Figure 4: Installing Drip Plate
PHOTOS (Continued):

Figure 5: Installing Drip Plate Flashing
Figure 6: Installing Layers of Construction Paper

Figure 7: Caulking Perimeter
Figure 8: Applying Flashing to Perimeter

Figure 9: Installing Weeps
Figure 10: Sure Cavity (SC5032)
PHOTOS (Continued):

Figure 11: Installing Sure Cavity (SC 5032)

Figure 12: Installing Water Trough

Figure 13: Installing Watertight Flashing

Figure 14: Caulking Edge of Trough

Figure 15: Installing Metal Lath
PHOTOS (Continued):

Figure 16: Test Panel #1  
Figure 17: Test Panel #2

Test Panels 3 & 4 Construction:

Figure 18: Installing Weep Screed Deflector  
Figure 19: Installing L & R Weep Screed
PHOTOS (Continued):

Figure 20: Installing Flashing

Figure 21: Installing Layers of Construction Paper

Figure 22: Caulking Perimeter

Figure 23: Applying Flashing to Perimeter

Figure 24: 10mm Sure Cavity (SC2532)

Figure 25: Installing 10mm Sure Cavity (SC2532)
PHOTOS (Continued):

Figure 26: Installing Water Trough
Figure 27: Installing Metal Lath

Figure 28: Test Panel #3
Figure 29: Test Panel #4
PHOTOS (Continued):

Scratch Coat for all Test Panels:

Figure 30: Mortar Mix

Figure 31: Applying Scratch Coat

Final Construction with Thin Set Brick and Testing:

Figure 32: Test Panel #1

Figure 33: Test Panel #2
PHOTOS (Continued):

Figure 34: Test Panel #3

Figure 35: Test Panel #4

Figure 36: Pouring into Trough

Figure 37: Collection in Bottom Trough