STORK®
Materials Technology

Stork Twin City Testing Corporation

662 Cromwell Avenue
Saint Paul, MN 55114
USA

Telephone :(651) 645-3601
Toll Free :(888) 645-TEST
Telefax :(651) 659-7348
Website :www.storktct.com

Investigative Chemistry
Non Destructive Testing
Metallurgical Analysis

Geotechnical
Failure Analysis
Materials Testing

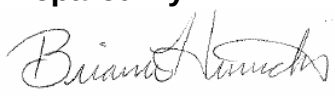
Construction Materials
Product Evaluation
Welder Qualification

JOB NUMBER: 30160 08-00737R
PAGE: 1 of 13
DATE: January 5, 2009

MOISTURE TESTING OF SURE CAVITY DRAINAGE SYSTEM

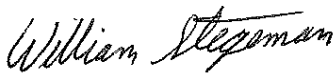
Prepared for:
Masonry Technology Incorporated
Attn: Steve Samec
24235 Electric Street
P.O. Box 214
Cresco, IA 52136-9635

Prepared By:



Briana Hinrichs
Testing Technician
Product Evaluation Department

Reviewed By:



William Stegeman
Advanced Materials Dept. Mgr.
Phone: 651-659-7230

The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.

JOB NUMBER: 30160 08-00737R **PAGE:** 2 of 13
DATE: January 5, 2009

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:

ASTM E2273 with modifications stated in ICC EG356

Test Panel	Amount of Water Applied, Gal	Amount of Water Collected, Gal	Percent Collected, %	Pass / Fail
1	7.650	7.462	97.5	Pass
2	7.650	7.464	97.6	Pass
3	7.650	7.453	97.4	Pass
4	7.650	7.440	97.3	Pass

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

JOB NUMBER: 30160 08-00737R **PAGE:** 3 of 13
DATE: January 5, 2009

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."

JOB NUMBER: 30160 08-00737R **PAGE:** 4 of 13
DATE: January 5, 2009

TEST METHODS (Continued):

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

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

Bucket Number	Weight of Bucket, lbs	Bucket & Water, lbs	Weight of Water, lbs	Volume of Water, Gal	Weight of Water Collected, lbs	Volume of Water Collected, Gal
1	1.215	11.855	10.640	1.275		
2	1.215	11.855	10.640	1.275		
3	1.230	11.870	10.640	1.275		
4	1.235	11.875	10.640	1.275	**62.275**	**7.462**
5	1.230	11.870	10.640	1.275		
6	1.215	11.855	10.640	1.275		
Total			63.840	7.650		

JOB NUMBER: 30160 08-00737R **PAGE:** 5 of 13
DATE: January 5, 2009

TEST DATA (Continued):

Test Panel #2

Bucket Number	Weight of Bucket, lbs	Bucket & Water, lbs	Weight of Water, lbs	Volume of Water, Gal	Weight of Water Collected, lbs	Volume of Water Collected, Gal
1	1.265	11.905	10.640	1.275		
2	1.265	11.905	10.640	1.275		
3	1.265	11.905	10.640	1.275		
4	1.265	11.905	10.640	1.275	**62.290**	**7.464**
5	1.275	11.915	10.640	1.275		
6	1.275	11.915	10.640	1.275		
Total			63.840	7.650		

Test Panel #3

Bucket Number	Weight of Bucket, lbs	Bucket & Water, lbs	Weight of Water, lbs	Volume of Water, Gal	Weight of Water Collected, lbs	Volume of Water Collected, Gal
1	1.215	11.855	10.640	1.275		
2	1.215	11.855	10.640	1.275		
3	1.230	11.870	10.640	1.275		
4	1.235	11.875	10.640	1.275	**62.200**	**7.453**
5	1.230	11.870	10.640	1.275		
6	1.215	11.855	10.640	1.275		
Total			63.840	7.650		

Test Panel #4

Bucket Number	Weight of Bucket, lbs	Bucket & Water, lbs	Weight of Water, lbs	Volume of Water, Gal	Weight of Water Collected, lbs	Volume of Water Collected, Gal
1	1.265	11.905	10.640	1.275		
2	1.265	11.905	10.640	1.275		
3	1.265	11.905	10.640	1.275		
4	1.265	11.905	10.640	1.275	**62.090**	**7.440**
5	1.275	11.915	10.640	1.275		
6	1.275	11.915	10.640	1.275		
Total			63.840	7.650		

REMARKS:

The test materials remained at customer site.

PHOTOS:

Base for all Test Panels:

Figure 1: Back of Test Panels

Figure 2: Front of Test Panels

Test Panels 1 & 2 Construction:

Figure 3: Installing Brick Mold

Figure 4: Installing Drip Plate

JOB NUMBER: 30160 08-00737R **PAGE:** 7 of 13
DATE: January 5, 2009

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

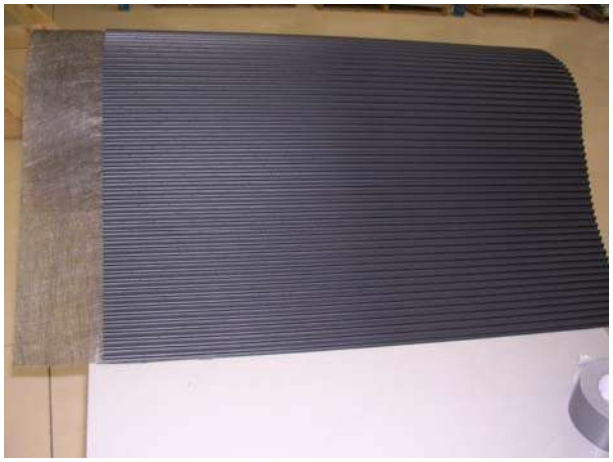


Figure 10: Sure Cavity (SC5032)

JOB NUMBER: 30160 08-00737R **PAGE:** 8 of 13
DATE: January 5, 2009

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

JOB NUMBER: 30160 08-00737R **PAGE:** 9 of 13
DATE: January 5, 2009

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)

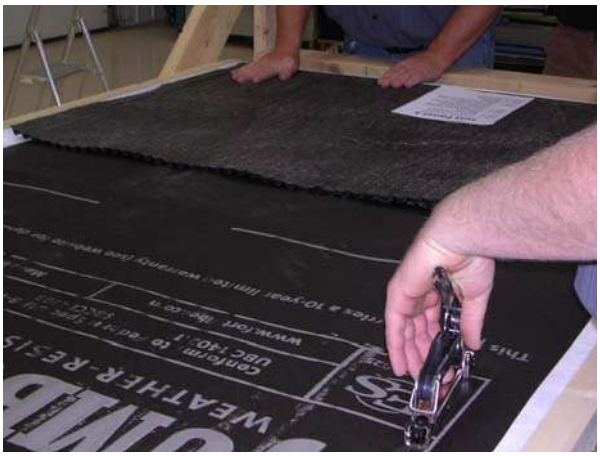


Figure 25: Installing 10mm Sure Cavity (SC2532)

JOB NUMBER: 30160 08-00737R **PAGE:** 11 of 13
DATE: January 5, 2009

PHOTOS (Continued):

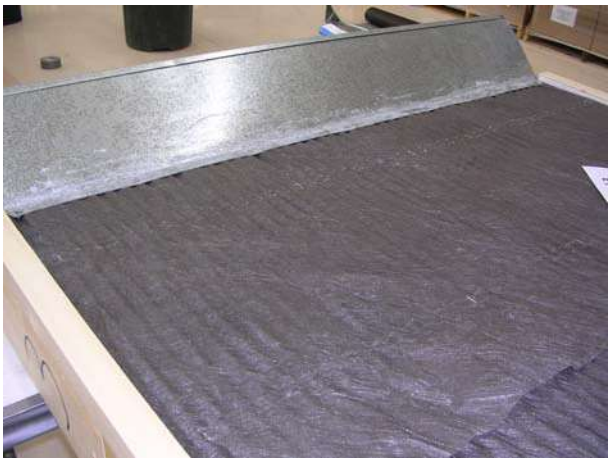


Figure 26: Installing Water Trough

Figure 27: Installing Metal Lath

Figure 28: Test Panel #3

Figure 29: Test Panel #4

JOB NUMBER: 30160 08-00737R **PAGE:** 12 of 13
DATE: January 5, 2009

PHOTOS (Continued):

Scratch Coat for all Test Panels:

Figure 30: Mortar Mix

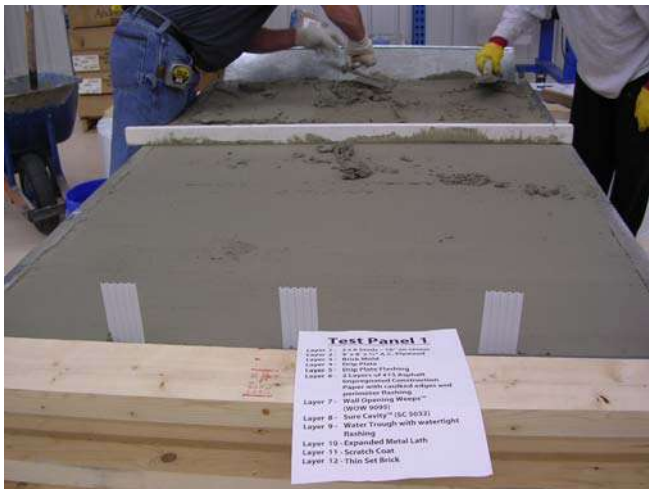


Figure 31: Applying Scratch Coat

Final Construction with Thin Set Brick and Testing:

Figure 32: Test Panel #1

Figure 33: Test Panel #2

JOB NUMBER: 30160 08-00737R **PAGE:** 13 of 13
DATE: January 5, 2009

PHOTOS (Continued):

Figure 34: Test Panel #3

Figure 35: Test Panel #4

Figure 36: Pouring into Trough

Figure 37: Collection in Bottom Trough