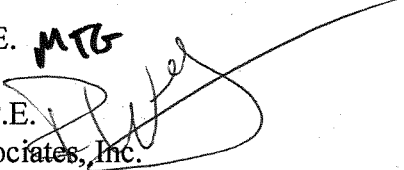


**MEMORANDUM**

To: Cuyler Feagles, AIA  
City of Portland

Copy: Roy Williams, City of Portland (email)  
Jim Stanislaski, Gensler (email)  
Cliff Takara, Gensler (email)  
Lacey Fogg, AMEC (email)  
Mike Fusco, Turner Construction Company (email)  
Shaun Winner, Turner Construction Company (email)

From: Matthew T. Grady, P.E. *MTG*

Robert W. Gillespie, P.E.   
R.W. Gillespie & Associates, Inc.

Date: 18 March 2011

Subject: Water Penetration and Spray Nozzle Test  
Terminal Enhancement, Portland International Jetport  
Portland, Maine  
RWG&A Project No. 0557-014

R.W. Gillespie & Associates, Inc. (RWG&A) is submitting the attached information for owner review and approval. On 10 March 2011, RWG&A subcontracted Architectural Testing, Inc. (ATI) of Chelmsford, Massachusetts to perform a water penetration and spray nozzle tests at the subject project.

Attached is a letter report from ATI for the tests performed. The tests were conducted in accordance with:

- AAMA 501.2-03, *Quality Assurance and Diagnostic Water Leak Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.*
- AAMA 503-92. *Voluntary Specification for Field Testing of Metal Storefronts, Curtain Walls and Sloped Glazing Systems.*
- ASTM E 1105-00 (Re-Approved 2008), *Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.*

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**R. W. Gillespie & Associates, Inc.**

Geotechnical Engineering • Geohydrology • Materials Testing Services

**Corporate Office**

200 International Dr., Ste 170  
Portsmouth, NH 03801  
603-427-0244 • Fax 603-430-2041

86 Industrial Park Rd., Ste 4  
Saco, ME 04072  
207-286-8008 • Fax 207-286-2882

P.O. Box 289  
Augusta, ME 04344  
207-623-4914 • Fax 207-623-3429

# **R. W. Gillespie & Associates, Inc.**

Page 2 of 2

The water penetration test was performed on specimen #1, a 16 feet by 9 feet 2 inch area between columns lines XF and XG for water penetration. Specimen #2, a site built curtain wall located at the north elevation, first floor, between lines XF and XG was subject to spray nozzle testing.

No water leaks were detected on the specimens tested and the specimens are in general accordance with the project specifications. If you have any questions, please contact us.

MTG/RWG:md

Encl: Field Test report by ATI dated 11 March 2011

G:\PROJECTS\0500\0557\557-014\Corresp\2011-03-18 Water Penetration and Spray Nozzle Test 0557-014.wpd

**TEST RESULTS**

**Date:** 03/10/11

**Ambient Exterior Air Temperature:** 35 °F

**General Note #1:** All locations referenced are as viewed from the interior unless otherwise noted.

**General Note #2:** Unless specifically noted within this report, atmospheric conditions at the time of testing did not have an adverse impact on the results of the test.

**Test Specimen #1:**

Manufacturer: Kawneer  
 Description: Site built curtain wall, series 1600 SS.  
 Overall Size: 16' wide by 9' 2" high  
 Location: North elevation, First floor, Between column lines XF and XG

<u>Title of Test</u>	<u>Test Results</u>	<u>Allowable</u>
Water Penetration @ 8.00 psf	No water leakage	No water leakage

**Test Specimen #2:**

Manufacturer: Kawneer  
 Description: Site built curtain wall, series 1600 SS.  
 Overall Size: 16 linear feet  
 Location: North elevation, First floor, Between column lines XF and XG

<u>Title of Test</u>	<u>Test Results</u>	<u>Allowable</u>
Water Penetration @ 32.5 psi	No water leakage	No water leakage

**Witnesses:** The following representatives witnessed all or part of the testing.

Michael Kramlich  
 Jim Stanislaska  
 Shaun Winner  
 Michael Anness  
 Michael Galvin  
 Dan Carroll  
 Rob Meegan

R. W. Gillespie Associates, Inc.  
 Gensler  
 Turner Construction Company  
 Ipswich Bay Glass Company, Inc.  
 Ipswich Bay Glass Company, Inc.  
 Architectural Testing, Inc.  
 Architectural Testing, Inc.

**Test Procedure:** (Continued)

Water was applied using a hand held spray assembly employing a type B25 #6.030 nozzle, pressure gauge, control valve and a 3/4" hose. The water flow was adjusted to produce 32.5 psi at the nozzle. Water was directed at the joint under test, perpendicular to the face of the specimen. The nozzle was moved slowly back and forth above the joint, at a distance of one foot, for a period of five minutes for each five feet of joint. An observer on the inside checked for water leakage and documented the results.

**Performance Criteria:** Provided by Jim Stanislaska of Gensler.

Water Leakage: Test Specimen #1 (AAMA 503-92)

No water leakage of more than 14 g (0.5 oz) @ 8.00 psf.

No uncontrolled water shall pass the innermost surface of the specimen as defined by the face of the vertical or sloped surface of the innermost framing member, or shall enter the wall cavity during the water penetration tests. Water contained and drained back to the exterior or the collection of up to one-half ounce of water in the 15 minute test period on top of an interior horizontal frame surface that does not spill onto adjacent finishes or materials is acceptable.

Test Specimen #2 (AAMA 501.2)

No water leakage @ 32.5 psi.

No water penetration shall appear on any normally exposed interior surfaces, that is not contained or drained back to the exterior, or that can damage adjacent materials or finishes. Water contained within drained flashings, gutters and sills is not considered water leakage. The collection of up to 15 ml (1/2) ounce of water in a five minute test period on top of an interior stop or stool integral with the wall system shall not be considered water leakage.



Architectural Testing

**FIELD TEST REPORT**

Rendered to:

R. W. Gillespie & Associates, Inc.  
86 Industrial Park Road, Suite 4  
Saco, Maine 04072

Report No.: A6895.02-250-43  
Set-Up and Test Date: 03/10/11  
Report Date: 03/11/11

**Project Identification:** Portland International Jetport  
Portland, Maine

**Project Summary:** Architectural Testing was contracted to perform on-site testing at the above referenced project. Water penetration and spray nozzle tests were conducted on two specimens consisting of site built curtain wall. The specimens tested met the performance requirements listed herein.

**Test Methods:** Tests were conducted in accordance with the following:

*AAMA 501.2-03, Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.*

*AAMA 503-92, Voluntary Specification for Field Testing of Metal Storefronts, Curtain Walls and Sloped Glazing Systems.*

*ASTM E 1105-00 (Re-Approved 2008), Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.*

**Pre-Test Inspection:**

A visual inspection of the designated test area was performed prior to testing. The test specimens were compared to other adjacent curtain walls on the project. No obvious deficiencies or anomalies were observed.

**Test Procedure:**

The perimeter of the chamber was attached and sealed to the curtain wall frame. The chamber was equipped with a centrifugal blower/vacuum pump, air flow meter, and a pressure sensing device to maintain the desired air pressure differential across the assembly. A water penetration test was conducted at 8.00 psf pressure differential while simultaneously spraying water on to the exterior face of the assembly at the required rate of 5 gph/ft<sup>2</sup>. During testing, the interior face of the test area was inspected for water leakage. Testing continued for 15 minutes.

10 Tracy Road  
Chelmsford, MA 01824  
phone: 978-244-9300  
fax: 978-244-1067  
www.archtest.com



**FIELD TEST REPORT**

**Rendered to:**

**R.W. GILLESPIE & ASSOCIATES, INC.**

**PROJECT: Portland International Jetport  
Portland, Maine**

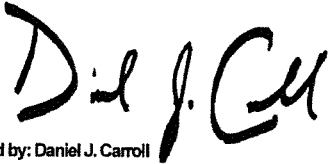
**Report No.: A6895.02-250-43**  
**Set-Up and Test Date: 03/10/11**  
**Report Date: 03/11/11**

10 Tracy Road  
Chelmsford, MA 01824  
phone: 978-244-9300  
fax: 978-244-1067  
www.archtest.com

This report is prepared for the convenience of our customer and endeavors to provide accurate and timely project information. It contains a summary of observations made by a qualified representative of Architectural Testing. This report is intended to help in your Quality Assurance Program, but it does not represent a continuous nor exhaustive evaluation. The statements made herein do not constitute approval, disapproval, certification, acceptance of performance or materials, or an endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested.

A copy of this report will be retained by Architectural Testing for a period of four years from the original test date. At the end of this retention period, this report shall be discarded without notice, and the service life of this report will expire. Results obtained are tested values and were secured by using the designated test methods. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:



Digitally Signed by: Daniel J. Carroll

---

Dan Carroll  
Technician



Digitally Signed by: JP McDonald

---

J.P. McDonald  
Director – Regional Operations

DJC:dr

Attachments (pages): This report is complete only when all attachments listed are included.  
Appendix-A: Photographs (2)

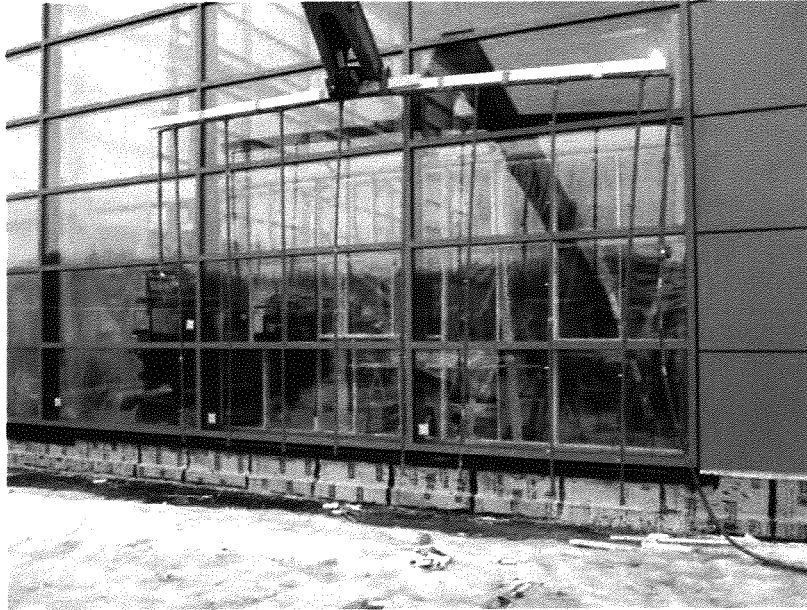
### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	3/11/11	N/A	Original Report Issue



**APPENDIX A**

**Photographs**



**Photo No. 1**  
**Test Specimen #1**  
**Exterior View of Specimen with Spray Rack in Place**



**Photo No 2**  
**Test Specimen #2**  
**Exterior View of Specimen with Test Area Highlighted**



**Photo No. 3**  
**Test Specimen #2**  
**Exterior View of Specimen with Test Area Highlighted**

