Intertek | Architectural Testing

FIELD TEST REPORT

Rendered to:

REAL ESTATE AND CONSTRUCTION SERVICES
DEPARTMENT OF ADMINISTRATION
STATE OF MINNESOTA

PROJECT: **New Replacement Windows – Phase III**
State Capitol Building
St. Paul, Minnesota

Report No.:	**D7138.03-201-43**
Test Dates:	**07/22/15**
	07/23/15
	07/24/15
Report Date:	**08/07/15**

Consultant's Report

849 Western Avenue North
St. Paul, MN 55117

www.archtest.com . www.intertek.com/building

p. 651.636.3835
f. 717.764.4129

Intertek | Architectural Testing

FIELD TEST REPORT

Rendered to:

REAL ESTATE AND CONSTRUCTION SERVICES
Department of Administration
State of Minnesota
301 Administration Building
50 Sherburne Avenue
St. Paul, Minnesota 55155

Report No.:	D7138.03-201-43
Test Dates:	07/22/15
	07/23/15
	07/24/15
Report Date:	08/07/15

Project Identification: New Replacement Windows – Phase III
State Capitol Building
St. Paul, Minnesota

Project Summary: Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted to perform on-site testing at the above referenced project. Air infiltration and water penetration tests were conducted on seven (7) specimens consisting of wood single hung windows. The specimens tested met the performance requirements listed herein.

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

AAMA 502-12, *Voluntary Specification for Field Testing of Newly Installed Fenestration Products.*

ASTM E 783-02 (Re-Approved 2010), *Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.*

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 areas were performed prior to testing. The operable test specimens were operated, closed, and locked prior to testing. No obvious deficiencies were observed.

Test Procedure:

The perimeter of the chamber was attached and sealed to exterior stone surrounding the window openings. The stone and mortar joints surrounding the test areas were shielded from the test conditions with plastic, duct tape and sealant (only the window frame and sash were tested).

The chambers were 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.

Air infiltration tests were conducted at 6.24 psf pressure differential for the fixed windows and 1.57 psf pressure differential for the operating windows.

Water penetration tests were conducted at 3.06 psf air pressure differential. Four cycles were employed during the test. Each cycle consisted of 5 minutes with the air pressure applied and 1 minute with the air pressure released. Water was applied continuously at the required rate of 5gph/ft^2. During testing, the interior face of the test area was inspected for water leakage.

Performance Criteria: Provided by HGA Architects.

Maximum Allowable Air Infiltration: at 1.57 psf: 0.45 cfm/ft^2

Water Leakage: (Field Water Definition)

TEST RESULTS
Date: 07/22/15
Ambient Exterior Air Temperature: 80°F
Barometric Pressure: 29.94 in.

***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. These environmental conditions are recorded for informational use only to confirm that the conditions will not have a negative impact on testing.*

***General Note #3**: The test areas were chosen by the client or client representative.*

Test Results: (Continued)

Test Specimen #1:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 4-7/8" wide by 5' 9-5/8" high
Location: South elevation, third floor, fourth window from the east, window ID. 3S29

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.04 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

Test Specimen #2:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 6-5/8" wide by 10' 7-5/8" high
Location: South elevation, second floor, seventh window from east, window ID. 2S21

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.02 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

TEST RESULTS
Date: 07/23/15
Ambient Exterior Air Temperature: 81°F
Barometric Pressure: 29.96 in.

Test Specimen #3:

Manufacturer: Re-View Windows
Description: Wood Single Hung Arch-Top Window
Overall Size: 5' 1" wide by 10' 5-5/8" high
Location: South elevation, first floor, first window from east, window ID. 1S23

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.05 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

Test Specimen #4:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 10" wide by 10' 5-7/8" high
Location: South elevation, second floor, seventh window from west, window ID. 2S28

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.03 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

Test Results: (Continued)

Test Specimen #5:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 5-1/4" wide by 5' 9-7/8" high
Location: South elevation, third floor, window ID. 3S43

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.20 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

TEST RESULTS
Date: 07/24/15
Ambient Exterior Air Temperature: 84°F
Barometric Pressure: 29.83 in.

Test Specimen #6:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 8" wide by 6' 5-1/2" high
Location: South elevation, ground floor, third window from west, window ID. GS33

Title of Test	Test Results	Allowable
Air Infiltration @ 1.57 psf	0.12 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

Test Results: (Continued)

Test Specimen #7:

Manufacturer: Re-View Windows
Description: Wood Single Hung Window
Overall Size: 4' 8" wide by 6' 5-1/2" high
Location: South elevation, ground floor, sixth window from east, window ID. GS26

Title of Test	**Test Results**	**Allowable**
Air Infiltration @ 1.57 psf	0.05 cfm/ft^2	0.45 cfm/ft^2
Water Penetration @ 3.06 psf	No water leakage	No water leakage

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

Name	Company
Todd Maxwell	Re-view Windows
George O. Radysh	Intertek-ATI
Mike S. Geisler	Intertek-ATI
Dax R. Stoehr	Intertek-ATI

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 Intertek-ATI. 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 specimens tested.

A copy of this report will be retained by Intertek-ATI for a period of four years from the report date. Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, data sheets, representative sample of test specimens or other pertinent project documentation will be retained by Intertek-ATI for the entire test retention period.

For INTERTEK-ATI:

Digitally Signed by: Dax Stoehr

Dax R. Stoehr
Technician

Digitally Signed by: Daniel A. Johnson

Daniel A. Johnson
Director – Regional Operations

DRS/jb

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

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	08/07/15	N/A	Original report issue.

APPENDIX A

Photographs

Photo No. 1: Exterior isolation (typical).

Photo No. 2: Exterior view with chamber installed (typical).

Photo No. 3: Interior view (typical).