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## ASTM WATER PENETRATION RESISTANCE

### TEST REPORT S2005-017

REPORT TO: Flashing Products, Inc.  
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ORIGINAL REPORT NUMBER: S2005-017

ORIGINAL REPORT DATE: 01/28/2005

### PRODUCT TESTED

Window and door flashing assemblies that are known by the trade name Sure Flash manufactured by Flashing Products Inc. The flashing materials included the Sure Flash Flange Extension and Sure Flash Adhesive Seal.

**Sure Flash**  
**Standard System**  
**Passed 12.0 psf or 69 mph**

# QUALITY TESTING INC.

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## REPORT TO:

Flashing Products, Inc. 2319 Federal Avenue East Seattle, WA 98201  
(206) 568-6633

TEST DATE: January 24, 2005

## TEST SPECIFICATIONS:

**ASTM E 331-04 Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air pressure Difference.**

**ASTM E 547-04 Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Cyclic Air pressure Difference.**

## DESCRIPTION OF TEST SPECIFICATION METHODS:

### ASTM E 331-96

A calibrated spray rack that delivers at least 5 gallons per square foot per hour (equivalent to an 8 inch per hour rain) is an integral part of the test chamber. The water spray was applied and adjusted to the calibrated gauge pressure of 10 psi. For each test cycle a specified uniform positive differential pressure was applied and maintained for a period of 15 minutes.

### ASTM E 547-04

The spray rack was identical to the above system. The difference in this test method is that a uniform test pressure is applied for a 5 minute period and then released for 1 minute. This is considered one cycle. This is repeated for a total of 4 cycles.

## DESCRIPTION OF SAMPLES TESTED:

The following description of samples tested was provided by Flashing Products Inc. Quality testing has not independently determined that the products are comprised of the materials described or representations made by Flashing Products Inc. are true other than by visual inspection. Quality Testing did visually inspect the assembly provided by Flashing Products Inc. and found it to consistent with FPI representations.

Sure Flash Wrap (WRB) is a 12 mil polyolefin non woven fabric coated on both sides of the inner core fiber. The WRB exceeds the requirements of ASTM E2112-01 and AAMA 2400-02. Sure Flash Wrap is a component of Sure Flash Flange Extension and Sure Flash Adhesive Seal.

Sure Flash Flange Extension is a 3 inch width WRB with an expanded closed cell foam tape that is .031 inch in thickness and is 1 inch in width adhered along one edge. The tape is commonly used in window glazing applications and is AAMA approved for that application.

Sure Flash Adhesive Seal is made of a 9 to 15 inch width WRB with an expanded closed cell foam tape that is .031 inch in thickness and is 3 inches in width adhered along one edge or inset 3 to 6 inches from the edge. The foam is adhered to the MVB with an adhesive; the face side of the foam is coated with an adhesive protected by a release liner. The double-sided tape, made with different dimensions, is commonly used in

glazing glass to window frames.

#### SPECIMEN INSTALLATION METHODS:

The purpose of the test was to evaluate the effectiveness of a window and door flashing system known as Sure Flash that is manufactured by Flashing Products Inc. The current system is a window flange encapsulation system that sandwiches the flange between two layers of closed cell adhesive foam, provides a penetration seal zone around the entire perimeter of the window and a 9 inch WRB. The specimen was installed in accordance with Method A / B according to ASTM E2112-01 and AAMA 2400-02.

The wall assembly for each test consisted of a 2 X 4 wood framed wall with plywood facing material on the exterior side. The wall contained three rough openings of approximately 18 1/2" X 30 1/2" evenly spread across the wall.

**Flange Extension - Sure Flash Flange Extension** is applied to the inner surface of the window flange at the head. The Extension is extended past the flange by 2 inches on each side. The adhesive release liner is pulled at one end and positioned at one end of the window flange. The release liner is pulled and the Extension is aligned to cover the entire flange being touched down from one side to the other. The adhesive is compressed in position by hand pressure. The procedure is repeated at both jambs overlapping the Head Flange Extension and extending to the end, but not past the jamb flange at the sill.

**Sill Flashing - Sure Flash Adhesive Seal** was placed at the sill of the window with the Adhesive aligned along the wall sill rough opening substrate face with the adhesive facing out. The release liner for the adhesive is not pulled until the window has been positioned in the rough opening. The flashing extended past the rough opening by approximately 9 inches on each side and was stapled in the Adhesive at one end, stretched across the opening and fastened at the opposing end. No staples were placed below the Adhesive so that the flashing could be shingled over the Housewrap later.

**Window Installation** - A 0.25 inch thick plastic shim was placed at the sill of each rough opening. The shim was removed prior to testing to allow better observation at the sill. The rough opening was fitted with 18" X 30" single fixed pane glass vinyl framed windows with continuous integral nailing flange. Fasteners were placed 6" in either direction from each corner in drilled holes where a normal nail slot was unavailable at that position. Fasteners were then placed at the jamb at intervals up to 12" apart. No additional fasteners were placed at the sill or head other than those placed 6" from the corner. Prior to nailing the sill area the Sill Flashing Adhesive release liner is pulled.

**Caulk** - A small line of caulk, approximately a 0.25 inch bead, was applied at each corner of the rough opening along the edge of the window flange and onto the flange extension for a distance of 3 inches each direction from the corner. The caulk is to be smoothed in place even with the flange surface. Do not use an excessive amount of caulk. A non hardening butyl mastic adhesive was used.

**Jamb and Head Flashing** - Two sections of Sure Flash Adhesive Seal were cut to a length approximately 18 inches greater than the height of the window. The release liner was pulled at one end of the flashing, positioned such that the adhesive strip will fully cover the flange and touched down 9 inches above the head of the window. The release liner is then pulled as the flashing is stretched down the window jamb and the flashing adhered to the flange. It is important that the flashing is stretched tight and fully covers the window flange. The adhesive is hand compressed and then rolled with a J Roller. The flashing is stapled in position along its outer edge. The head flashing is installed after both jamb flashings in a similar manner.

**Housewrap** - The test wall was covered with Housewrap and stapled in position. The Housewrap was cut to picture frame each window. The Housewrap was then cut to the bottom of the flashing and then horizontally below the flashing to each end of the flashing area. The cut out section of housewrap was then shingled under the window flashing and over the Housewrap and stapled in position. The edges of the Housewrap were left loose but stapled in place. According to Flashing Products Inc. this does not follow the Housewrap manufactures recommendation of sealing edges and seams with a sealing tape but for this test does expose the flashing assembly to a worst case air and water flow assuming a properly lapped and shingled barrier was installed.

The test wall was then placed in the test chamber, sealed around the perimeter with duct tape and the chamber door closed. The test was then conducted.

#### TEST RESULTS:

The specimen was tested according to the following:

ASTM E 331 Water Penetration By Uniform Static Air pressure Test. Testing was performed with a positive test pressure of 6.0 psf for a period of 15 minutes followed by a rest period of several minutes. The test was then repeated at 9.0 psf for a period of 15 minutes followed by a rest period of several minutes. The test was finally repeated at 12.0 psf for a period of 15 minutes. The specimens were tested under constant water spray at the equivalent of 8 inches of rain per hour during all three tests with a combined test period totaling 45 minutes of the same specimen.

No water penetration of any kind was observed at the conclusion of test at 6.0 psf, 9.0 psf or 12.0 psf.

ASTM E 547 Water Penetration By Cyclic Static Air Pressure Test - Testing was performed once with a positive test pressure 12.0 psf at the completion of the ASTM E 331 testing.

No water penetration of any kind was observed at the conclusion of the 4 cycle test period at 12.0 psf.

The following test pressures have the following wind equivalency for ASTM E 331 and ASTM E 547:

6.0 psf = 49 mph      9.0 psf = 60 mph      12.0 psf = 69 mph

#### TEST CONCLUSIONS:

The samples were tested as installed by Flashing Products, Inc. Quality Testing, Inc made no modifications to the test assemblies.

All testing was performed in accordance with the referenced documents. The results are actual tested data and are certified to be accurate within the confines of the equipment used to determine the results.

The results were secured by using the designated test methods and they indicate compliance with the performance requirements of the referenced specification. This report does not constitute certification of this product.

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