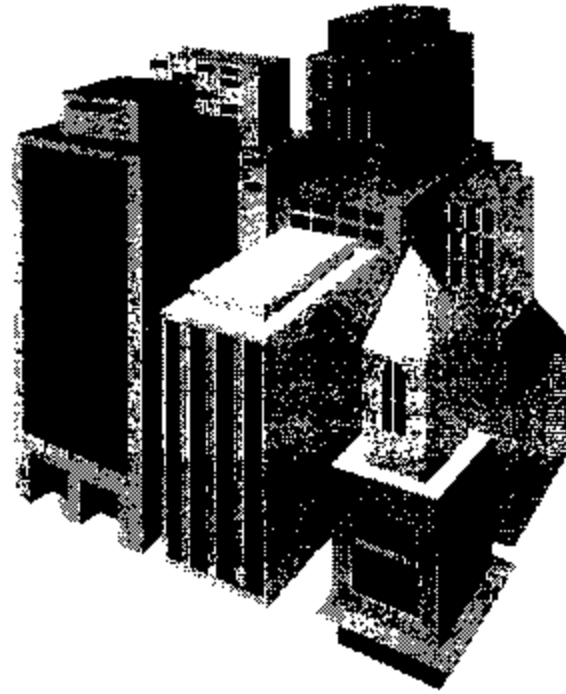


# Measuring Up To Your Standards, And More

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Report Number ETC-01-552-11349.0  
Test Start Date: 11/23/01  
Test Finish Date: 1/2/02  
Report Date: 4/30/02  
Expiration Date: 4/30/06

## Fenestration Structural Test Report

Rendered To

Great Lakes Window  
30499 Tracy Road  
Walbridge, OH 43603

### Series/Model

Uniframe Awning Window

**Description:** The product is a PVC Awning Window. The insulated glass unit is 7/8 inch thick nominal with double strength annealed glass. The frame size is 53-5/8 inches wide by 36 inches high.

**Test Specification:** AAMA/NWDA 101/I.S.2-97

## Summary of Results

Overall Design Pressure	55.0 psf
Air Leakage Rate	0.01 scfm/ft <sup>2</sup>
Maximum Water Pressure Achieved	12.0 psf
Maximum Structural Pressure Achieved	82.5 psf
Forced Entry Resistance - ASTM	Grade 10

**Overall Product Rating**

**AP - LC55 - 54 x 36**

*Accreditation's/Recognition's*  
*AAMA - WDMA - NFRC - SIGMA - NAMI - IGCC - SGCC - Dade County - NYCSCA-TDI*  
*Laboratories and Offices in New York and Ohio*

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**Specifications:** The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97 "Voluntary Specification For Aluminum, Vinyl and Wood Windows and Glass Doors", sections 1,2 and 4 only. All performance specifications in this standard shall be met for full compliance to the standard and for product certification, labeling or represented as conforming to this standard.

## Referenced Test Reports: None

*Note – The test data in any section below with an "RTR" comment have not been obtained from this specimen but from the Referenced Test Report with a specimen of the same or larger size and identical construction.*

**Design Pressure (DP)** – The product tested herein has been first evaluated to the Gateway pressure in the referenced specification for the performance class rating achieved.

## Gateway Performance Tests

<u>Specification Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
2.1.2	<u>Air Infiltration – ASTM E283</u> <b>Test Pressure - 1.57 psf</b>	0.01 scfm/ft <sup>2</sup>	0.3 scfm/ft <sup>2</sup>
2.1.3	<u>Water Resistance – ASTM E547</u> 5 gal/hr-ft <sup>2</sup> – 4 Test cycles – 24 Minutes <b>Design Pressure - 25.0 psf</b>  <b>Test Pressure - 3.75 psf (15% DP)</b> With Screen Without Screen	NA Pass	No Leakage
2.1.4	<u>Uniform Structural Load - ASTM E 330</u> <b>Design Pressure - 25.0 psf</b>  <b>Test Pressure</b> <b>Positive Load - 37.5 psf (150% x DP)</b> <b>Negative Load - 37.5 psf (150% x DP)</b>	0.003 in. 0.025 in.	0.124 in. 0.124 in.

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## Gateway Performance Tests (con't)

Specification Paragraph	Title of Test	Results	Allowed
2.1.7	<u>Welded Corner Test – AAMA Method</u> Sashes – Four Corners Frame – Four Corners	Pass Pass	<100% <100%
2.1.8	<u>Forced Entry Resistance - ASTM F 588</u> Grade Level - 10 T1= 5 min. L1=150 lbf. L2=75 lbf. L3=25 lbf.  Lock Manipulation Test Test B1, B2, B3 Lock Manipulation Test	Pass Pass Pass	No Entry No Entry No Entry
2.2.5.6.2	<u>Hardware Load Test – AAMA Method</u> 17 lbf. concentrated load	<0.125 in.	3.5 in.

Accreditation's/Recognition's

AAMA – WDMA – NFRC – SIGMA – NAMI – IGCC – SGCC – Dade County – NYCSCA – TDI  
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## Optional Performance Tests

The manufacturer specified herein has successfully achieved all the required criteria in section 2 of the referenced specification for the Gateway size of the achieved Performance Rating and has further successfully tested the product to higher performance levels as indicated below.

**Design Pressure (DP)** – The product tested herein has been additionally evaluated to the Design Pressure referenced below.

Specification

<u>Paragraph</u>	<u>Title of Test</u>	<u>Results</u>	<u>Allowed</u>
4.3	<u>Water Resistance - ASTM E 547</u> 5 gal/hr-ft <sup>2</sup> – 4 Test cycles – 24 Minutes <b>Design Pressure - 80.0 psf</b>		
	<b>Test Pressure – 12.0 psf (15% x DP)</b>		
	With Screen	NA	No Leakage
	Without Screen	Pass	No Leakage
4.4.2	<u>Uniform Structural Load - ASTM E 330</u> <b>Design Pressure - 55.0 psf</b>		
	<b>Test Pressure</b>		
	<b>Positive Load – 82.5 psf (150% x DP)</b>	0.004 in	0.124 in.
	<b>Negative Load – 82.5 psf (150% x DP)</b>	0.002 in.	0.124 in.

Accreditation's/Recognition's

AAMA – WDMA – NFRC – SIGMA – NAMI – IGCC – SGCC – Dade County – NYCSCA – TDI  
Laboratories and Offices in New York and Ohio

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## Product Description of Test Specimen

### Glazing:

IG Thickness	7/8 in. Nominal (0.870 in.)
Thickness of Glass(s)	Double strength (0.123 / 0.124 in.) - Annealed
Number of Lights	Two
Laminate Thickness	NA
Sealant Material	PIB
Spacer Material	Steel - Intercept – 0.605 x 0.345

### Frame:

Width, Height, Depth	53-5/8 in. W. x 36 in. H. x 3-1/4 in. D.
Material	PVC
Corner Construction	Miter
Corner Fastening	Welded
Corner Sealing	N.A.
Cladding	N.A.
Finish	NA

### Sash:

Width, Height, Depth	52-5/16 in. W. x 34-11/16 in. H. x 2.145 in. D.
Material	PVC
Corner Construction	Miter
Corner Fastening	Welded
Corner Sealing	N.A.
Cladding	N.A.
Finish	NA
Method of Glazing	Interior Drop-In
Interior	Snap-In PVC Glazing Bead
Exterior	Silicone
Reinforcement	Aluminum T-Box Profile – 1.035 in. x 0.545 in.

### Weatherseals:

Sash: All members	Center Fin Pile - .187 in. W. x 0.250
Frame: All members	PVC Hollow Bulb Seal – 0.280 in. dia x 0.345 in. H
Operator	Closed Cell Foam Gasket

*Accreditation's/Recognition's*

*AAMA – WDMA – NFRC – SIGMA – NAMI – IGCC – SGCC – Dade County – NYCSCA-TDI  
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# Measuring Up To Your Standards, And More

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## Product Description of Test Specimen (con't)

### Drainage:

#### Sash

Type	2 - Weep holes
Size	0.125 dia.
Location	Bottom Corners - 3-3/4 in. in from bottom corners
Frame	sloped Sill

### Hardware

Operator	1 - Dual-Arm
Locks	2 - 6-3/4 in. from bottom of jambs, keepers secured with #6 x 3/8 in. L. steel screws
Hinges	2 - Concealed
Snubbers	1 - Centered on head

### Anchorage of Frame to Test Buck:

Type	Screws
Material	Steel
Size	#8 x 2-1/2 in. long
Quantity	8
Location	3 - 2 in. in. and centered both jambs, 2 - 17 in. in each end of head
Sealant	Silicone

### Test Buck:

Mounting Gap	Flush
Shims-Qty./Location	Pine - 1-1/4 in. each end of head
Stops: size, Qtn., Loc.	NA
Sealant	Silicone
Buck Size	2 x 8
Material	# 1 - Yellow Pine

Review of Bill of Materials - Reviewed as supplied

Review of Assembly and Detail Drawings - Reviewed as supplied

Components changed or altered during testing to achieve stated results - None

Product Description Approval

Product Description Analysis

Clients Representative Signature on File

Date: 5/5/02

\_\_\_\_\_  
Laboratory Representative

*Accreditation's/Recognition's*

*AAMA - WDMA - NFRC - SIGMA - NAMI - IGCC - SGCC - Dade County - NYCSCA-TDI  
Laboratories and Offices in New York and Ohio*

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## Conditions, Terms, and General Notes Regarding These Tests

The product tested **Has Been** compared to the detailed drawings, bill of materials and fabrication information supplied by the client so named herein. Our analysis, which includes dimensional and component description comparisons, indicate the tested product and engineering information supplied by the client "**Are Equivalent**". The report and representative samples will be retained for four years from the date of initial test.

These test results were obtained by employing all requirements of the designated test methods with no deviations. The test results and specimen supplied for testing are in compliance with the referenced specifications.

The test results are specific to the product tested by this laboratory and of the sample supplied by the client named herein, and they relate to no other product either manufactured by the client, a Fabricator of the client or of installed field performance.

This report does not constitute an AAMA or NWWDA certified product under the certification programs of these organizations. The program administrator of these programs and organizations may only grant product certification.

ETC Laboratories makes no opinions or endorsements regarding this product and its performance. This report may not be reproduced or quoted in partial form without the expressed written approval of ETC Laboratories.

No conclusions of any kind regarding the adequacy of the glass in the test specimen may be drawn from the test. Procedure "A" in ASTM E330 was used for this test.

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**For ETC Laboratories**

  
Test Technician

  
Arthur Murray  
VP, Technical Services

VPTS