



# ETC Laboratories

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Corporate Offices / Laboratories

297 Buell Road  
Rochester, NY 14624  
(585) 328-7668  
Fax: (585) 328-7777

Report Number: ETC-07-329-20269.0

Test Start Date: 10/23/2007

Test Finish Date: 10/23/2007

Report Date: 11/09/2007

Expiration Date: 11/09/2011

## Fenestration Structural Test Report

Rendered To

Croft, LLC  
P.O. Box 826  
McCombs, MS. 39649

### Series / Model

70 / 90 / 75 / 95 / 97 Series Picture Window

### Summary Description:

The tested product was an aluminum fixed window, configured as a (O). The unit was glazed with a single lite of 3/16 inch annealed glass. The overall frame size was 73-1/2 inches wide by 85 inches high by 1-13/16 inches deep.

### Specification:

The test specimen(s) was evaluated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05 "Standard/Specification for Windows, Doors, and Unit Skylights." in addition to ANSI/AAMA/WDMA 101/I.S.2/NAFS-02.

### Summary of Results

Overall Design Pressure, Pa (psf) 960 (20.00)

Air Leakage Rate, L/sec/m<sup>2</sup> (scfm/ft<sup>2</sup>) 0.5 (0.01)

Maximum Water Pressure Achieved, Pa (psf) 290 (6.00)

Maximum Structural Pressure Achieved, Pa (psf) 1440 (30.00)

Forced Entry Resistance, ASTM F588 Pass

**Product Designations:** F-R20 1867 x 2159 (74 x 85)

**Gateway Performance Test Results**

<i>Specification Paragraph</i>	<i>Title of Test</i>	<i>Results</i>	<i>Allowed</i>
5.3.2	<u><i>Air Leakage Resistance – ASTM E 283</i></u> Test Pressure - 75 Pa (1.60 psf)	0.05 L/sec/m <sup>2</sup> (0.01 scfm/ft <sup>2</sup> )	1.50 L/sec/m <sup>2</sup> (0.30 scfm/ft <sup>2</sup> )
	The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.		
5.3.3	<u><i>Water Penetration Resistance – ASTM E 547</i></u> 204 L/hr/m <sup>2</sup> (5 gal/hr-ft <sup>2</sup> ) - 4 Test cycles - 24 Minutes <b>Design Pressure - 720 Pa (15.00 psf)</b> Test Pressure - 140 Pa (2.90 psf) Testing was started at pressures higher than gateway.		
5.3.4.2	<u><i>Uniform Load Deflection - ASTM E 330</i></u> <b>Design Pressure - 720 Pa (15.00 psf)</b> Test Pressure Positive Load - 720 Pa (15.00 psf) Negative Load - 720 Pa (15.00 psf) Note: Measurements per AAMA Guidelines: Fasteners on jamb	1.37 mm (0.054 in.) 1.04 mm (0.041 in.)	N/A N/A
5.3.4.3	<u><i>Uniform Structural Load - ASTM E 330</i></u> <b>Design Pressure - 720 Pa (15.00 psf)</b> Test Pressure Positive Load – 1080 Pa (22.50 psf) Negative Load – 1080 Pa (22.50 psf) Note: Measurements per AAMA Guidelines: Fasteners on jamb	0.03 mm (0.001 in.) 0.08 mm (0.003 in.)	1.37 mm (0.054 in.) 1.37 mm (0.054 in.)
5.3.5	<u><i>Forced Entry Resistance – ASTM F 588</i></u> Grade: 10 Type D Disassembly Test	Pass	No Entry

**Optional Performance Test Results**

<i>Specification Paragraph</i>	<i>Title of Test</i>	<i>Results</i>	<i>Allowed</i>
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The product specified herein has successfully achieved all the required criteria in section 5 of the referenced specification for the Gateway size of the achieved Performance Rating and has been further successfully tested the product to higher performance levels as indicated below.

4.4.2.6	<u>Water Resistance - ASTM E 547</u>		
	204 L/hr/m <sup>2</sup> (5 gal/hr-ft <sup>2</sup> ) - 4 Test cycles - 24 Minutes		
	<b>Design Pressure - 1920 Pa (40.00 psf)</b>		
	Test Pressure - 290 Pa (6.00 psf)	Pass	No Leakage
	<u>Uniform Load Deflection - ASTM E 330</u>		
	<b>Design Pressure -960 Pa (20.00 psf)</b>		
	Test Pressure		
	Positive Load - 960 Pa (20.00 psf)	2.11 mm (0.083 in.)	N/A
	Negative Load - 960 Pa (20.00 psf)	1.24 mm (0.049 in.)	N/A
	Note: Measurements per AAMA Guidelines: Fasteners on jamb		
	<u>Uniform Structural Load - ASTM E 330</u>		
	<b>Design Pressure – 960 Pa (20.00 psf)</b>		
	Test Pressure		
	Positive Load – 1440 Pa (30.00 psf)	0.13 mm (0.005 in.)	1.37 mm (0.054 in.)
	Negative Load – 1440 Pa (30.00 psf)	0.15 mm (0.006 in.)	1.37 mm (0.054 in.)
Note: Measurements per AAMA Guidelines: Fasteners on jamb			

**Product Description of Test Specimen****Specimen Item****Laboratory Verification**Frame:

Size	73-1/2 in. W. x 85 in. H. x 1-13/16 in. D.
Daylight opening	71-1/4 in. W. x 83-1/8 in. H.
Material	Aluminum
Corner construction	Butted
Corner fastening	2 #8 x 1 in. L. pan head screws driven from jambs
Corner sealing	Acrylic seam sealer

Glazing:

Glazing thickness	3/16 in.
Heat treatment	Annealed
Number of lights	1

Glazing Method:

Type	Laid-in from interior
Sealing	Wet glazed with silicone, aluminum glazing beads with T-slot rubber gasket to interior. Glazing beads are fastened with #6 x 3/4 in. L. screws, 3 in. from the corners with 4 more equally spaced between these on the jambs while the head and sill each have 3 additional screws equally spaced.
Bite depth	1/2 in.
Setting blocks	None

Drainage:

None

Test Buck:

Mounting Gap	1/8 in. at the head, sill and jambs
Shims	None
Sealant	Silicone
Material	2 x 6 wrapped around a 2 x 4, SYP, #2

Anchorage of Frame to Test Buck:

Type	Flat head screws
Size	#8 x 1-1/4 in. L.
Location	Through the head, sill and jambs nailing flange, 2 in. from the corners with 5 additional screws equally spaced between these on each framing member
Type	Perimeter stops
Size	1-1/2 in. W. x 1 in. D.
Location	Full perimeter of exterior, over nailing flange

**Product Description of Test Specimen**

**Specimen Item**

**Laboratory Verification**

**Review of Bill of Materials** – As Supplied – 2 pages

**Review of Assembly and Detail Drawings** – Assembly Drawing, 9167, 9168-1, 9125-1, 4032

**Components changed or altered during testing to achieve stated results** – NONE

***This report, in its original form contains product drawings and a Bill of Materials.***

**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 a certified product. The program administrator may only grant product certification.

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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.

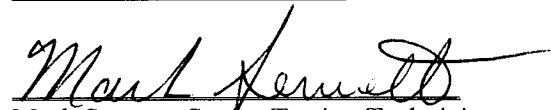
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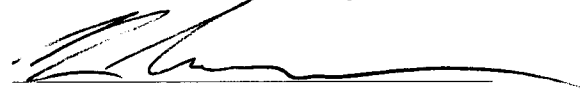
**Revision History**

<u>Date</u>	<u>Rev. #</u>	<u>Pages Affected</u>	<u>Revisions</u>
11/09/07	.0	N/A	Original report issue

**For ETC Laboratories**



Mark Sennett, Senior Testing Technician



Ben Meunier, Director of Testing  
Person in Responsible Charge