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Report Number: ETC-07-329-20270.0
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

75 / 95 / 97 Series Picture Window

Summary Description:

The tested product was an aluminum fixed window, configured as a (O). The IG unit used had a nominal thickness of 1/2 inch with two lites of double strength annealed glass. The overall frame size was 71-1/2 inches wide by 71-1/2 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)	1920 (40.00)
Air Leakage Rate, L/sec/m ² (scfm/ft ²)	0.5 (0.01)
Maximum Water Pressure Achieved, Pa (psf)	290 (6.00)
Maximum Structural Pressure Achieved, Pa (psf)	2880 (60.00)
Forced Entry Resistance, ASTM F588	Pass
Product Designations:	F-R40 1816 x 1816 (72 x 72)

Gateway Performance Test Results

<i>Specification Paragraph</i>	<i>Title of Test</i>	<i>Results</i>	<i>Allowed</i>
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Referenced Test Reports –ETC-07-329-202SG

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.

5.3.2	<u><i>Air Leakage Resistance – ASTM E 283 “RTR”</i></u> Test Pressure - 75 Pa (1.60 psf)	0.05 L/sec/m ² (0.01 scfm/ft ²)	1.50 L/sec/m ² (0.30 scfm/ft ²)
	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 ² (5 gal/hr-ft ²) - 4 Test cycles - 24 Minutes Design Pressure - 720 Pa (15.00 psf) 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> Design Pressure - 720 Pa (15.00 psf) Test Pressure Positive Load - 720 Pa (15.00 psf) Negative Load - 720 Pa (15.00 psf) Testing was started at pressures higher than gateway		
5.3.4.3	<u><i>Uniform Structural Load - ASTM E 330</i></u> Design Pressure - 720 Pa (15.00 psf) Test Pressure Positive Load – 1080 Pa (22.50 psf) Negative Load – 1080 Pa (22.50 psf) Testing was started at pressures higher than gateway.		
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 "RTR"</u>		
	204 L/hr/m ² (5 gal/hr-ft ²) - 4 Test cycles - 24 Minutes		
	Design Pressure - 1920 Pa (40.00 psf)		
	Test Pressure - 290 Pa (6.00 psf)	Pass	No Leakage
	<u>Uniform Load Deflection - ASTM E 330</u>		
	Design Pressure -1920 Pa (40.00 psf)		
	Test Pressure		
	Positive Load - 1920 Pa (40.00 psf)	1.73 mm (0.068 in.)	N/A
	Negative Load - 1920 Pa (40.00 psf)	1.47 mm (0.058 in.)	N/A
	Note: Measurements per AAMA Guidelines: Fasteners on jamb		
	<u>Uniform Structural Load - ASTM E 330</u>		
	Design Pressure – 1920 Pa (40.00 psf)		
	Test Pressure		
	Positive Load – 2880 Pa (60.00 psf)	0.18 mm (0.007 in.)	1.63 mm (0.064 in.)
	Negative Load – 2880 Pa (60.00 psf)	0.13 mm (0.005 in.)	1.63 mm (0.064 in.)
Note: Measurements per AAMA Guidelines: Fasteners on jamb			

Product Description of Test Specimen

Specimen Item

Laboratory Verification

Frame:

Size	71-1/2 in. W. x 71-1/2 in. H. x 1-13/16 in. D.
Daylight opening	69-1/8 in. W. x 69-5/8 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:

Overall IG thickness	1/2 in.
Thickness of glass	1/8 in. (0.125 in. actual)
Heat treatment	Annealed
Number of lights	2
Spacer ID	(CU-D)

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 3 more equally spaced between these on each of the framing members
Bite depth	1/2 in.
Setting blocks	3/32 in. Thk. rubber, 3 on sill and 2 on each jamb

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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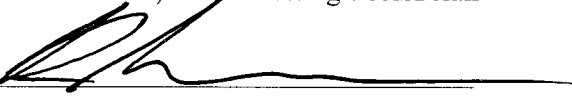
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Revision History

<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


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