Architectural Testing

AAMA/WDMA/CSA TEST REPORT

Rendered to:

MASTER WINDOW SYSTEMS, INC.

SERIES/MODEL: Master 1000 Picture Window
PRODUCT TYPE: PVC Fixed Window

	Summary of Results	
Title	**Test Specimen #1**	**Test Specimen #2**
Primary Product Designator	FW-R20 1816 x 1511 (72 x 60)	FW-R50 1816 x 1219 (72 x 48)
Design Pressure*	960 Pa (20.0 psf)	2400 Pa (50.0 psf)
Negative Design Pressure*	960 Pa (20.0 psf)	2400 Pa (50.0 psf)
Operating Force (in motion)	N/A	N/A
Air Infiltration	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	N/A
Canadian Air Infiltration/Exfiltration Level*	N/A	N/A
Water Penetration Resistance Test Pressure*	360 Pa (7.5 psf)	N/A
Uniform Load Structural Test Pressure	±1440 Pa (±30.0 psf)	±3600 Pa (±75.0 psf)
Forced Entry Resistance	Grade 10	N/A

*Optional Secondary Designators

Test Completion Date: 11/08/06

Reference must be made to Report No. 68853.02-501-47, dated 09/13/07 for complete test specimen description and data.

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Architectural Testing

AAMA/WDMA/CSA TEST REPORT

Rendered to:

MASTER WINDOW SYSTEMS, INC.
2060 DeFoor Hills Road, N.W.
Atlanta, Georgia 30318

Report No.:	68853.02-501-47
Test Dates:	10/31/06
Through:	11/08/06
Report Date:	09/13/07
Expiration Date:	11/08/10

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Veka, Inc. to witness testing on two Series/Model SH27W, PVC fixed windows at their facility located in Fombell, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1: FW-R20 1816 x 1511 (72 x 60); Test Specimen #2: FW-R50 1816 x 1219 (72 x 48). This report is a reissue of the original Report No. 68853.01-501-47. This report is reissued in the name of Master Window Systems, Inc. through written authorization of Veka, Inc. Test specimen descriptions and results are reported herein.

Test Specifications: The test specimens were evaluated in accordance with the following:

ANSI/AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors*.

AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

Test Specimen Descriptions:

Series/Model: Master 1000 Picture Window

Product Type: Poly Vinyl Chloride (PVC) Fixed Window

Test Specimen #1: FW-R20 1816 x 1511 (72 x 60)

Overall Size: 1816 mm (72") wide by 1511 mm (60") high

Daylight Opening Size: 1692 mm (66-5/8") wide by 1391 mm (54-3/4") high

Overall Area: 2.7 m^2 (30.0 ft^2)

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Test Specimen Descriptions: (Continued)

Test Specimen #2: FW-R50 1816 x 1219 (72 x 48)

Overall Size: 1816 mm (72") wide by 1219 mm (48") high

Daylight Opening Size: 1692 mm (66-5/8") wide by 1086 mm (42-3/4") high

Overall Area: 2.2 m^2 (24.0 ft^2)

The following descriptions apply to all specimens.

Finish: All PVC was white.

Glazing Details: The unit was interior glazed with nominal 19 mm (3/4") thick, sealed insulating glass fabricated from two sheets of 3.0 mm (1/8") clear annealed glass and a butyl spacer material with stainless steel substrate – single sealed. The insulating glass was set against double-sided adhesive tape and secured with rigid vinyl glazing beads. A cap bead of silicone sealant was located at the exterior perimeter.

Frame Construction: The PVC frame was constructed using mitered and welded corner construction.

Drainage:

Description	Quantity	Location
22.2 mm (7/8") wide by 4.7 mm (3/16") high weepslot (with flap)	2	Exterior face of sill, one at each end
4.8 mm (3/16") diameter weephole	2	Sill glazing pocket, one at each end

Reinforcement: No reinforcement was utilized.

Installation: The unit was installed in a wood buck constructed of Spruce-Pine-Fir construction lumber and fastened through the nail fin with #8 x 32 mm (1-1/4") screws spaced approximately 230 mm (9") on center (unit #2 @ 4-1/2"). The exterior nail fin perimeter was sealed with a silicone sealant. A nominal 3 mm (1/8") gap was maintained at the perimeter between the buck and window frame.

Test Results: The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed

Test Specimen #1: FW-R20 1816 x 1511 (72 x 60)

2.1.2	Air Leakage Resistance per ASTM E 283		See Note #1
5.3.2	75 Pa (1.57 psf, 25 mph)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	1.5 L/s/m^2 (0.30 cfm/ft^2) max.

***Note #1**: The tested specimen meets (or exceeds) the performance levels specified in ANSI/AAMA/NWWDA 101/I.S.2-97, 101/I.S.2/NAFS-02, AAMA/WDMA/CSA 101/I.S. 2/A440-05 for air infiltration.*

2.1.3	Water Resistance per ASTM E 547		
5.3.3	140 Pa (2.9 psf)	No leakage	No leakage
2.1.4.1	Uniform Load Deflection per ASTM E 330		
5.3.4.2	(Deflections reported were taken on the head)		
	(Loads were held for 10 seconds)		
	720 Pa (15.0 psf) (positive)	3.3 mm (0.13")	See Note #2
	720 Pa (15.0 psf) (negative)	7.1 mm (0.28")	See Note #2

***Note #2**: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-05 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

2.1.4.2	Uniform Load Structural per ASTM E 330		
5.3.4.3	(Permanent sets reported were taken on the head)		
	(Loads were held for 10 seconds)		
	1080 Pa (22.5 psf) (positive)	0.5 mm (0.02")	7.3 mm (0.29") max.
	1080 Pa (22.5 psf) (negative)	0.8 mm (0.03")	7.3 mm (0.29") max.

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
Test Specimen #1: FW-R20 1816 x 1511 (72 x 60) (Continued)			
2.1.8	Forced Entry Resistance per ASTM F 588		
5.3.5	Type: D	Grade: 10	
	Hand Tool Manipulation	No entry	No entry
5.3.6.2	Thermoplastic Corner Weld Test	Meets as stated	Meets as stated
Optional Performance			
4.3	Water Resistance per ASTM E 547		
4.4.2.6	360 Pa (7.5 psf)	No leakage	No leakage
4.4.1	Uniform Load Deflection per ASTM E 330		
4.4.2.6	(Deflections reported were taken on the head)		
	(Loads were held for 10 seconds)		
	960 Pa (20.0 psf) (positive)	4.6 mm (0.18")	See Note #2
	960 Pa (20.0 psf) (negative)	8.9 mm (0.35")	See Note #2
4.4.2	Uniform Load Structural per ASTM E 330		
4.4.2.6	(Permanent sets reported were taken on the head)		
	(Loads were held for 10 seconds)		
	1440 Pa (30.0 psf) (positive)	<0.3 mm (<0.01")	7.3 mm (0.29") max.
	1440 Pa (30.0 psf) (negative)	0.8 mm (0.03")	7.3 mm (0.29") max.
Test Specimen #2: FW-R50 1816 x 1219 (72 x 48)			
Optional Performance			
4.4.1	Uniform Load Deflection per ASTM E 330		
4.4.2.6	(Deflections reported were taken on the head)		
	(Loads were held for 10 seconds)		
	2400 Pa (50.0 psf) (positive)	2.5 mm (0.10")	See Note #2
	2400 Pa (50.0 psf) (negative)	9.4 mm (0.37")	See Note #2
4.4.2	Uniform Load Structural per ASTM E 330		
4.4.2.6	(Permanent sets reported were taken on the head)		
	(Loads were held for 10 seconds)		
	3600 Pa (75.0 psf) (positive)	0.5 mm (0.02")	7.3 mm (0.29") max.
	3600 Pa (75.0 psf) (negative)	1.8 mm (0.07")	7.3 mm (0.29") max.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing, Inc. and are representative of the test specimens reported herein.

This report is reissued in the name of Master Window Systems, Inc. through written authorization of Veka, Inc. to whom the original report was rendered. The original Veka, Inc. Report No. is 68853.01-501-47.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by Architectural Testing, Inc. for a period of four years from the original test date. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Lynn George

Lynn George
Project Manager

Digitally Signed by: Michael L. Mackereth

Michael L. Mackereth
Director - Operations

LG:cls/jld

Attachments (pages):
Appendix-A: Alteration Addendum (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	09/13/07	N/A	Original report issue - Reissue of Report No. 68853.01-501-47 in the name of Master Window Systems, Inc.

Appendix A

Alteration Addendum

***Note**: No alterations were required.*