



TEST REPORT

Report No.: F6528.01-501-47

Rendered to:

VEKA INC.
Fombell, Pennsylvania

PRODUCT TYPE: PVC Single Hung Window
SERIES/MODEL: SH57WW

SPECIFICATION(S): AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results	
	Test Specimen #1	Test Specimen #2
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class LC-PG30 1118 x 1905 (44 x 75)-H	Class LC-PG50 914 x 1829* (36 x 72*)-H
Design Pressure	±1400 Pa (±30.08 psf)	±2400 Pa (±50.13 psf)
Air Infiltration	0.1 L/s/m ² (0.20 cfm/ft ²)	See specimen #1
Canadian Air Infiltration/Exfiltration Level	A2	See specimen #1
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)	360 Pa (7.52 psf)

Test Completion Date: 02/09/16

Reference must be made to Report No. F5628.01-501-47, dated 02/19/16 for complete test specimen description and detailed test results.



1.0 Report Issued To: Veka Inc.
100 Veka Drive
Fombell, Pennsylvania 16123-025

2.0 Test Laboratory: Architectural Testing, Inc.,
a subsidiary of Intertek (Intertek-ATI)
1140 Lincoln Avenue
Springdale, Pennsylvania 15144
724-275-7100

3.0 Project Summary:

3.1 Product Type: PVC Single Hung Window

3.2 Series/Model: SH57WW

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimens tested successfully met the performance requirements for the following ratings:

Test Specimen(s)	Title	Summary of Results
1	101/I.S.2/A440-08 and -11	Class LC-PG30 1118 x 1905 (44 x 75)-H
2	101/I.S.2/A440-08 and -11	Class LC-PG50 914 x 1829* (36 x 72*)-H

General Note: An asterisk (*) next to the size designation indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.

3.4 Test Dates: 01/28/16 - 02/09/16

3.5 Test Record Retention End Date: All test records for this report will be retained until February 9, 2020.

3.6 Test Location: Veka Inc. test facility in Fombell, Pennsylvania. Calibration of test equipment was performed by Intertek-ATI in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.7 Test Specimen Source: The test specimens were provided by the client. Representative samples of the test specimen(s) will be retained by Intertek-ATI for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Intertek-ATI and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek-ATI per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.0 Project Summary: (Continued)

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Doug Merry	Veka Inc.
Cornell Charles	Veka Inc.
Joseph Allison	Intertek-ATI

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Test Specimen #1:

Overall Area: 2.1 m ² (22.9 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1118	44	1905	75
Sash size	1060	41-3/4	933	36-3/8
Screen size	1038	40-7/8	918	36-1/8

Test Specimen #2:

Overall Area: 1.7 m ² (18.0 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	914	36	1829	72
Sash size	857	33-3/4	886	34-7/8
Screen size	835	32-7/8	879	34-5/8

5.0 Test Specimen Description: (Continued)

The following descriptions apply to all specimens.

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill, jambs, fixed meeting rail	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally Welded
Fixed rail	Coped butt type	The fixed meeting rail was fastened to the jambs using four #8 x 3" long pan head screws, two at each end. Each end of the fixed rail was sealed to the jamb with a silicone sealant.

5.3 Sash Construction:

Sash Member	Material	Description
All rails and stiles	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.4 Weatherstripping:

Description	Quantity	Location
0.187" backed x 0.270" high center fin pile	2 Rows	Sash stiles
0.187" backed x 0.270" high center fin pile	1 Row	Lock rail
0.187" backed x 0.300" high center fin pile	1 Row	Sill
0.450" diameter foam-filled vinyl bulb with offset base	1 Row	Bottom rail

5.0 Test Specimen Description: (Continued)

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Rectangular shaped steel, single sealed	1/8" annealed	1/8" annealed	The sash was exterior glazed and the fixed lite was interior glazed. The glass was set against a double-sided adhesive tape and secured with rigid vinyl glazing beads. A cap bead of silicone sealant was applied to the exterior of the fixed lite.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Specimen #1 sash	1	1003 x 867	39-1/2 x 34-1/8	1/2"
Specimen #1 frame	1	1003 x 867	39-1/2 x 34-1/8	1/2"
Specimen #2 sash	1	800 x 829	31-1/2 x 32-5/8	1/2"
Specimen #2 frame	1	800 x 829	31-1/2 x 32-5/8	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	1" wide by 1/8" high	2	Exterior sill face, one 3-1/2" in from each end
Weepslot	1" wide by 3/16" high	2	Intermediate sill wall, one at each end.
Weephole	1-1/4" deep by 1/2" wide	2	Sill/jamb intersection, one at each end
Weephole	3/8" wide by 1/8" deep	2	Bottom rail, one at each end

5.0 Test Specimen Description: (Continued)

5.7 Hardware:

Description	Quantity	Location
Metal sweep lock	2	Lock rail, one 7" in from each end engaging an extruded slot in the fixed meeting rail
Recessed plastic tilt latch	2	Top corners of sash
Metal interlocking pivot bars	2	Bottom rail, one at each end
Constant force balance system with locking tilt shoes	2	One per jamb

5.8 Reinforcement:

Drawing Number	Location	Material
S-046	Fixed meeting rail	Extruded aluminum
S-047	Lock rail, stiles	Extruded aluminum

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Formed aluminum	Miter-cut and secured with snap-in plastic corner keys	Fiber	Flexible vinyl spline

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/8" shim space. The nail fin perimeter of the window was sealed with a silicone sealant.

Location	Anchor Description	Anchor Location
Integral nail fin	#8 x 2" truss head screw	Nominally spaced at 10" on center, and beginning at each corner

7.0 Test Results: The temperature during testing was 20°C (68°F). The results are tabulated as follows:

Test Specimen #1:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 156 N (35 lbf) Maintain motion: 151 N (34 lbf) Latches: 31 N (7 lbf) Locks: 31 N (7 lbf)	Report Only 180 N (40 lbf) max. 100 N (22.5 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m ² (0.20 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Air Leakage, Exfiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.8 L/s/m ² (0.15 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Canadian Air Infiltration/Exfiltration Level	A2	N/A	
Water Penetration, per ASTM E 547	N/A	N/A	3
Uniform Load Deflection, per ASTM E 330	N/A	N/A	3
Uniform Load Structural, per ASTM E 330	N/A	N/A	3
Forced Entry Resistance, per ASTM F 588, Type: A - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Deglazing, per ASTM E 987 Operating direction, 320 N (72 lbf) Remaining direction, 230 N (52 lbf)	Pass Pass	Meets as stated Meets as stated	

7.0 Test Results: (Continued)

Test Specimen #1: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 547 at 260 Pa (5.43 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 Deflections taken at the fixed meeting rail +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	16.0 mm (0.63") 15.3 mm (0.60")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the fixed meeting rail +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	0.5 mm (0.02") 1.0 mm (0.04")	4.1 mm (0.16") max. 4.1 mm (0.16") max.	5, 6

Test Specimen #2:

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 Deflection taken at the fixed meeting rail +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	14.0 mm (0.55") 14.5 mm (0.57")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the fixed meeting rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	2.0 mm (0.08") 1.0 mm (0.04")	3.3 mm (0.13") max. 3.3 mm (0.13") max.	5, 6

7.0 Test Results: (Continued)

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: With and without insect screen.

Note 3: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 4: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 5: Loads were held for 10 seconds.

Note 6: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.



Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For ARCHITECTURAL TESTING, Inc.

Joseph E. Allison
Senior Technician

Lynn George
Director – Regional Operations

JEA:sld

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1)

Appendix-B: Location of Air Seal (1)

Appendix- C: Drawing(s) (1) Complete drawings packet on file with Architectural Testing, Inc.



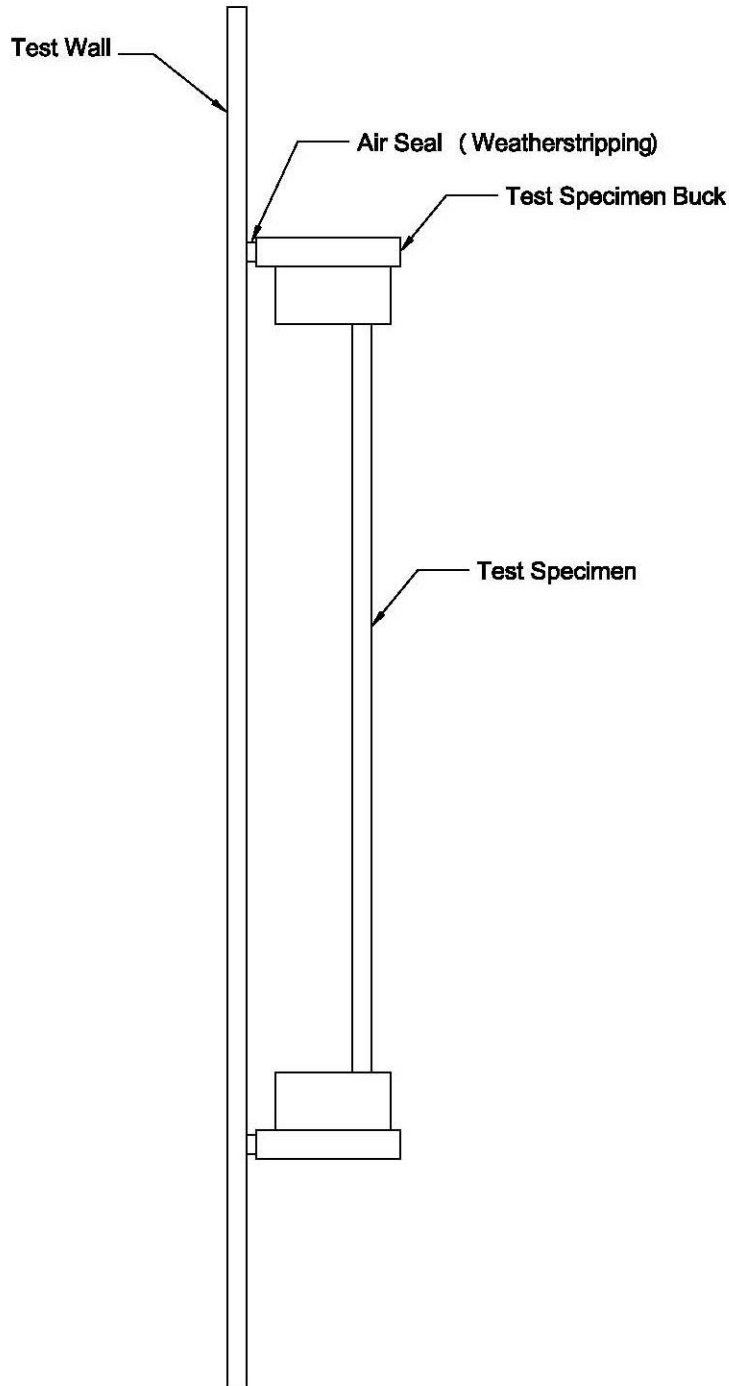
Appendix A

Alteration Addendum

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

Appendix B

Location of Air Seal: The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.





Appendix C

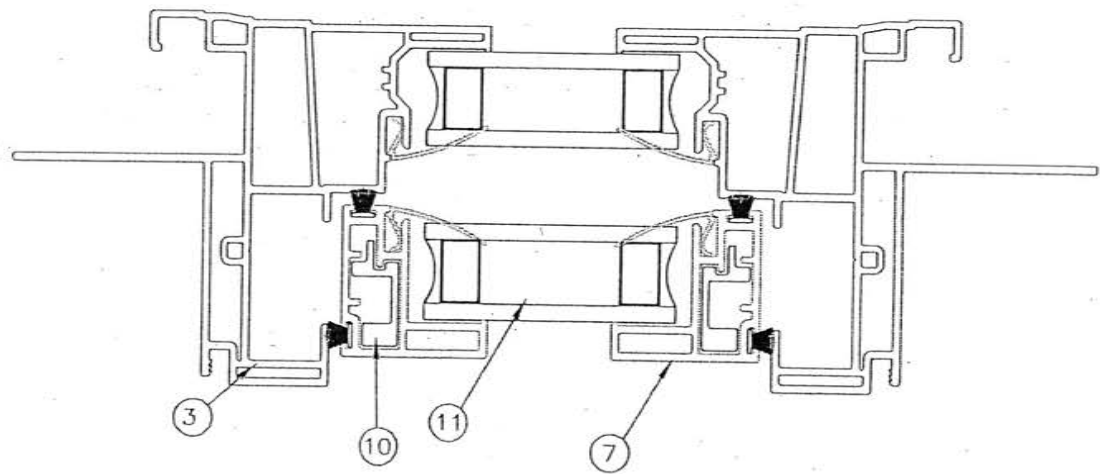
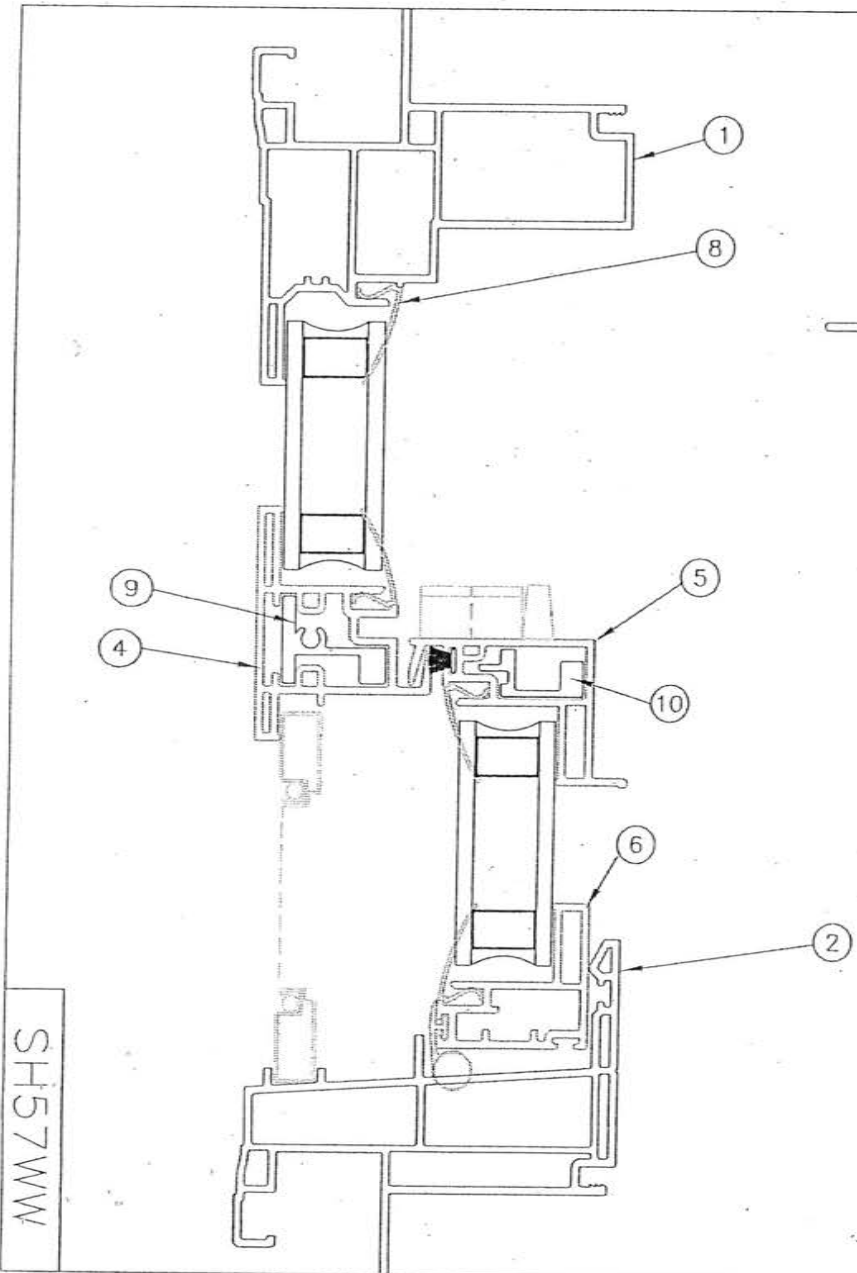
Drawing(s)

***Note:** Complete drawings packet on file with Architectural Testing, Inc.*

Test sample complies with these details.
Deviations are noted.

Report# F5628

Date 2/17/16 Tech JRM



VINYL & ALUMINUM EXTRUSIONS

① SH5702	FRAME HEAD	⑦ V-705	SASH STILE
② SH5703	FRAME SILL	⑧ V-716	GLAZING BEAD
③ SH5701	FRAME JAMB	⑨ S-046	M.R. REINFORCEMENT
④ V-706	MEETING RAIL	⑩ S-047	SASH REINFORCEMENT
⑤ V-704	SASH LOCK RAIL	⑪	3/4" I.G.
⑥ V-705	SASH BOTTOM RAIL		

SH57WW

B	UPDATED PROFILE SH5701/02/03	BJF	1/3/05
A	XXXX UPDATED PROFILE SH5702 AND SH5703	BJF	11/10/04
REV	ECN. CHANGE	BY	DATE

VinylSource INC.
427 THACHER LANE
YOUNGSTOWN, OH 44515

DESCRIPTION: SH57WW SINGLE HUNG
SLOPED SILL EQUAL GLASS

B-SIZE	BY BJF	DATE 11/4/03
SCALE FULL	DWG # SH57WW	

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