Intertek | Architectural Testing

TEST REPORT

Report No.: E0595.01-501-47

Rendered to:

VEKA INC.
Fombell, Pennsylvania

PRODUCT TYPE: PVC Double Hung Window
SERIES/MODEL: DH57WW/DH54WW/DH55WW

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*

Test Date(s): 07/18/14
Through: 03/27/15
Report Date: 03/13/15

SUMMARY OF RESULTS

	Summary of Results	
Title	**Test Specimen #1**	**Test Specimen #2**
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class R-PG40 1016 x 1829 (40 x 72) - H	Class R-PG50 914 x 1829* (36 x 72*) - H
Design Pressure	±1920 Pa (±40.10 psf)	±2400 Pa (±50.13 psf)
Air Infiltration	1.0 L/s/m^2 (0.19 cfm/ft^2)	N/A
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)	N/A

	Summary of Results
Title	**Test Specimen #3**
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class R-PG50 1016 x 1676 (40 x 66) - H
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	N/A
Water Penetration Resistance Test Pressure	N/A)

Test Completion Date: 02/27/15

Reference must be made to Report No. E0595.01-501-47, dated 03/13/15 for complete test specimen description and detailed test results.

1.0 Report Issued To: Veka Inc.
100 Veka Drive
Fombell, Pennsylvania 16123-0250

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 Double Hung Window

3.2 Series/Model: DH57WW /DH54WW/DH55WW

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimen tested successfully met the performance requirements. 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 R-PG40 1016 x 1829 (40 x 72) - H
2	101/I.S.2/A440-08 and -11	Class R-PG50 914 x 1829* (36 x 72*) - H
3	101/I.S.2/A440-08 and -11	Class R-PG50 1016 x 1676 (40 x 66) - 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: 07/18/14 - 02/27/15

3.5 Test Record Retention End Date: All test records for this report will be retained until February 27, 2019.

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 specimen(s) 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:

Name	Company
Doug Merry	Veka Inc.
Cornell Charles	Veka Inc.
Joe 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: 1.9 m^2 (20.0 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1016	40	1829	72
Exterior sash size	930	36-5/8	876	34-1/2
Interior sash size	962	37-7/8	908	35-3/4
Screen size	921	36-1/4	1759	69-1/4

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
Exterior sash size	829	32-5/8	876	34-1/2
Interior sash size	860	33-7/8	908	35-3/4

5.0 Test Specimen Description: (Continued)

Test Specimen #3:

Overall Area: 1.5 m^2 (16.7 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1016	40	1524	66
Exterior sash size	930	36-5/8	800	31-1/2
Interior sash size	962	37-7/8	832	32-3/4

The following descriptions apply to all specimens.

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill, jambs, and head insert	PVC	Extruded

	Joinery Type	**Detail**
All corners	Mitered	Thermally welded
Head insert	Square-cut	Snap fit

5.3 Sash Construction:

Sash Member	**Material**	**Description**
All rails and stiles	PVC	Extruded

	Joinery Type	**Detail**
All corners	Mitered	Thermally welded

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping:

Description	Quantity	Location
0.480" high center fin pile with kerf mount offset base	1 Row	Exterior meeting rail (interior)
0.187" backed by 0.300" high center fin pile	1 Row	Head, sill
0.187" backed by 0.270" high center fin pile	1 Row	Lock rail
0.187" backed by 0.270" high center fin pile	2 Rows	All stiles
0.350" diameter foam-filled vinyl bulb with offset base	1 Row	Bottom rail
1" long by 3/4" wide by 0.350" high adhesive backed pile pad	2	One at the each end of the lock rail

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 glass was set from the exterior against a silicone sealant and secured with rigid vinyl glazing beads.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Specimen #1 exterior sash	1	870 x 816	34-1/4 x 32-1/8	1/2"
Specimen #1 interior sash	1	870 x 816	34-1/4 x 32-1/8	1/2"
Specimen #2 exterior sash	1	768 x 816	30-1/4 x 32-1/8	1/2"
Specimen #2 interior sash	1	768 x 816	30-1/4 x 32-1/8	1/2"
Specimen #3 exterior sash	1	870 x 740	34-1/4 x 29-1/8	1/2"
Specimen #3 interior sash	1	870 x 740	34-1/4 x 29-1/8	1/2"

5.0 Test Specimen Description: (Continued)

5.6 Drainage:

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

5.7 Hardware:

Description	Quantity	Location
Composite cam lock	2	Lock stile, one 10" from each end, with mating keeper on the exterior meeting rail
Constant force balance system with locking pivot shoe	4	Two per jamb
Flush mount plastic tilt latch	4	Lock rail and top rail, one at each end
Interlocking metal pivot bar	4	Bottom rail and exterior meeting rail, one at each end

5.8 Reinforcement: .

Drawing Number	Location	Material
RF SE4545 AOM	Bottom sash stiles, and bottom rail	Extruded aluminum
RF SE4546 AOM	Lock rail	Extruded aluminum
S-050	Top sash stiles and rails	Extruded aluminum

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Formed aluminum	Miter-cut and keyed	Metal	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 8" on center, and beginning in each corner
Jambs	#8 x 2" long truss head screw	One at midspan of each jamb (2)

7.0 Test Results: The temperature during testing was 21°C (70°F). The results are tabulated as follows:

Test Specimen #1:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 133 N (30 lbf) Maintain motion: 120 N (27 lbf) Latches: 89 N (20 lbf) Locks: 36 N (8 lbf)	Report Only 155 N (35 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)	1.0 L/s/m^2 (0.19 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.	1
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 360 Pa (7.52 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 Deflections taken at the exterior meeting rail +1920 Pa (+40.10 psf) -1920 Pa (-40.10 psf)	 11.8 mm (0.46") 10.0 mm (0.40")	 Report Only	 4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the exterior meeting rail +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	 1.0 mm (0.04") 1.3 mm (0.05")	 3.8 mm (0.15") max. 3.8 mm (0.15") max.	 5, 6

Test Specimen #2:

Title of Test	Results	Allowed	Note
Optional Performance			
Uniform Load Deflection, per ASTM E 330 Deflections taken at the exterior meeting rail +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	 9.8 mm (0.38") 6.8 mm (0.27")	 Report Only	 4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the exterior meeting rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	 1.8 mm (0.07") 1.5 mm (0.06")	 3.6 mm (0.14") max. 3.6 mm (0.14") max.	 5, 6

7.0 Test Results: (Continued)

Test Specimen #3: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Uniform Load Deflection, per ASTM E 330 Deflections taken at the exterior meeting rail +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	 16.3 mm (0.64") 10.5 mm (0.41")	 Report Only	 4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the exterior meeting rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	 1.3 mm (0.05") 1.5 mm (0.06")	 3.8 mm (0.15") max. 3.8 mm (0.15") max.	 5, 6

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 INTERTEK-ATI

Joseph E. Allison/sld

Digitally Signed for: Joseph E. Allison by Sandy L. DiCaro

Joseph E. Allison
Senior Technician

Lynn George

Digitally Signed by: Lynn George

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 Intertek-ATI, Inc.

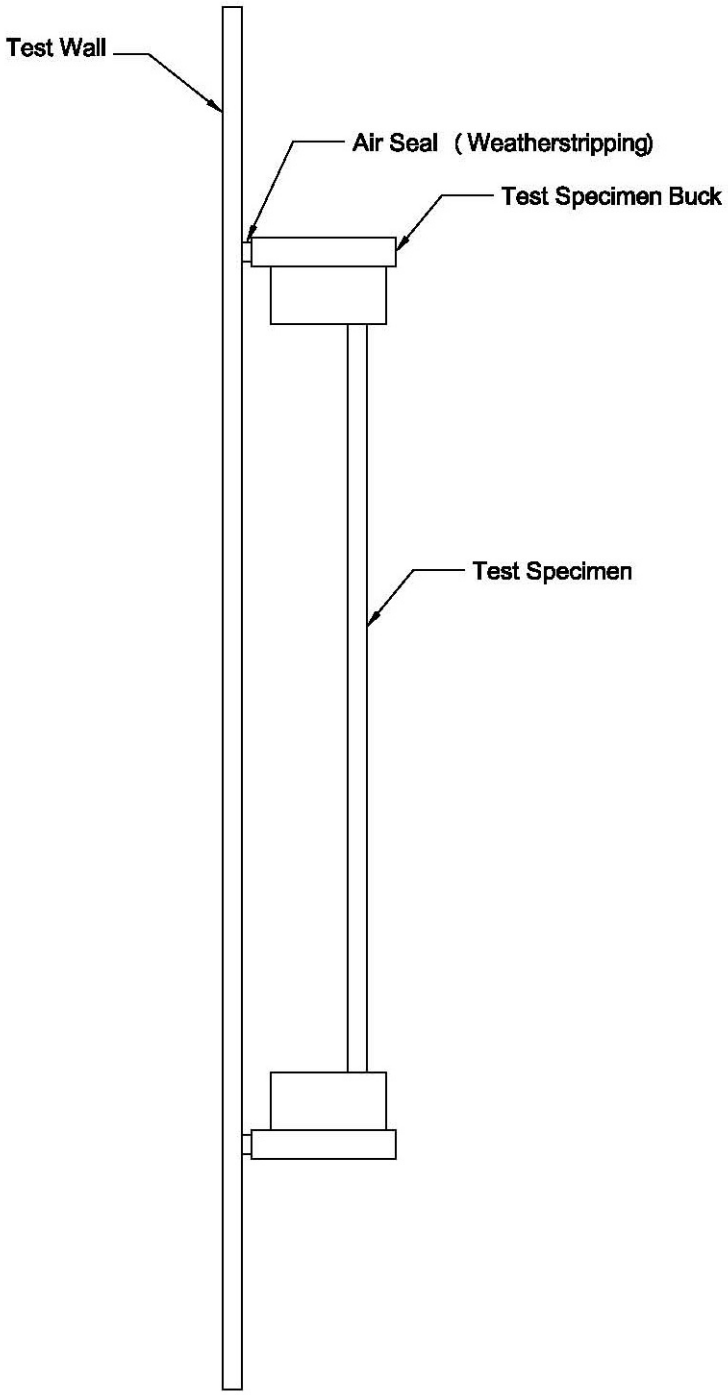
Appendix A

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 Intertek-ATI.*

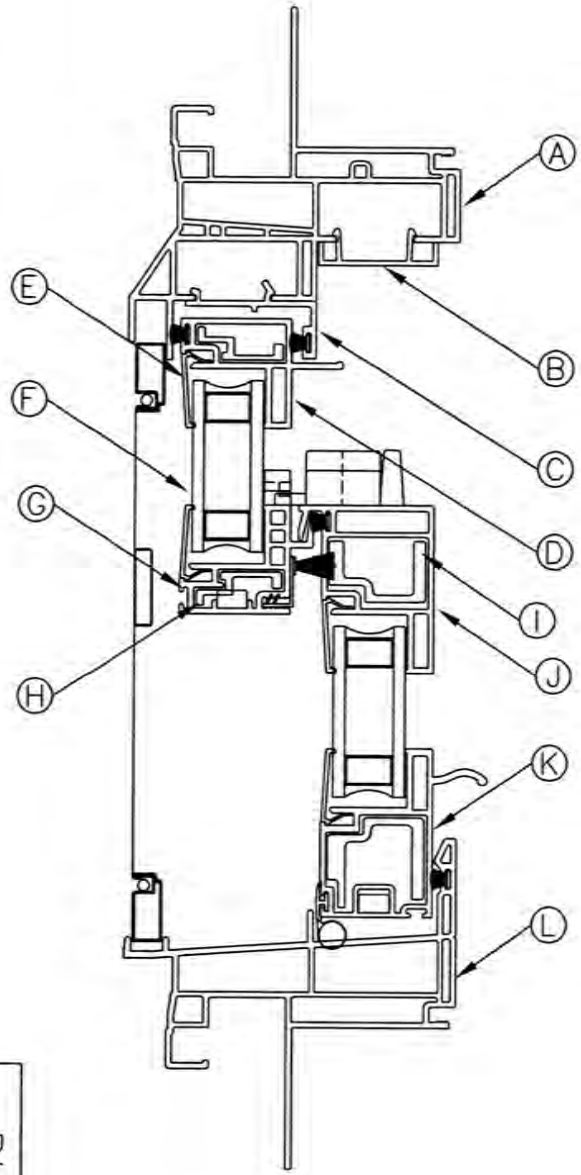
Architectural Testing

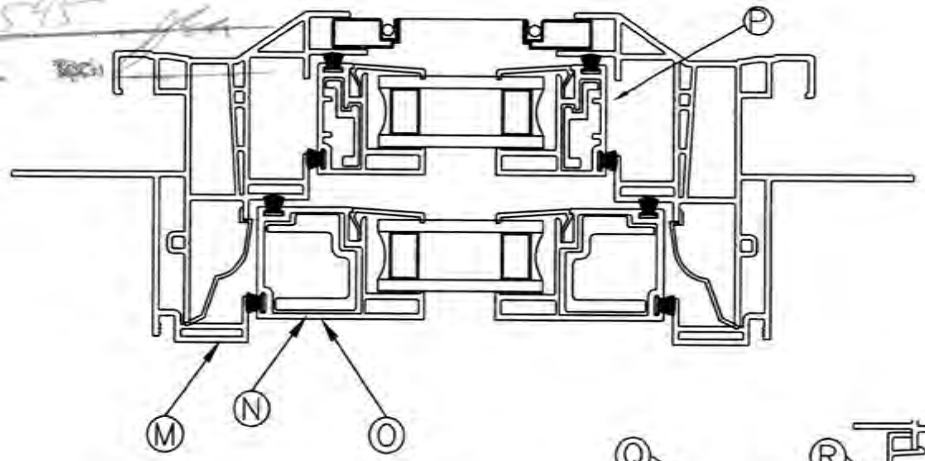
Test sample complies with these details
Deviations are noted.

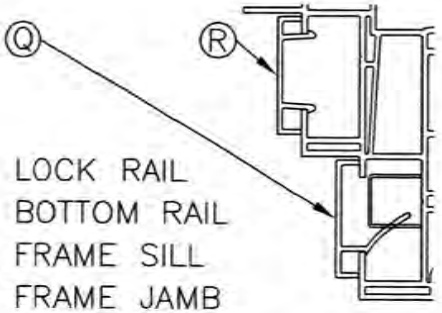
Report # E0595

Date 3/27/15

Tech







Ⓐ	DH5701	FRAME HEAD	Ⓙ	SE4646	LOCK RAIL
Ⓑ	V-717	GAP COVER	Ⓚ	SE4647	BOTTOM RAIL
Ⓒ	V-724	HEAD ADAPTER	Ⓛ	DH5703	FRAME SILL
Ⓓ	V-712	HANDLE RAIL	Ⓜ	DH5701	FRAME JAMB
Ⓔ	BV162	GLAZING BEAD	Ⓝ	RFSE4645	STILE REINF.
Ⓕ		3/4" I.G.	Ⓞ	SE4645	BOTTOM SASH STILE
Ⓖ	V-713	KEEPER RAIL	Ⓟ	V-705	TOP SASH STILE
Ⓗ	A20118XX168.0000	KEEPER REINF.	Ⓠ	V-715	SASH STOP
			Ⓡ	V-717	SASH STOP
Ⓘ	RFSE4646	LOCK REINF.			

CVP

DH57WW

REV	ECN.	CHANGE	BY	DATE
	XXXX			

VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DESCRIPTION: DH57WW DOUBLE HUNG LAYOUT
WEPT SLOPE SILL, EQUAL GLASS SASH

SIZE	BY	DATE
C-SIZE	BJF	08/14/13

SCALE	DWG #
FULL	DH57WW