



TEST REPORT

Report No.: F6130.01-501-47

Rendered to:

VEKA INC.
Fombell, Pennsylvania

PRODUCT TYPE: PVC Fixed Window
SERIES/MODEL: SHA4W

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 |
|--|--|
| AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11 | Class CW-PG50 1829 x 1829 (72 x 72) - FW |
| Design Pressure | ±2400 Pa (±50.13 psf) |
| Air Infiltration | 0.1 L/s/m ² (0.01 cfm/ft ²) |
| Canadian Air Infiltration/Exfiltration Level | Fixed |
| Water Penetration Resistance Test Pressure | 360 Pa (7.52 psf) |

Test Completion Date: 02/26/16

Reference must be made to Report No. F6130.01-501-47, dated 03/08/16 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 Fixed Window
- 3.2 Series/Model:** SHA4W
- 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 for a **Class CW-PG50 1829 x 1829 (72 x 72) - FW** rating.
- 3.4 Test Dates:** 02/25/16 - 02/26/16
- 3.5 Test Record Retention End Date:** All test records for this report will be retained until February 26, 2020.
- 3.6 Test Location:** Veka Inc. test facility in Fombell, Pennsylvania. Calibration of test equipment was performed by Architectural Testing in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".
- 3.7 Test Specimen Source:** The test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the test completion date.
- 3.8 Drawing Reference:** The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

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

4.0 Test Specification(s):

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

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

5.0 Test Specimen Description:

5.1 Product Sizes:

| Overall Area: 3.3 m ² (36.0 ft ²) | Width | | Height | |
|---|-------------|--------|-------------|--------|
| | millimeters | inches | millimeters | inches |
| Overall size | 1829 | 72 | 1829 | 72 |

5.2 Frame Construction:

| Frame Member | Material | Description |
|-------------------|----------|-------------|
| Head, sill, jambs | PVC | Extruded |

| | Joinery Type | Detail |
|-------------|--------------|------------------|
| All corners | Mitered | Thermally welded |

5.3 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 |
|------------|---|----------------|----------------|---|
| 1" IG | Rectangular shaped steel, single sealed | 3/16" annealed | 3/16" annealed | Set from the interior against a silicone sealant and secured with rigid vinyl glazing beads |

| Location | Quantity | Daylight Opening | | Glass Bite |
|----------|----------|------------------|-----------------|------------|
| | | millimeters | inches | |
| Frame | 1 | 1699 x 1699 | 66-7/8 x 66-7/8 | 1/2" |

5.0 Test Specimen Description: (Continued)

5.4 Drainage:

| Drainage Method | Size | Quantity | Location |
|--------------------|---------------------------|----------|---|
| Weepslot with flap | 1-1/4" wide by 5/16" high | 2 | Exterior sill face, one 4" in from each end |
| Weephole | 3/16" diameter | 4 | Sill glazing channel through 2 walls, two 4" in from each end |

5.5 Hardware: No hardware was utilized.

5.6 Reinforcement: No reinforcement was utilized.

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 to the buck with a silicone sealant.

| Location | Anchor Description | Anchor Location |
|-------------------|--------------------------|---|
| Integral nail fin | #8 x 2" truss head screw | Nominally spaced at 9" on center beginning at each corner |
| Head, sill, jambs | #8 x 2" truss head screw | Three per member, one each at midspan and 1/3 points (12) |

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

| Title of Test | Results | Allowed | Note |
|--|---|---|------|
| Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf) | 0.1 L/s/m ² (0.01 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) | 0.1 L/s/m ² (0.01 cfm/ft ²) | 1.5 L/s/m ² (0.3 cfm/ft ²) max. | 1 |
| Canadian Air Infiltration/Exfiltration Level | Fixed | N/A | |
| Water Penetration, per ASTM E 547 | N/A | N/A | 3 |
| | Pass | No leakage | 2 |
| 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: D - Grade: 40 | Pass | No entry | |
| Thermoplastic Corner Weld | Pass | Meets as stated | |
| 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 taken at the head +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf) | 0.5 mm (0.02") | 1.3 mm (0.05") max. | 4, 5 |
| | 1.0 mm (0.04") | 1.3 mm (0.05") max. | |
| Uniform Load Structural, per ASTM E 330 taken at the head +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf) | 0.5 mm (0.02") | 0.8 mm (0.03") max. | 4, 5 |
| | 0.5 mm (0.02") | 0.8 mm (0.03") max. | |

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: 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: Loads were held for 10 seconds.

Note 5: Tape and film were not used to seal against air leakage during structural testing.



Architectural Testing 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 Architectural Testing, Inc. 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 Architectural Testing, Inc.

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.

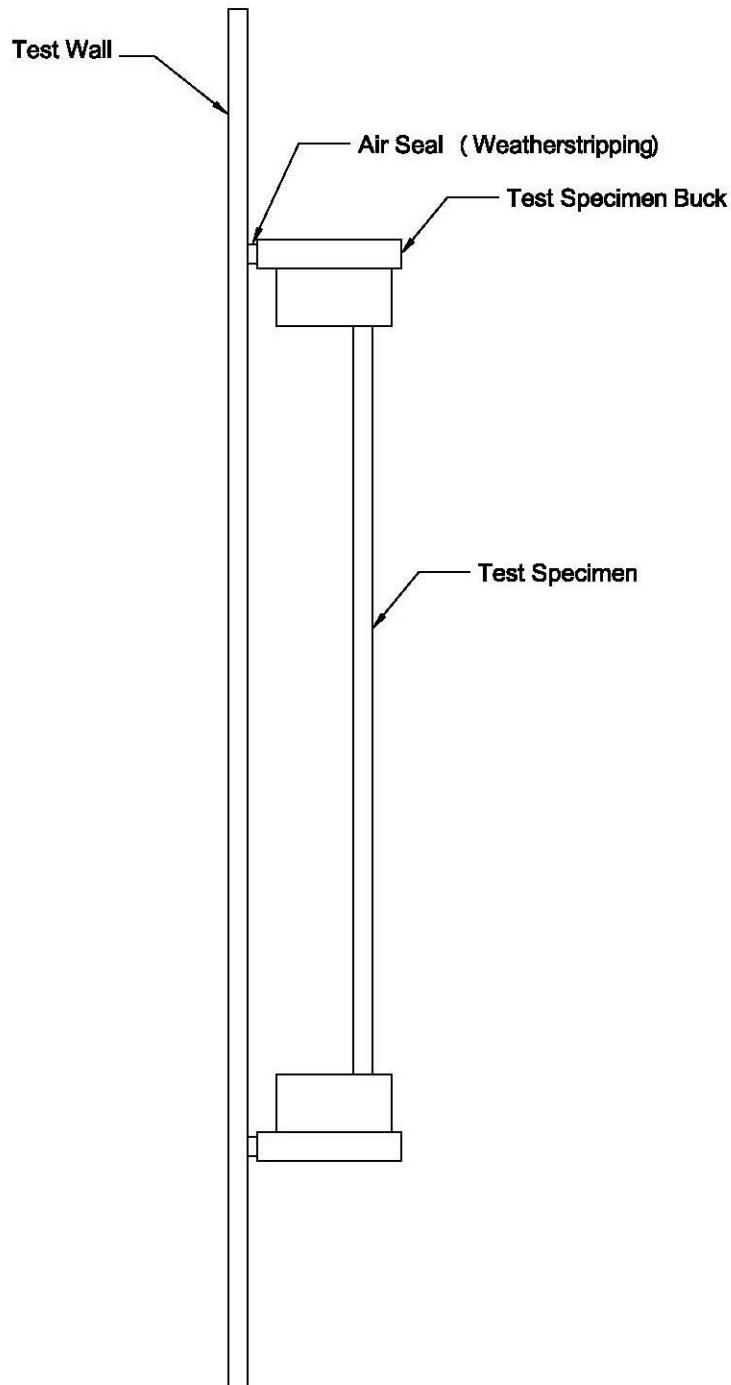
Appendix A

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.

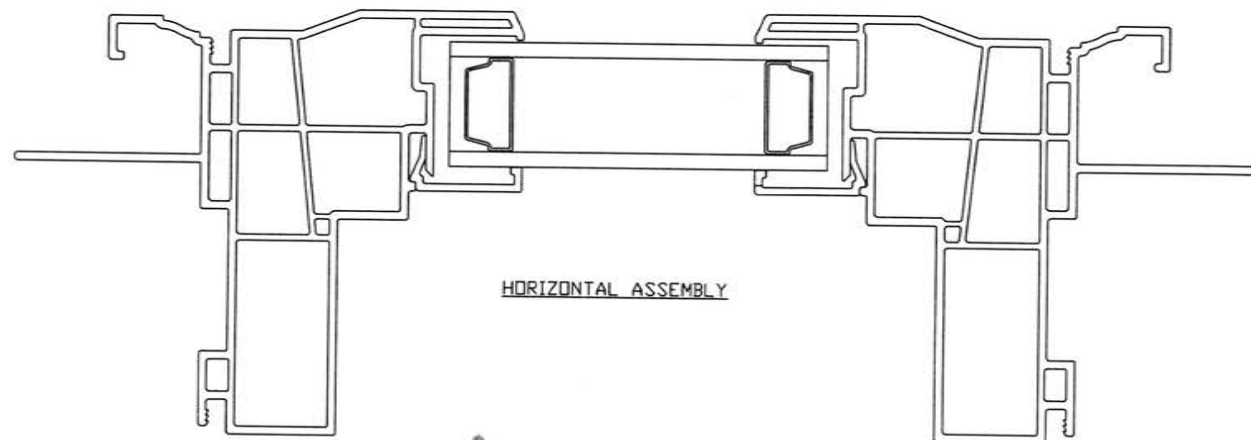
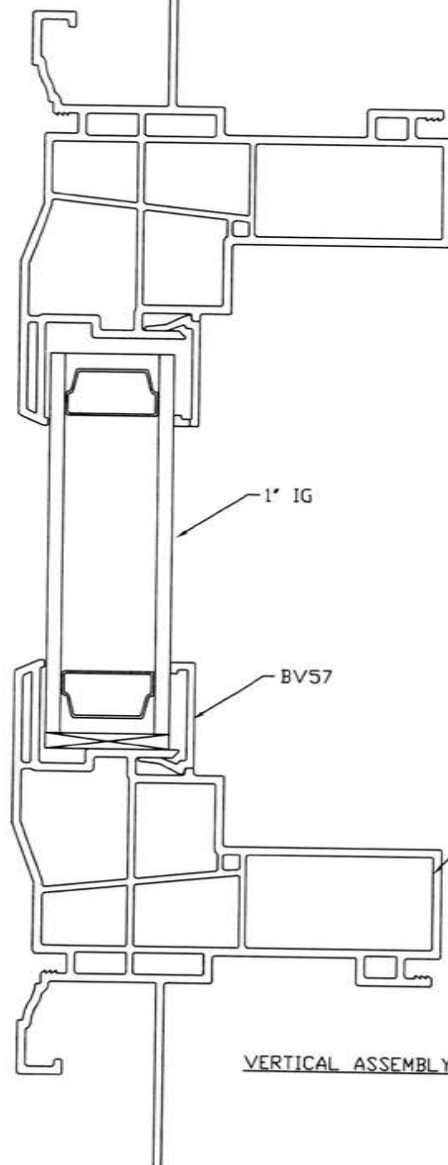




Appendix C

Drawing(s)

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



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# F6130

Date 3/2/16

Tech

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VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: BJF

| |
|------------------|
| DATE: 02-25-2016 |
|------------------|

SCALE: FULL

| | |
|--------|--|
| CHK'D: | |
|--------|--|

DATE:

APPV'D:

TITLE: PICTURE WINDOW (SHA4W)
1' IG

| | |
|-----------|--|
| APPROVED: | |
| DWG. # | |

SHA4W

REVISIONS

DATE _____