

**ANSI/AAMA/NWDA 101/I.S.2-97  
TEST REPORT**

**Rendered to:**

**MASTER WINDOW SYSTEMS, INC.**

**SERIES/MODEL: Master 1000 Single Hung Window  
PRODUCT TYPE: PVC Single Hung Window**

| Summary of Results                    |                  |                  |
|---------------------------------------|------------------|------------------|
| Title                                 | Test Specimen #1 | Test Specimen #3 |
| Rating                                | H-R40 44 x 66    | H-R35* 40 x 66   |
| Operating Force                       | N/A              | N/A              |
| Air Infiltration                      | N/A              | N/A              |
| Water Resistance Test Pressure        | N/A              | N/A              |
| Uniform Load Deflection Test Pressure | ±50.0 psf        | ±35.0 psf        |
| Uniform Load Structural Test Pressure | ±75.0 psf        | ±52.5 psf        |
| Forced Entry Resistance               | N/A              | N/A              |

Reference should be made to ATI Report Identification No. 68613.02-501-47 for complete test specimen description and data.

**ANSI/AAMA/NWWDA 101/I.S.2-97 TEST REPORT**

Rendered to:

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

Report No.: 68613.02-501-47  
Test Dates: 10/19/06  
And: 11/07/06  
Report Date: 09/13/07  
Expiration Date: 02/15/09

**Project Summary:** Architectural Testing, Inc. (ATI) was contracted by Veka, Inc. to witness testing on two Series/Model SH27WW/SLOPE, PVC single hung windows at Veka, Inc.'s test facility in Fombell, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1: H-R40 44 x 66; Test Specimen #2: H-R35\* 40 x 66. This report is a reissue of the original Report No. 68613.01-501-47. This report is reissued in the name of Master Window Systems, Inc. through written authorization of Veka, Inc. Test specimen description and results are reported herein. Reference Architectural Testing, Inc. Report No. 55984.01-501-47 for Gateway performance test results.

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

**Test Specification:** The test specimens were evaluated in accordance with ANSI/AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors*.

**Test Specimen Description:**

**Series/Model:** Master 1000 Single Hung Window

**Type:** Poly Vinyl Chloride (PVC) Single Hung Window

**Test Specimen #1:** H-R40 44 x 66

**Overall Size:** 3' 8" wide by 5' 6" high

**Sash Size:** 3' 0" wide by 2' 8-1/4" high

**Daylight Opening Size:** 3' 2-1/2" wide by 2' 4-7/8" high

**Overall Area:** 20.2 ft<sup>2</sup>

**Test Specimen Description:** (Continued)

**Test Specimen #1:** H-R40 44 x 66 (Continued)

**Reinforcement:** The fixed meeting rail contained a custom shaped extruded aluminum reinforcement measuring 1.000" by 0.924" by 0.125", reference Drawing No. RFSH204AOM. The lock rail and bottom rail contained a custom shaped extruded aluminum reinforcement measuring 0.870" by 0.846" by 0.095", reference Drawing No. RFSE1347AOM. The sash stiles contained a custom shaped extruded aluminum reinforcement measuring 0.720" by 0.846" by 0.102", reference Drawing No. RFSE1344AOM.

**Test Specimen #2:** H-R35\* 40 x 66

**Overall Size:** 3' 4" wide by 5' 6" high

**Sash Size:** 3' 1" wide by 2' 8-3/8" high

**Daylight Opening Size:** 2' 10-5/8" wide by 2' 4-7/8" high

**Overall Area:** 18.3 ft<sup>2</sup>

**Reinforcement:** The fixed meeting rail contained a custom shaped extruded aluminum reinforcement measuring 1.000" by 0.924" by 0.125", reference Drawing No. RFSH204AOM. The lock rail and bottom rail contained a custom shaped extruded aluminum reinforcement measuring 0.870" by 0.846" by 0.095", reference Drawing No. RFSE1347AOM.

*The following descriptions apply to all specimens.*

**Finish:** All vinyl was white.

**Glazing Details:** The unit was glazed with 3/4" thick sealed insulating glass, fabricated from two sheets of 3/32" thick clear annealed glass and butyl spacer material with steel substrate - single sealed. The fixed lite was glazed from the interior and the sash was glazed from the exterior. Each insulating glass unit was set against a double-sided adhesive tape and secured with rigid vinyl glazing beads.

**Test Specimen Description:** (Continued)

**Weatherstripping:**

| <u>Description</u>   | <u>Quantity</u> | <u>Location</u>                     |
|--|-----------------|-------------------------------------|
| 0.187" backed by 0.280" high pile with center fin              | 2 Rows          | Sash stiles                         |
| 0.187" backed by 0.280" high pile with center fin              | 1 Row           | Lock rail, fixed meeting rail, sill |
| 0.300" diameter foam-filled vinyl jacket bulb with offset base | 1 Row           | Bottom rail                         |

**Drainage:**

| <u>Description</u>                         | <u>Quantity</u> | <u>Location</u>  |
|--|-----------------|--|
| 1" wide by 3/16" high weepslot (with flap) | 2               | Exterior base of the sill, one 4" from each end        |
| 1" wide by 3/16" high weepslot             | 2               | Intermediate sill wall, one at each end                |
| 1" wide by 3/4" deep weepslot              | 2               | Sill/interior jamb track intersection, one at each end |
| 5/8" wide by leg height high weep notch    | 4               | Sill screen tracks, two at each end                    |

**Frame Construction:** The PVC frame was constructed using mitered and welded corner construction. The fixed meeting rail was coped and fastened through the jambs with two #8 x 3" long screws per end.

**Sash Construction:** The PVC sash was assembled using mitered and welded corner construction.

**Test Specimen Description:** (Continued)

**Hardware:**

| <u>Description</u>            | <u>Quantity</u> | <u>Location</u>  |
|-------------------------------|-----------------|--|
| Metal lock and keeper         | 2               | Lock rail, one 8" in from ends, mating keepers on the fixed rail |
| Constant force balance system | 2               | One per jamb   |
| Plastic sash tilt latch       | 2               | Lock rail, one at each end                                       |
| Cast metal sash tilt pin      | 2               | Bottom rail, one at each end                                     |

**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 1-1/4" long drywall screws spaced approximately 4-1/2" on center. The exterior nail fin perimeter was sealed with a silicone sealant.

**Test Results:** The results are tabulated as follows:

| <u>Paragraph</u> | <u>Title of Test - Test Method</u> | <u>Results</u> | <u>Allowed</u> |
|------------------|------------------------------------|----------------|----------------|
|------------------|------------------------------------|----------------|----------------|

**Test Specimen #1:** H-R40 44 x 66

**Optional Performance**

|       |   |       |             |
|-------|---|-------|-------------|
| 4.4.1 | Uniform Load Deflection per ASTM E 330<br>(Deflections reported were taken on the fixed meeting rail)<br>(Loads were held for 52 seconds) |       |             |
|       | 50.0 psf (positive)   | 0.45" | See Note #1 |
|       | 50.0 psf (negative)   | 0.30" | See Note #1 |

**Note #1:** *The Uniform Load Deflection test is not a requirement of ANSI/AAMA/NWDA 101/I.S.2-97 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

|       |  |       |            |
|-------|--|-------|------------|
| 4.4.2 | Uniform Load Structural per ASTM E 330<br>(Permanent sets reported were taken on the fixed meeting rail)<br>(Loads were held for 10 seconds) |       |            |
|       | 75.0 psf (positive)  | 0.01" | 0.17" max. |
|       | 75.0 psf (negative)  | 0.06" | 0.17" max. |

**Test Results: (Continued)**

**Test Specimen #2:** H-R35\* 40 x 66

**Optional Performance**

|       |  |        |             |
|-------|--|--------|-------------|
| 4.4.1 | Uniform Load Deflection per ASTM E 330                         |        |             |
|       | (Deflections reported were taken on the fixed meeting rail)    |        |             |
|       | (Loads were held for 52 seconds)                               |        |             |
|       | 35.0 psf (positive)  | 0.19"  | See Note #1 |
|       | 35.0 psf (negative)  | 0.21"  | See Note #1 |
| 4.4.2 | Uniform Load Structural per ASTM E 330                         |        |             |
|       | (Permanent sets reported were taken on the fixed meeting rail) |        |             |
|       | (Loads were held for 10 seconds)                               |        |             |
|       | 52.5 psf (positive)  | <0.01" | 0.15" max.  |
|       | 52.5 psf (negative)  | <0.01" | 0.15" max.  |

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 68613.01-501-47.

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 results herein were secured by using the designated test methods and they indicate compliance with the performance requirements of the 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 approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

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Lynn George  
Project Manager

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Michael L. Mackereth  
Director - Operations

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Attachments (pages):

Appendix-A: Alteration Addendum (1)

### Revision Log

| <b><u>Rev. #</u></b> | <b><u>Date</u></b> | <b><u>Page(s)</u></b> | <b><u>Revision(s)</u></b>  |
|----------------------|--------------------|-----------------------|--|
| 0                    | 09/13/07           | N/A                   | Original report issue - Reissue of Report No. 68613.01-501-47 in the name of Master Window Systems, Inc. |

**Appendix A**

**Alteration Addendum**

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