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December 22, 2009

To Joe @ A Better House

From: Kris @ Dove Windows

Re: CFM results

Joe,

The "CFM's are located on our Dove Website in the AAMA test reports section.

Here is the copy related to the specific "CFM".

The 2000/2000 Plus CFM is located in on page 5 of 6 in paragraph 2.1.2

@ 1.57psf .267cfm/sf tested .30 cfm/sf allowed

The 6000 Series "cfm" is located on page 6 of 11. @ paragraph 5.3.2.1

@ 1.6 psf .12 cfm/ft tested .30 cfm.ft allowed

10 PAGES



6000 / RFM MF

**AAMA/WDMA/CSA 101/I.S.2/A440-05
TEST REPORT**

Rendered to:

CHELSEA BUILDING PRODUCTS

**SERIES/MODEL: 8000-DH-T000 / 8030-DH-T000
PRODUCT TYPE: PVC Double Hung Window**

Title	Summary of Results		
	Test Specimen #1 (Nail Fin Frame)	Test Specimen #2 (Reinforced Nail Fin Frame)	Test Specimen #3 (Replacement Frame)
Primary Product Designator	H-LC45 1118 x 1905 (44 x 75)	H-LC50 1118 x 1905 (44 x 75)	H-LC50 1118 x 1905 (44 x 75)
Design Pressure	+2160 Pa (45.14 psf)	+2400 Pa (50.16 psf)	+2400 Pa (50.16 psf)
Operating Force (in motion)	133 N (30 lbf)	NA	N/A
Air Infiltration	0.6 L/s/m ² (0.12 cfm/ft ²)	N/A	N/A
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)	N/A	N/A
Uniform Load Structural Test Pressure	±3240 Pa (±67.71 psf)	±3600 Pa (± 75.24 psf)	±3600 Pa (± 75.24 psf)
Forced Entry Resistance	Grade 10	N/A	N/A

Test Completion Date: 11/23/07

Reference must be made to Report No. 76509.01-501-44, dated 01/03/08 for complete test specimen description and data.

**Test Specimen Description: (Continued)****Test Specimen #1:** (Nail fin frame) (Continued)

Screen Size: 989 mm (38-15/16") wide by 933 mm (36-3/4") high

Overall Area: 2.1 m² (22.9 ft²)

Installation: The unit was installed into a wood buck constructed from Spruce- Pine- Fir construction lumber and secured through the nail fin with #8 x 32 mm (1-1/4") long screws spaced approximately 203 mm (8") on center. The exterior nail fin perimeter was sealed with a silicone sealant. A nominal 6 mm (1/4") gap was maintained on the interior between the unit and wood buck

Test Specimen #2: (Reinforced nail fin frame)

Overall Size: 1118 mm (44") wide by 1905 mm (75") high

Top Sash Size: 995 mm (39-3/16") wide by 908 mm (35-3/4") high

Bottom Sash Size: 1021 mm (40-3/16") wide by 933 mm (36-3/4") high

Overall Area: 2.1 m² (22.9 ft²)

Installation: The unit was installed into a wood buck constructed from Spruce- Pine- Fir construction lumber and secured through the nail fin with #8 x 32 mm (1-1/4") long screws spaced approximately 203 mm (8") on center. The exterior nail fin perimeter was sealed with a silicone sealant. A nominal 6 mm (1/4") gap was maintained on the interior between the unit and wood buck. A 610 mm (24") long formed steel was located at midspan of each jamb at the exterior and secured with three #8 x 32 mm (1-1/4") long screws, reference Drawing No. 8075P.

Test Specimen #3: (Replacement frame)

Overall Size: 1118 mm (44") wide by 1905 mm (75") high

Top Sash Size: 995 mm (39-3/16") wide by 908 mm (35-3/4") high

Bottom Sash Size: 1021 mm (40-3/16") wide by 933 mm (36-3/4") high

Overall Area: 2.1 m² (22.9 ft²)

Test Specimen Description: (Continued)



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Revision 3: 06/19/08

Test Results: The temperature during testing was 22°C (72 °F). The results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> (Nail fin Frame)			
5.3.1	Operating Force per ASTM E 2068		
	Initiate motion	133 N (30 lbf)	Report Only
	Maintain motion	133N (30 lbf)	133 N (30 lbf)
	Locks	9 N (2 lbf)	100 N (22.5 lbf)
	Latches	9 N (2 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Leakage Resistance per ASTM E 283		
	75 Pa (1.6 psf)	0.6 L/s/m ² (0.12cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.
<i>Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.</i>			
5.3.3.2	Water Penetration Resistance per ASTM E 547		See Note # 2
<i>Note #2: The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".</i>			
5.3.4.2	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	720 Pa (15.05 psf) (positive)	2.5 mm (0.10")	See Note # 3
	720 Pa (15.05 psf) (negative)	1.3 mm (0.05")	See Note # 3
<i>Note #3: 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.</i>			
5.3.4.3	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the exterior meeting rail) (Loads were held for 10 seconds)		
	1080 Pa (22.57 psf) (positive)	<0.1 mm (<0.01")	3.9 mm (0.15") max.
	1080 Pa (22.57 psf) (negative)	1.8 mm (0.07")	3.9 mm (0.15") max.



Farabaugh Engineering and Testing Inc.

PERFORMANCE TEST REPORT

**2000 SERIES
DOUBLE HUNG WINDOW**

**H-R30
(3'-8" X 5'-0")**

FOR

**DOVE INDUSTRIES
767 SAN SOUCI PARKWAY
WILKES BARRE, PA 18702**

Project No. T218D-04

11/3/04

REVISED: 5/2/07

**401 Wide Drive • McKeesport, PA 15135
(412) 751-4001 • FAX (412) 751-4003**

Project No. T218D-04
Report Date: November 3, 2004

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PERFORMANCE TEST REPORT

Manufacturer: DOVE INDUSTRIES
767 SAN SOUCI PARKWAY
WILKES BARRE, PA 18702

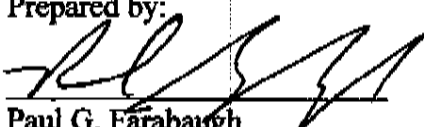
Product Identification

Product Type: Double Hung Window
Series/Model #: 2000 Series
Specification: AAMA/NWWDA 101/I.S.2-97
Designation: H-R30 (44" X 60") AAMA/NWWDA 101/I.S.2-97
GRADE 30
Product Description: Attached
Test Results: Attached
Test Equipment: FET
Testing Date: 11/2/04

Detailed assembly drawings showing wall thickness of all members, corner construction and hardware application are on file and have been compared to the sample submitted. A copy of this report and test sample will be retained at FET for a period of 4 years. The results obtained apply only to the specimen tested. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen may be drawn from this test.

The above results 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.

Prepared by:


Paul G. Farabaugh

Approved by:


Patrick J. Farabaugh, PE

Project No. T218D-04

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Product Description**General:**

Test sample was comprised of Dove Industries, 2000 Series, Double Hung Vinyl Prime, one-over-one (tilt loading type) double hung window, with an overall master frame size measuring 44" wide X 60" high. The bottom sash measured 41-3/4" wide X 29-1/4" high overall. The top sash measured 40-3/4" wide X 29-1/4" high overall. The frame and sash corners were of a welded, mitered type construction. One extruded channel shaped steel reinforcement member filled the member hollow of the bottom locking sash meeting rail. The reinforcement was attached using the locking screws. Bottom window had an exterior screen.

Weather-stripping:

MEMBER	WEATHERSTIPPING	QUANTITY	WIDTH X HEIGHT (INCHES)	LOCATION
Frame Header	Center Fin Pile Seal	1	0.187 x .26" ht	Interior leg
Frame Sill	Center Fin Pile Seal	1	0.187 x .26" ht	Interior leg
Frame Jambs	none	0	-	none
Top sash - top rail (lift rail)	Center Fin Pile Seal	1	0.187" w x .26" ht	Exterior face
Top sash - bot rail (keeper rail)	Rubber Bulb	1	0.15" diameter	Interior face
* Top sash - jamb stiles *	Center Fin Pile Seal	1	0.187" w x .26" ht	side face
	Center Fin Pile Seal	1	0.187" w x .26" ht	Exterior face
** Bot. sash - top rail ** (meeting rail)	Fin Pile Seal	1	0.187" w x .21" ht	Exterior face
Bottom sash - bot rail (lift rail)	Bulb Foam Seal with flap	1	0.30" ht	Bottom face
Bottom sash - jamb stiles	Center Fin Pile Seal	1	0.187" w x .26" ht	side face
	Center Fin Pile Seal	1	0.187" w x .26" ht	Exterior face
Screen Top Rail	Rubber Flap	1	0.187" w x 0.45" ht.	top face
Screen Bottom Rail	Pile seal	1	0.187" w x 0.15" ht.	Bottom face

* - A 3/4" x 1/4" plastic pad was attached with one screw at the bottom interior face of the stile using a 0.187" w x 0.26" ht. pile seal slid into track of plastic pad. Weather-stripping pad was at bottom side face of the stiles of the top sash.

** - A 1/2" w x 5/8" long adhesive plastic pad with (2) 5/8" long x 0.375" ht. pile seal was at ends of the exterior face of the locking rail.

Operators and Other Hardware:

The operable sashes each had two coil balances with balance shoes on each jamb. Two cam-type sweep locks were attached to the bottom sash meeting rail with keepers on top sash meeting rail. Each lock located 7-1/2 from each end. One plastic (spring loaded) tilt latch with thumb actuator was housed at each end of the top rail of both sashes. The tilt latch housing was sided loaded into the top rail of both sashes. One (rectangular shaped) aluminum pivot bar was fastened with (2) screws at each end of the bottom horizontal rails of both sashes.

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Glazing System:

Each lite were interior drop glazed with 3/4" thick (nominal) insulated glass that set on perimeter bead of silicone. Each lite utilized two (0.09" nominal) thick clear annealed glass lites with a 0.57" continuous metal spacer. The glazing was set on a bead of silicone along the perimeter of the frame. A interior snap-in rigid vinyl-glazing bead secured the glass.

Weep Holes:

Two (5/16" diameter) weep holes were located down through (full height) the bottom glazing track of both operable sash, each one 3" from each end. Two (1-3/8" w x 5/16" h reduced to 1-3/16" w x 1/8" h) weeps with flaps were located on the exterior face of the sill, one 2-3/4" from each end. The top of sill corner ends just below interior operable track in jamb had weep opening 1/2" x 1-1/4" at each corner. The sill exterior leg used for the screen was cut 1/2" from each end. The sill interior leg used for the screen was cut 1/4" from each end. Two (1/4" side x 1/4" side x 5/16" side) triangular weeps at each end of sill on center wall of sill.

Sealant:

Silicone sealant was applied to all the following areas:

- Perimeter of the glazing was set in continuous bead of silicone.
- Exterior and interior face of frame to buck intersection.

Anchorage:

Silicone sealant was used around the exterior and interior perimeter of the frame to buck intersections. Two (#8 x 1-1/4" long) screws were used for each jamb to secure the frame to the buck. The anchor screws at the top end of the jambs were located 1-3/8" down from the top. The screws at the bottom end of the jambs were located 3" up from the bottom. A 3/8" diameter pre-drilled hole guide with plastic cap was used at bottom of jamb anchor location only.

2000 SERIES DOUBLE HUNG WINDOW**Test Results**

<u>Paragraph</u>	<u>Test Title / Referenced Test Method</u>	<u>Test Results</u>	<u>Allowable</u>
<u>Gateway Performance Requirements</u>			
2.1.2	Air Infiltration Test (ASTM E-283-91) @ 1.57 psf <i>The test specimen meets the performance levels specified in AAMA/NWWDA 101/I.S.2-97 for Air Infiltration.</i>	0.267 cfm/sf	0.30 cfm/sf

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2000 SERIES DOUBLE HUNG WINDOW
Test Results (cont.)

<u>Paragraph</u>	<u>Test Title / Referenced Test Method</u>	<u>Test Results</u>	<u>Allowable</u>
2.1.3	Water Resistance Test (ASTM E547-96) @ 2.86 psf (w/wo screen)	No penetration	No penetration
2.1.4.2	Uniform Load Structural Test (see optional performance results)		
2.1.7	Welded Corner Test	Meets	As Stated
2.1.8	Forced Entry Resistance (ASTM F588-97) Performance Level 10 Type A (Section 10)		
	Sec. 10.1 Lock Manipulation Test	No Failure	As Stated
	Sec. 10.2.1.1 Test A1	No Failure	As Stated
	Sec. 10.2.1.2 Test A2	No Failure	As Stated
	Sec. 10.2.1.3 Test A3	No Failure	As Stated
	Sec. 10.2.1.4 Test A4	No Failure	As Stated
	Sec. 10.2.1.5 Test A5	No Failure	As Stated
	Sec. 10.2.1.6 Test A6	No Failure	As Stated
	Sec. 10.2.1.7 Test A7	No Failure	As Stated
	Sec. 10.2.1.8 Lock Manipulation Test	No Failure	As Stated
<u>Specific Window Performance Results</u>			
2.2.1.6.1	Operating Force Test		
	top sash	17 lb up, 29 lb dn	30 lb
	bottom sash	24 lb up, 24 lb dn	30 lb

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2000 SERIES DOUBLE HUNG WINDOW
Test Results (cont.)

<u>Paragraph</u>	<u>Test Title / Referenced Test Method</u>	<u>Test Results</u>	<u>Allowable</u>
2.2.1.6.2	Deglazing Test (ASTM E987-88, Method B)		
	<u>Top sash</u>		
	left stile @ 50 lbf	6 %	<100%
	right stile @ 50 lbf	6 %	<100%
	top rail @ 70 lbf	13 %	<100%
	bottom rail @ 70 lbf	13 %	<100%
	<u>Bottom sash</u>		
	left stile @ 50 lbf	6 %	<100%
	right stile @ 50 lbf	6 %	<100%
	top rail @ 70 lbf	13 %	<100%
	bottom rail @ 70 lbf	13 %	<100%
	<u>Optional Performance Results</u>		
4.3	Water Resistance Test (ASTM E547-96) @ 4.5 psf (w/wo screen)	No penetration	No penetration
4.4.2	Uniform Load Structural Test (ASTM E-330-97)		(0.4% \times L)
	@ 45 psf positive	0.022" *	0.167"
	@ 45 psf negative	0.023" *	0.167"
	@ 45 psf positive	0.009" *	0.117" (stile)
	@ 45 psf negative	0.007" *	0.167" (bot. rail)

* - Maximum Permanent Deformations.