

NATIONAL CERTIFIED TESTING LABORATORIES

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ALL SEASONS DOOR & WINDOW
AAMA/WDMA/ CSA 101/ I.S.2/ A440-05
TEST SUMMARY REPORT

Report No: NCTL-110-10288-1S
Expiration Date: 07/31/10

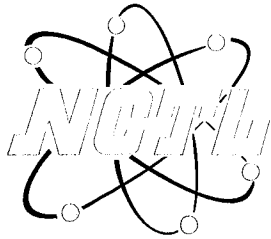
Test Specimen

Manufacturer: All Seasons Door & Window
Product Type: Type XX Horizontal Sliding Aluminum Prime Window
Series/Model: Series "A200"
Primary Product Designation: HS-C40 1800 x 1500 (71x60)
Optional Product Designation: Not Applicable
Test Completion Date: 07/19/06

Reference should be made to Structural Performance Test Report Number NCTL-110-10288-1 for complete specimen description and test data.

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JUSTIN L. BUPP
Technician



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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-10288-1
Test Date: 07/19/06
Report Date: 08/01/06
Expiration Date: 07/31/10

Client: All Seasons Door & Window
28 Edgeboro Road
East Brunswick, NJ 08816

Test Specimen: All Seasons Door & Window's Series "A200" Type XX Horizontal Sliding Aluminum Prime Window (HS-C40 1800 x 1500 (71" x 60").

Test Specification: AAMA/WDMA/CSA 101/I.S.2/A440-05, "Standard/Specification for Windows, Doors and Unit Sky Lights."

TEST SPECIMEN DESCRIPTION

General: The test specimen was a type XX horizontal sliding aluminum prime window measuring 1800 mm (71") wide by 1500 mm (60") high overall. Both panels measured 900 mm (35-7/16") wide by 1445 mm (56-13/16") high. The frame and panels were thermally broken using poured urethane thermal barriers, debridged to 3.2 mm (1/8"). One (1) metal cam-type sweep lock was located at 395 mm (15-1/2") from each end of the interior meeting stile. The metal keeper was extruded onto the exterior meeting stile. A rigid parting vinyl was located at the head and sill. A metal double roller/plastic housing was located at each end of the bottom rails. One (1) steel reinforcement bar (2.4 mm (0.095")) was housed by the meeting stiles. The frame and panels were of double screw butt-type corner construction with closed cell foam gaskets.

Glazing: Both panels were channel glazed using sealed insulating glass with a flexible vinyl glazing bead. The overall insulating glass thickness was 19 mm (7/8") consisting of two (2) lites of 3mm double strength annealed glass and one (1) space created by a desiccant-filled aluminum spacer system (A8-D).

Weatherseals: Two (2) strips of center fin weatherstrip (6.4 mm (0.250") high) were located at the top rails, bottom rails, interior jamb stile and interior meeting stile. One (1) strip of center fin weatherstrip (6.4 mm (0.250") high) was located at the exterior meeting stile and exterior jamb stile. A center fin adhesive backed dust pad (8.9 mm (0.350") high) measuring approximately 51 mm (2") from each end of the exterior meeting stile.

Weeps: One (1) weep hole measuring 25 mm x 6.4 mm (1" x 1/4") was located at 32 mm (1-1/4") from each end and at midspan of the interior sill track. Two (2) weep hole measuring 25 mm x 6.4 mm (1" x 1/4") and employing a plastic weep cove was located at 165 mm (6-1/2") from each end of the exterior sill face.

Interior & Exterior Surface Finish: White painted aluminum.

Sealant: The glazing corners and glazing perimeter were sealed with a silicone sealant. The frame corners were sealed with a small-joint sealant.

Insect Screen: An insect screen measuring 890 mm (35") wide by 1430 mm (56-3/16") high was of mitered type corner construction with pressure-fitted staked-in-place corner keys. The screen employed fiberglass mesh cloth with a solid vinyl spline, two (2) retainer springs and a flexible vinyl weatherseal.

Installation: The test specimen was mounted in a test buck consisting of 51 mm x 254 mm (2" x 10") standard grade lumber. The buck was fastened together with #8 x 76 mm (3") coarse thread drywall screws on approximately 76 mm (3") centers at each corner joint. The specimen was secured to the buck using 13 mm x 19 mm (1/2" x 3/4") parting stop at the interior and exterior perimeters. The parting stop was fastened to the test buck with #8x 41 mm (1-5/8") coarse thread drywall screws on approximately 254 mm (10") centers. The specimen was fastened to the buck using one (1) #8x2" flat head screw at the pre-existing hole locations in the jambs. The specimen and parting stop on the exterior perimeter were sealed to the test buck with a caulk sealant.

TEST RESULTS

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.1.1	Operating Force - ASTM E2068		
	Interior Panel Initiate Open	71.2 N (16 lbf)	-----
	Maintain Open	48.9 N (11 lbf)	115 N (25 lbf)
	Initiate Close	66.7 N (15 lbf)	-----
	Maintain Close	48.9 N (11 lbf)	115 N (25 lbf)
	Exterior Panel Initiate Open	80.1 N (18 lbf)	-----
	Maintain Open	71.2 N (16 lbf)	115 N (25 lbf)
	Initiate Close	75.6 N (17 lbf)	-----
	Maintain Close	62.3 N (14 lbf)	115 N (25 lbf)
5.3.1.1.3	Latching Devices	Meets As Stated	
5.3.6.3	Deglazing - ASTM E987		
	Interior Panel		
	Top Rail (230 N (50 lbf))	2.2 % (0.3 mm (0.011"))	<90%
	Bottom Rail (230 N (50 lbf))	1.4 % (0.2 mm (0.007"))	<90%
	Left Stile (320 N (70 lbf))	4.2 % (0.5 mm (0.021"))	<90%
	Right Stile (320 N (70 lbf))	6.0 % (0.8 mm (0.030"))	<90%
	Exterior Panel		
	Top Rail (230 N (50 lbf))	1.2 % (0.2 mm (0.006"))	<90%
	Bottom Rail (230 N (50 lbf))	1.8 % (0.2 mm (0.009"))	<90%
	Exterior Meeting Stile (320 N (70 lbf))	3.0 % (0.4 mm (0.015"))	<90%
	Jamb Stile (320 N (70 lbf))	1.8 % (0.2 mm (0.009"))	<90%
5.3.2.	Air Infiltration - ASTM E283		
	75 Pa - (1.6 psf) (25 mph)	1.02 L/ (sec • m ²) (0.2 cfm/ft ²) (0.22 cfm/ft ²) measured	1.5 L/ (sec • m ²) (0.3 cfm/ft ²)

TEST RESULTS (Continued)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.3.	* Water Penetration - ASTM E331& E547 3.4 L/ (min•m ²) 5.0 gph/ft ² WTP= 220 Pa (4.5 psf)	No Leakage	No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E330 1400 Pa (30.0 psf) Exterior 1400 Pa (30.0 psf) Interior	6.78 mm (0.267") 6.45 mm (0.254")	---- ----
5.3.4.3	** Uniform Load Structural - ASTM E330 2160 Pa (45.0 psf) Exterior 2160 Pa (45.0 psf) Interior	0.08 mm (0.003") 0.15 mm (0.006")	0.90 mm (0.173") 0.90 mm (0.173")
5.3.5	Forced Entry Resistance Test – ASTM F588	Meets As Stated	

OPTIONAL PERFORMANCE

5.3.3.	* Water Penetration - ASTM E331& E547 3.4 L/ (min•m ²) 5.0 gph/ft ² WTP= 290 Pa (6.0 psf)	No Leakage	No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E330 3600 Pa (75.0 psf) Exterior 3600 Pa (75.0 psf) Interior	18.72 mm (0.737") 18.36 mm (0.723")	---- ----
5.3.4.3	** Uniform Load Structural - ASTM E330 3960 Pa (82.5 psf) Exterior 3960 Pa (82.5 psf) Interior	0.38 mm (0.015") 0.71 mm (0.028")	0.90 mm (0.173") 0.90 mm (0.173")

* Tested with and without insect screen.

** No glass breakage or permanent damage causing the unit to be inoperable

TEST COMPLETED 07/19/06

The tested specimen meets (or exceeds) the performance level specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance. The listed results were secured by using the designated test methods and indicate compliance with the performance requirements of the referenced specification paragraphs for the HS-C40 1800 x 1500 (71" x 60") product designation.


Detailed drawings were available for laboratory records and were compared to the test specimen at the time of this report. A list of the component drawings reviewed for product verification is included as an appendix to this report.

A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (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. This report does not constitute certification of the product which may only be granted by a certification program validator.

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APPENDIX A
Forced Entry Resistance Test Results

Test Method: ASTM F588-04, "Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact".

TEST RESULTS

<u>Paragraph No.</u>	<u>Loads</u>	<u>Duration</u>	<u>Measured</u>	<u>Allowed</u>
<i>A2.1 –Disassembly Test</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.2-Lock Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.3 –Sash Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A4.2-Test A1</i>	<i>L1=665 N (150 lbf)</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.3-Test A2</i>	<i>L1=665 N (150 lbf)</i> <i>L2= 335 N (75 lbf) interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.4-Test A3</i>	<i>L1=665 N (150 lbf)</i> <i>L2= 335 N (75 lbf) exterior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.5-Test A4</i>	<i>L1=665 N (150 lbf)</i> <i>L2= 335 N (75 lbf) interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.6-Test A5</i>	<i>L1=665 N (150 lbf)</i> <i>L2= 335 N (75 lbf) exterior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.4.8-Test A7</i>	<i>L1=665 N (150 lbf)</i> <i>L2= 335 N (75 lbf) interior</i> <i>L3= 110 N (25 lbf) interior</i>	<i>1 Minute</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.2 - Lock Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>
<i>A2.3 –Sash Manipulation</i>	<i>N/A</i>	<i>5 Minutes</i>	<i>No Entry</i>	<i>No Entry</i>

APPENDIX B

Estimated Uncertainty of Measurements

As required by Section 5.10.3 of ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories", listed below is the estimated expanded uncertainties for the applicable measurements in this report:

<i>Operating Force:</i>	$\pm 0.6 \text{ lb}_f (\pm 2.7 \text{ N})$
<i>Test Pressures:</i>	$\pm 0.2 \text{ psf} (\pm 10 \text{ Pa})$
<i>Air Leakage:</i>	$\pm 0.12/A \text{ cfm/ft}^2 (\pm 0.06/A \text{ L/ (sec} \bullet \text{ m}^2))$ <i>Where A is the area of the test specimen</i>
<i>Deflection Measurements:</i>	$\pm 0.002 \text{ inches} (\pm 0.05 \text{ mm})$
<i>Deglazing Force:</i>	$\pm 0.7 \text{ lb}_f (\pm 3.1 \text{ N})$
<i>Forced Entry Loads:</i>	$\pm 0.7 \text{ lb}_f (\pm 3.1 \text{ N})$

All of the above expanded uncertainties are determined from combined standard uncertainties and a coverage factor $k = 2.00$ based on a normal distribution, and define an interval estimated to have a level of confidence of 95%.

APPENDIX C

List of Component Drawings Reviewed for Product Verification

See Attached Bill of Materials

Note: The above referenced component drawings along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years.