



NATIONAL CERTIFIED TESTING LABORATORIES

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SUPERSEAL MFG. COMPANY
AAMA/WDMA/CSA 101/ I.S.2/ A440-05
TEST SUMMARY REPORT

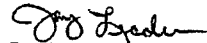
Report No: NCTL-110-10971-2S
Expiration Date: 10/31/11

Test Specimen

Manufacturer: Superseal Mfg. Company
Product Type: Type OX Horizontal Sliding Aluminum Prime Window
Series/Model: Series "6202"
Primary Product Designation: HS-C60 1800 x 1500 (71x60)
Optional Product Designation: Not Applicable
Test Completion Date: 10/09/07

Reference should be made to Structural Performance Test Report Number NCTL-110-10971-2 for complete specimen description and test data.

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JAY LEADER
Technician



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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-10971-2
Test Date: 10/09/07
Report Date: 11/20/07
Expiration Date: 10/31/11

Client: Superseal Mfg. Company
125 Helen Street
P.O. Box 795
South Plainsfield, NJ 07080

Test Specimen: Superseal Mfg. Company's Series "6202" Type OX Horizontal Sliding Aluminum Prime Window HS-C60 1800 x 1500 (71x60).

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 OX horizontal sliding aluminum prime window measuring 1800 mm (71") side by 1524 mm (60") high overall. The active panel measured 898.5 mm (35-3/8") wide by 1416 mm (55-3/4") high. The fixed lite was glazed to the frame members, providing a viewing area of 801.7 mm (31-9/16") wide by 1363.7 mm (53-11/16") high. The frame and active panel were thermally broken using poured urethane thermal barriers. One (1) continuous spring-loaded snap lock was located on the interior jamb stile. The metal keeper was extruded onto the active jambs. A rigid parting vinyl was located at the head, sill, jambs, and fixed meeting stile. A metal roller was located at each end of the active panel bottom rail. The frame was triple screw butt-type corner construction at the sill and four (4) screw butt-type corner construction at the head. The fixed meeting stile was butted and secured with two (2) screws per end at the head and sill and employed closed cell foam gaskets. The active panel was of double screw butt-type corner construction.

Glazing: The active panel was channel glazed using sealed insulating glass with a flexible vinyl gasket. The fixed lite was interior glazed using sealed insulating glass with a foam tape back-bedding, a snap-in extruded aluminum glazing bead with vinyl glazing fin at the sill, head and fixed meeting stile and a rigid vinyl glazing bead was employed at the fixed jamb. The overall insulating glass thickness was 22.2 mm (7/8") consisting of two (2) lites of 3 mm double strength annealed glass and one (1) steel coated U-shaped spacer system (CU-D).

Weatherseals: One (1) strip of center fin weatherstrip 5.8 mm (0.230") high was located at the active jamb. Two (2) strips of center fin weatherstrip 5.8 mm (0.230") high were located at the top rail, bottom rail and the active meeting stile.

Weeps: One (1) weep hole measuring 38.1 mm (1-1/2") x 6.3 mm (1/4") and employing a plastic weep cover was located at 69.9 mm (2-3/4") from each end of the exterior sill face. One (1) weep hole measuring 19 mm (3/4") x 3 mm (1/8") was located at 25.4 mm (1") from each end of the exterior screen retainer sill face. One (1) weep hole measuring 25.4 mm (1") x 6.3 mm (1/4") was located at 63.5 mm (2-1/2") from each end of the interior sill vinyl parting insert. One (1) weep hole measuring 12.7 mm (1/2") x 6.3 mm (1/4") was located at 93.7 mm (3-11/16") from each end of the bottom rail.

Interior & Exterior Surface Finish: Brown painted aluminum.

Sealant: The frame corners were sealed with a small-joint sealant. The active panel bottom rail corners were sealed with a silicone sealant.

Installation: The specimen was installed into a 51 mm (2") x 254 mm (10") wood test buck. 19 mm (3/4") x 19 mm (3/4") wood blind stops were employed at the interior and exterior perimeter of the buck to secure the window. The blind stops were fastened with #8 x 41.3 mm (1-5/8") drywall screws at 152.4 mm (6") from the ends and 356 mm (14") on center. The exterior perimeter was sealed with a silicone 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 Active Panel Initiate Open Maintain Open	97.8 N (22 lbf) 88.9 N (20 lbf)	----- 115 N (25 lbf)
	Active Panel Initiate Close Maintain Close	71.1 N (16 lbf) 75.6 N (17 lbf)	----- 115 N (25 lbf)
5.3.1.1.3	Force to Latch	Meets As Stated	
5.3.6.3	Deglazing Test - ASTM E987 Active Sash		
	Jamb Stile (320 N/70 lbf)	5.4 % (0.91 mm/ 0.027")	<90%
	Meeting Stile (320 N/70 lbf)	8.0 % (1.07 mm/ 0.040")	<90%
	Top Rail (230 N/50 lbf)	6.4 % (0.46 mm/ 0.032")	<90%
	Bottom Rail (230 N/50 lbf)	9.2 % (0.23 mm/ 0.046")	<90%
5.3.2	Air Infiltration - ASTM E283 75 Pa - (1.6 psf) (25 mph)	1.0 L/ (sec • m ²) (0.2 cfm /ft ²) (0.17 cfm /ft ²) measured	1.5 L/ (sec • m ²) (0.3 cfm /ft ²)
5.3.3	* Water Penetration - ASTM E547 3.4 L/ (min • m ²) 5.0 gph/ft ² WTP= 220 Pa (4.5 psf)	No Leakage	No Leakage

TEST RESULTS (continued)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.4.2	** Uniform Load Deflection - ASTM E330		
	1440 Pa (30.0 psf) Exterior	3.73 mm (0.147")	----
	1440 Pa (30.0 psf) Interior	3.86 mm (0.152")	----
5.3.4.3	** Uniform Load Structural - ASTM E330		
	2160 Pa (45.0 psf) Exterior	0.05 mm (0.002")	4.08 mm (0.161")
	2160 Pa (45.0 psf) Interior	0.07 mm (0.003")	4.08 mm (0.161")
5.3.5	Forced Entry Resistance Test – ASTM F588	Meets As Stated	
5.3.6.2	Thermoplastic Corner Weld Test – ASTM D618	Meets As Stated	

OPTIONAL PERFORMANCE

5.3.3	* Water Penetration - ASTM E547		
	3.4 L/(min•m ²) 5.0 gph/ft ²		
	WTP= 440 Pa (9.0 psf)	No Leakage	No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E330		
	2880 Pa (60.0 psf) Exterior	7.74 mm (0.305")	----
	2880 Pa (60.0 psf) Interior	7.56 mm (0.298")	----
5.3.4.3	** Uniform Load Structural - ASTM E330		
	4320 Pa (90.0 psf) Exterior	0.10 mm (0.004")	4.08 mm (0.161")
	4320 Pa (90.0 psf) Interior	0.10 mm (0.004")	4.08 mm (0.161")
	* Tested with and without insect screen		
	** No glass breakage or permanent damage causing the unit to be inoperable		

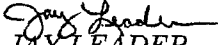
TEST COMPLETED 10/09/07


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-C60 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.

NATIONAL CERTIFIED TESTING LABORATORIES


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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
Operable Panel

<u>Paragraph No.</u>	<u>Loads</u>	<u>Duration</u>	<u>Measured</u>	<u>Allowed</u>
A2.1 Disassembly Test	N/A	5 Minutes	No Entry	No Entry
A2.2 Lock Manipulation	N/A	5 Minutes	No Entry	No Entry
A2.3 Sash Manipulation	N/A	5 Minutes	No Entry	No Entry
A2.4.2 -Test A1	L1=150 lbf	1 Minute	No Entry	No Entry
A2.4.3 -Test A2	L1=150 lbf L2= 75 lbf interior	1 Minute	No Entry	No Entry
A2.4.4 -Test A3	L1=150 lbf L2= 75 lbf exterior	1 Minute	No Entry	No Entry
A2.4.5 -Test A4	L1=150 lbf L2= 75 lbf interior	1 Minute	No Entry	No Entry
A2.4.6 -Test A5	L1=150 lbf L2= 75 lbf exterior	1 Minute	No Entry	No Entry
A2.4.8 -Test A7	L1=150 lbf L2= 75 lbf interior L3= 25 lbf interior	1 Minute	No Entry	No Entry
A2.2 -Lock Manipulation	N/A	5 Minutes	No Entry	No Entry
A2.3 - Sash Manipulation	N/A	5 Minutes	No Entry	No Entry
<u>Fixed Lite/ Panel</u>				
A2.1 -Disassembly Test	N/A	5 Minutes	No Entry	No Entry
A2.3 -Sash Manipulation	N/A	5 Minutes	No Entry	No Entry

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

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.