



# NATIONAL CERTIFIED TESTING LABORATORIES

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**REMODELERS SUPPLY CENTER**  
**AAMA/WDMA/CSA 101/I.S.2/A440-05**  
**TEST SUMMARY REPORT**

Report No: *NCTL-110-12878-1S*  
Expiration Date: *05/31/14*

## *Test Specimen*

*Manufacturer:* Remodelers Supply Center  
*Product Type:* Type XX Horizontal Sliding Vinyl Prime Window  
*Series/Model:* Series "2000"  
*Primary Product Designation:* HS-R60 1600.2 x 1117.6 (63x44)  
*Optional Product Designation:* Not Applicable  
*Test Completion Date:* 05/04/10

*Reference should be made to Structural Performance Test Report Number NCTL-110-12878-1 for complete specimen description and test data.*

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## STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-12878-1  
Test Date: 05/04/10  
Report Date: 05/06/10  
Expiration Date: 05/31/14

**Client:** Remodelers Supply Center  
2622 North Pulaski  
Chicago, IL 60639

**Test Specimen:** Remodelers Supply Center's Series "2000" Type XX Horizontal Sliding Vinyl Prime Window HS-R60 1600.2 x 1117.6 (63x44).

**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 vinyl prime window measuring 1600.2 mm (63") wide by 1117.6 mm (44") high overall. Both panels measured 771.5 mm (30-3/8") wide by 1028.7 mm (40-1/2") high with a daylight opening of 698.5 mm (27-1/2") wide by 952.5 mm (37-1/2") high. One (1) metal cam-type sweep lock was located at 279.4 mm (11") from each end of the interior meeting stile. The metal keepers were located on the exterior meeting stile at the lock positions. A rigid vinyl cover/sill insert was snap-fitted at the sill. A rigid vinyl panel stop was snap-fitted at the top and bottom of the right jamb exterior track and left jamb interior track. A rigid vinyl combination cover/weatherstrip holder/interlock was snap-fitted at the interior meeting stile. A rigid vinyl pull handle/glazing bead was snap-fitted at the jamb stiles. A metal roller/plastic housing was located at each end of the bottom rails. One (1) cellular vinyl (PVC) contour-shaped reinforcement filled the length of the interior meeting stile hollow. The frame and panels were of welded mitered corner construction.

**Glazing:** The panels were interior glazed using sealed insulating glass with a silicone single leaf dual durometer back-bedding and a snap-in two leaf dual durometer rigid vinyl glazing bead. The overall insulating glass thickness was 22.30 mm (measuring 0.878") consisting of two (2) lites of 2.99 mm double strength (average thickness 0.118") annealed glass and one (1) air-filled space created by a coated U-shaped steel spacer system (CU-D).

**Weatherseals:** One (1) strip of center fin weatherstrip (5.84 mm (0.230") high) was located at the top rail, bottom rail and jamb stiles. Two (2) strips of center fin weatherstrip (8.38 mm (0.330") high) were located at the interior meeting stile. One (1) strip of center fin weatherstrip (8.38 mm (0.330") high) was located at the exterior meeting stile. Two (2) strips of center fin weatherstrip (6.6 mm (0.260") high) were located at the frame perimeter. Three (3) stacked polypile adhesive-backed dust pads (9.65 mm (0.380") high) measuring approximately 31.75 mm (1-1/4") x 38.1 mm (1-1/2") were located at the top of the exterior and interior jambs. A polypile adhesive-backed dust pad (5.08 mm (0.200") high) measuring approximately 12.7 mm (1/2") x 15.88 mm (5/8") was located at the top of the interior meeting stile.

**Weeps:** One (1) weep hole measuring 25.4 mm (1") x 6.35 mm (1/4") and employing a plastic weep cover was located at 95.25 mm (3-3/4") from each end of the exterior sill face. One (1) weep hole measuring 12.7 mm (1/2") x 3.18 mm (1/8") was located at 3.18 mm (1/8") from each end of the screen retainer track. One (1) weep hole measuring 19.05 mm (3/4") x 3.18 mm (1/8") was located at 3.18 mm (1/8") from each end of the interior and exterior sill track.

**Interior & Exterior Surface Finish:** White vinyl (PVC).

**Insect Screen:** An insect screen measuring 742.95 mm (29-1/4") wide by 1016 mm (40") high was of butt-type corner construction with plastic corner keys. The screen employed fiberglass mesh cloth with a hollow vinyl spline and two (2) screen retainer springs with one (1) strip of 9.65 mm (0.380") weatherstrip located at the meeting stile.

**Installation:** The specimen was installed into a standard grade 50.8 mm (2") x 254 mm (10") lumber test buck. The specimen was secured to the buck with 12.7 mm (1/2") x 19.05 mm (3/4") blind stop. The blind stop was located on the exterior frame perimeter and was cut back 152.4 mm (6") from each end on the interior frame perimeter. The frame was sealed with silicone to the buck.

### TEST RESULTS

<u>Par. No.</u>	<u>Title of Test &amp; Method</u>	<u>Measured</u>	<u>Allowed</u>	
5.3.1.1	<i>Operating Force - ASTM E 2068</i>			
	<i>Interior Panel</i>	<i>Initiate Open</i>	66.7 N (15 lbf)	----
		<i>Maintain Open</i>	53.3 N (12 lbf)	90 N (20 lbf)
		<i>Initiate Close</i>	40.0 N (9 lbf)	----
		<i>Maintain Close</i>	48.9 N (11 lbf)	90 N (20 lbf)
	<i>Exterior Panel</i>	<i>Initiate Open</i>	75.6 N (17 lbf)	----
		<i>Maintain Open</i>	57.8 N (13 lbf)	90 N (20 lbf)
		<i>Initiate Close</i>	48.9 N (11 lbf)	----
<i>Maintain Close</i>		48.9 N (11 lbf)	90 N (20 lbf)	
5.3.1.1.3	<i>Latch Operation - Opening / Closing</i>	26.7 N (6 lbf)	100 N (22.5 lbf)	
5.3.6.3	<i>Deglazing - ASTM E 987</i>			
	<i>Interior Panel</i>			
	<i>Top Rail (230 N/50 lbf)</i>	5.2 % (0.66 mm/0.026")	<90%	
	<i>Bottom Rail (230 N/50 lbf)</i>	3.2 % (0.41 mm/0.016")	<90%	
	<i>Jamb Stile (320 N/70 lbf)</i>	7.8 % (0.99 mm/0.039")	<90%	
	<i>Meeting Stile (320 N/70 lbf)</i>	6.8 % (0.86 mm/0.034")	<90%	
	<i>Exterior Panel</i>			
	<i>Top Rail (230 N/50 lbf)</i>	2.4 % (0.30 mm/0.012")	<90%	
	<i>Bottom Rail (230 N/50 lbf)</i>	3.4 % (0.43 mm/0.012")	<90%	
	<i>Jamb Stile (320 N/70 lbf)</i>	4.6 % (0.58 mm/0.023")	<90%	
	<i>Meeting Stile (320 N/70 lbf)</i>	5.4 % (0.69 mm/0.027")	<90%	
	5.3.2	<i>Air Infiltration - ASTM E 283</i>		
<i>75 Pa - (1.6 psf) (25 mph)</i>		0.5 L/ (sec • m <sup>2</sup> ) (0.1 cfm/ft <sup>2</sup> ) (0.02 cfm/ft <sup>2</sup> ) measured	1.5 L/ (sec • m <sup>2</sup> ) (0.3 cfm/ft <sup>2</sup> )	

**TEST RESULTS (Cont.)**

<u>Par. No.</u>	<u>Title of Test &amp; Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.3	* <i>Water Penetration - ASTM E 547</i> 3.4 L/ (min • m <sup>2</sup> ) 5.0 gph/ft <sup>2</sup> WTP= 140 Pa (2.9 psf)	No Leakage	No Leakage
5.3.4.2	** <i>Uniform Load Deflection - ASTM E 330</i> 720 Pa (15.0 psf) Exterior 720 Pa (15.0 psf) Interior	6.75 mm (0.266") 6.75 mm (0.257")	---- ----
5.3.4.3	** <i>Uniform Load Structural - ASTM E 330</i> 1080 Pa (22.5 psf) Exterior 1080 Pa (22.5 psf) Interior	0.28 mm (0.011") 0.21 mm (0.008")	4.03 mm (0.159") 4.03 mm (0.159")
5.3.5	<i>Forced Entry Resistance Test - ASTM F 588 Grade 10</i>	Meets As Stated	
5.3.6.2	<i>Thermoplastic Corner Weld Test - ASTM D 618</i>	Meets As Stated	

**OPTIONAL PERFORMANCE**

4.4.2.6	* <i>Water Penetration - ASTM E 547</i> 3.4 L/(min • m <sup>2</sup> ) 5.0 gph/ft <sup>2</sup> WTP= 440 Pa (9.0 psf)	No Leakage	No Leakage
4.4.2.6	** <i>Uniform Load Deflection - ASTM E 330</i> 2880 Pa (60.0 psf) Exterior 2880 Pa (60.0 psf) Interior	21.0 mm (0.827") 21.1 mm (0.831")	---- ----
4.4.2.6.2	** <i>Uniform Load Structural - ASTM E 330</i> 4320 Pa (90.0 psf) Exterior 4320 Pa (90.0 psf) Interior	0.48 mm (0.019") 1.06 mm (0.042")	4.03 mm (0.159") 4.03 mm (0.159")
	* <i>Tested with and without insect screen</i>		
	** <i>No glass breakage or permanent damage causing the unit to be inoperable</i>		

**TEST COMPLETED 05/04/10**

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-R60 1600.2 x 1117.6 (63 x 44) product designation.

This test report was prepared by National Certified Testing Laboratory (NCTL), for the exclusive use of the above named client and it does not constitute certification of this product. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the ASTM E 330 test. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed.

*Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. Component drawings were reviewed for product verification. The bill of materials contains details with any deviations noted. Ambient conditions during the referenced testing are available upon request. A copy of this report along with representative sections of the test specimen will be retained by NCTL. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. This report may not be reproduced, except in full, without the written consent of NCTL.*

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**APPENDIX A**  
*Forced Entry Resistance Test Results*

**Test Method:** ASTM F 588-07, "Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact". Grade 10

**TEST RESULTS**

<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
A2.5.2-Test A1	L1= 667 N (150 lbf)	1 Minute	No Entry	No Entry
A2.5.3-Test A2	L1= 667 N (150 lbf) L2= 333 N (75 lbf) interior	1 Minute	No Entry	No Entry
A2.5.4-Test A3	L1= 667 N (150 lbf) L2= 333 N (75 lbf) exterior	1 Minute	No Entry	No Entry
A2.5.5-Test A4	L1= 667 N (150 lbf) L2= 333 N (75 lbf) interior	1 Minute	No Entry	No Entry
A2.5.6-Test A5	L1= 667 N (150 lbf) L2= 333 N (75 lbf) exterior	1 Minute	No Entry	No Entry
A2.5.8-Test A7	L1= 667 N (150 lbf) L2= 333 N (75 lbf) interior L3= 111 N (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