



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-110-12877-1S*
Expiration Date: *05/31/14*

Test Specimen

Manufacturer: Remodelers Supply Center
Product Type: Tilt Double Hung Vinyl Prime Window
Series/Model: Series "2000"
Primary Product Designation: H-R50 1016 x 1600.2 (40 x 63)
Optional Product Designation: Not Applicable
Test Completion Date: 05/03/10

Reference should be made to Structural Performance Test Report Number NCTL-110-12877-1 for complete specimen description and test data.

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DREW KLINEDINST
Technician



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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-12877-1
Test Date: 05/03/10
Report Date: 05/07/10
Expiration Date: 05/31/14

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

Test Specimen: Remodelers Supply Center's Series "2000" Tilt Double Hung Vinyl Prime Window H-R50 1016 x 1600.2 (40 x 63).

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 one-over-one tilt double hung vinyl prime window measuring 1016 mm (40") wide by 1600.2 mm (63") high overall. The top sash measured 917.58 mm (36-1/8") wide by 768.35 mm (30-1/4") high. The bottom sash measured 942.98 mm (37-1/2") wide by 790.58 mm (31-1/8") high. Both sash were removable via a spiral balance with locking tilt shoe located in each jamb track. One (1) metal cam-type sweep lock was located at 295.28 mm (11-5/8") from each end of the interior meeting rail. The metal keepers were located on the exterior meeting rail at the lock positions. One (1) plastic tilt latch with thumb actuator was located at each end of the top rail and interior meeting rail. One (1) T-shaped die-cast metal pivot bar was fastened with two (2) screws at each end of the exterior meeting rail. One (1) stamped metal pivot bar was fastened with two (2) screws at each end of the bottom rail. A rigid vinyl cover was snap-fitted at the exterior sill track. A rigid vinyl sash stop was snap-fitted at the top of each interior jamb track and bottom of each exterior jamb track. A spring-loaded plastic security stop was snap-fitted at 139.7 mm (5-1/2") from the exterior meeting rail on the top sash stiles. A rigid vinyl balance cover was snap-fitted into the interior jamb tracks. A rigid vinyl combination cover/weatherstrip holder/interlock was snap-fitted at the exterior meeting rail. A rigid vinyl combination glazing bead/lift handle was snap-fitted at the top and bottom rails. A rigid vinyl combination cover/weatherstrip holder/interior vertical sill leg was snap-fitted at the interior sill track. The frame and sash were of welded mitered corner construction.

Glazing: Both sash were interior glazed using sealed insulating glass with a silicone and two (2) leaf dual durometer back-bedding and a snap-in two (2) leaf dual durometer rigid vinyl glazing bead. The overall insulating glass thickness was 22.23 mm (measuring 0.875") consisting of two (2) lites of 3.02 mm double strength (average thickness 0.119") thick annealed glass and one (1) air-filled space created by a coated U-shaped steel spacer system (CU-D).

Weatherseals: Three (3) strips of center fin weatherstrip (6.35 mm (0.250") high) were located at the stiles. Two (2) strips of center fin weatherstrip (6.35 mm (0.250") high) were located at the bottom rail. One (1) strip of center fin weatherstrip (8.64 mm (0.340") high) was located at the interior and exterior meeting rails. One (1) strip of center fin weatherstrip (6.35 mm (0.250") high) was located at the head. One (1) strip of center fin weatherstrip (5.59 mm (0.220") high) was located at the sill and top rail.

Weeps: One (1) weep hole measuring 34.93 mm (1-3/8") x 6.35 mm (1/4") and employing a plastic weep cover was located at 79.38 mm (3-1/8") from each end of the exterior sill face. One (1) weep hole measuring 19.05 mm (3/4") x 6.35 mm (1/4") was located at 120.65 mm (4-3/4") from each end of the exterior sill face. One (1) weep hole measuring 4.76 mm (3/16") was located at 76.2 mm (3") from each end of the screen retainer track. One (1) weep hole measuring 15.88 mm (5/8") x 15.88 mm (5/8") was located at each end of the interior sill track. One (1) weep hole measuring 4.76 mm (3/16") in diameter was located at 76.2 mm (3") from each end of the bottom rail and exterior meeting rail.

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

Sealant: The snap-in interior vertical sill leg was sealed with a silicone sealant.

Insect Screen: An insect screen measuring 933.45 mm (36-3/4") wide by 768.35 mm (30-1/4") high was of butt-type corner construction with staked-in-place plastic corner keys. The screen employed fiberglass mesh cloth with a hollow vinyl spline and two (2) jamb retainer springs.

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 at the exterior frame perimeter and was cut back 6" from each end on the interior frame perimeter. The blind stops were fastened to the buck with staples. The blind stops and frame were sealed to the buck 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 E 2068		
	Top Sash Initiate Open	66.7 N (15 lbf)	----
	Maintain Open	102.3 N (23 lbf)	135 N (30 lbf)
	Initiate Close	71.2 N (16 lbf)	----
	Maintain Close	80.1 N (18 lbf)	135 N (30 lbf)
	Bottom Sash Initiate Open	111.2 N (25 lbf)	----
	Maintain Open	71.2 N (16 lbf)	135 N (30 lbf)
	Initiate Close	102.3 N (23 lbf)	----
5.1.1.3	Latch Operation - Opening / Closing	35.6 N (8 lbf)	100 N (22.5 lbf)
5.3.2	Air Infiltration - ASTM E 283		
	75 Pa - (1.6 psf) (25 mph)	0.5 L / (sec • m ²) (0.1 cfm / ft ²) (0.09 cfm / ft ²) measured	1.5 L / (sec • m ²) (0.3 cfm / ft ²)

TEST RESULTS (Cont.)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
5.3.3	* Water Penetration -ASTM E 547 3.4 L/ (min•m ²) 5.0 gph/ft ² WTP= 140 Pa (2.9 psf)	No Leakage	No Leakage
5.3.4.2	** Uniform Load Deflection - ASTM E 330 720 Pa (15.0 psf) Exterior 720 Pa (15.0 psf) Interior	3.53 mm (0.139") 2.79 mm (0.110")	----- -----
5.3.4.3	** Uniform Load Structural - ASTM E 330 1080 Pa (22.5 psf) Exterior 1080 Pa (22.5 psf) Interior	0.15 mm (0.006") 0.18 mm (0.007")	3.71 mm (0.146") 3.71 mm (0.146")
5.3.5	Forced Entry Resistance Test - ASTM F 588 Grade 10	Meets As Stated	
5.3.6.2	Thermoplastic Corner Weld Test - ASTM D 618	Meets As Stated	
5.3.6.3	Deglazing Test - ASTM E 987		
	Top Sash		
	Top Rail (320 N/70 lbf)	8.6 % (1.09 mm/ 0.043")	<90%
	Meeting Rail (320 N/70 lbf)	6.4 % (0.81 mm/ 0.032")	<90%
	Left Stile (230 N/50 lbf)	5.6 % (0.71 mm/ 0.028")	<90%
	Right Stile (230 N/50 lbf)	2.8 % (0.36 mm/ 0.014")	<90%
	Bottom Sash		
	Top Rail (320 N/70 lbf)	5.2 % (0.66 mm/ 0.026")	<90%
	Meeting Rail (320 N/70 lbf)	5.0 % (0.64 mm/ 0.025")	<90%
	Left Stile (230 N/50 lbf)	2.6 % (0.33 mm/ 0.013")	<90%
	Right Stile (230 N/50 lbf)	3.2 % (0.41 mm/ 0.016")	<90%

OPTIONAL PERFORMANCE

4.4.2.6	* Water Penetration - ASTM E 547 3.4 L/(min•m ²) 5.0 gph/ft ² WTP= 360 Pa (7.5 psf)	No Leakage	No Leakage
4.4.2.6	** Uniform Load Deflection - ASTM E 330 2400 Pa (50.0 psf) Exterior 2400 Pa (50.0 psf) Interior	17.96 mm (0.707") 14.35 mm (0.565")	---- ----
4.4.2.6.2	** Uniform Load Structural - ASTM E 330 3600 Pa (75.0 psf) Exterior 3600 Pa (75.0 psf) Interior	1.60 mm (0.063") 1.02 mm (0.040")	3.71 mm (0.146") 3.71 mm (0.146")

* Tested with and without insect screen

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

TEST COMPLETED 05/03/10

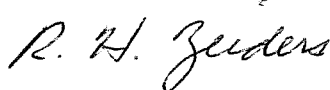
The tested specimen meets (or exceeds) the performance level specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance. The listed results were secured by using the designated test methods and indicate compliance with the performance requirements of the referenced specification paragraphs for the H-R50 1016 x 1600.2 (40 x 63) 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