

NATIONAL CERTIFIED TESTING LABORATORIES

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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-210-2640-1
Test Date: 05/15/01
Report Date: 05/31/01

Client: Custom Windows
91 N.E. 16th Street
Ocala, FL 32670

Test Specimen: Custom Windows Series "3500" Single Hung Aluminum Prime Window (C45 55x90).

Test Specification: AAMA/NWWDA 101/I.S.2-97, "Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows and Glass Doors."

TEST SPECIMEN DESCRIPTION

General: The test specimen was a one-over-one side load single hung aluminum prime window measuring 4'6" wide by 7'5" high overall. The fixed lite was glazed to the frame members, providing a viewing area of 51" wide by 42" high. The active sash measured 50" wide by 41" high. Frame and sash members were not thermally broken. The active sash was removable via a single block and tackle side load balance system located in each interior jamb track. One (1) metal cam-type sweep lock was located at 7" from each end. The metal keepers were extruded onto fixed meeting rail at lock positions. The frame was of double screw butt-type corner construction. The active sash was also of double screw butt-type corner construction. The fixed meeting rail was fastened to the jamb at mid-span with one (1) screw.

Glazing: The fixed lite and active sash were exterior glazed with an adhesive back-bedding using 0.190" thick clear annealed glass. An extruded aluminum cover was snap-fitted around the edge of the lite.

Weatherseals: A 1" long piece of 0.290" polypile weatherstrip was located on each end of the fixed meeting rail at the interlock. One (1) strip of 0.200" centerfin polypile weatherstrip was located on top of rail of the active sash at the interlock. One (1) strip of 0.200" centerfin polypile weatherstrip was located on both exterior stile face and the bottom rail of the active sash. One (1) strip of bulb-vinyl weatherstrip was located at the bottom of the active sash. One (1) strip of 0.260" centerfin polypile weatherstrip was located on the interior face of the bottom rail of the active sash. One (1) strip of 0.180" centerfin polypile weatherstrip was located at both interior stiles of the active sash. One (1) strip of 0.260" centerfin polypile weatherstrip was located at the top of the interior vertical sill leg. One (1) strip of 0.150" polypile weatherstrip was located on the interior jamb track.

PROFESSIONALS IN THE SCIENCE OF TESTING

Ray Barber
3/24/02

Weeps: Two (2) weep notches were located on each end of the sill.

Interior & Exterior Surface Finish: White painted aluminum.

Sealant: Frame and sash corners were sealed with a narrow joint sealant.

TEST RESULTS

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
2.2.1.6.1	Operating Force Active Sash Up Down	11 lbf 4 lbf	30 lbf 30 lbf
2.2.1.6.2	Deglazing - ASTM E987 Active Sash Meeting Rail (70 lbf) Bottom Rail (70 lbf) Left Hand Stile (50 lbf) Right Hand Stile (50 lbf)	3.2 % (0.016") 4.2 % (0.021") 3.2 % (0.016") 2.8 % (0.014")	<100% <100% <100% <100%
2.1.2	Air Infiltration - ASTM E283 1.57 psf (25 mph)	0.07 cfm/ft ²	0.3 cfm/ft ²
2.1.3	Water Resistance - ASTM E547 5.0 gph/ft ² WTP= 4.5 psf	No Leakage	No Leakage
2.1.4.2 **	Uniform Load Structural - ASTM E330 45.0 psf Exterior 45.0 psf Interior	0.020" 0.018"	0.210" 0.210"
2.1.8	Forced Entry Resistance - ASTM F588 Grade 10 (See Appendix A for test results)		Meets As Stated

OPTIONAL PERFORMANCE

4.3	Water Resistance - ASTM E547 5.0 gph/ft ² WTP= 8.25 psf	No Leakage	No Leakage
4.4.2 **	Uniform Load Structural - ASTM E330 67.5 psf Exterior 67.5 psf Interior	0.020" 0.015"	0.210" 0.210"

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


TEST COMPLETED 05/15/01

Handwritten signature: [Signature]
03/24/02

The tested specimen meets (or exceeds) the performance levels specified in Table 2.1 of AAMA/NWWDA 101/I.S.2-97 for air infiltration. 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 C45 55x90 product designation.

Detailed drawings were available for laboratory records and comparison to the test specimen at the time of 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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DAN CONYERS
Laboratory Manager



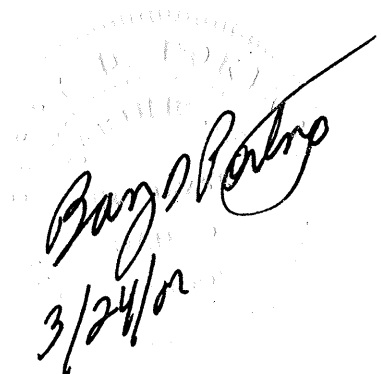
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APPENDIX A
Forced Entry Resistance Test Results

Test Method: ASTM F588-97, "Standard Test Method 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>
10.1-Lock Manipulation		5 Minutes	No Entry	No Entry
10.2.1.1-Test A1	L1=200 lbf	1 Minute	No Entry	No Entry
10.2.1.2-Test A2	L1=200 lbf L2=100 lbf interior	1 Minute	No Entry	No Entry
10.2.1.3-Test A3	L1=200 lbf L2=100 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.4-Test A4	L1=200 lbf L2=100 lbf interior	1 Minute	No Entry	No Entry
10.2.1.5-Test A5	L1=200 lbf L2=100 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.7-Test A7	L1=200 lbf L2=100 lbf interior L3= 35 lbf interior	1 Minute	No Entry	No Entry
10.2.1.8 Lock Manipulation		5 Minutes	No Entry	No Entry
10.2.4.2 Fixed Lite Glazing/ Panel Manipulation		5 Minutes	No Entry	No Entry


 3/24/02