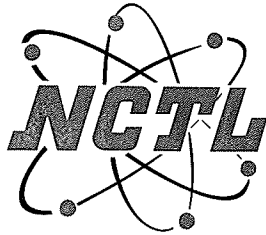


SUPERSEAL MANUFACTURING CO.

STRUCTURAL TEST REPORT

Series "1700 Tilt Double Hung
Vinyl Prime Window

NCTL-110-8836-1



NATIONAL CERTIFIED TESTING LABORATORIES

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STRUCTURAL PERFORMANCE TEST REPORT

Client: Superseal Manufacturing Co.
125 Helen Street, P.O. Box 795
South Plainfield, NJ 07080

Report No: NCTL-110-8836-1
Test Date: 08/01/03
Report Date: 08/07/03
Expiration Date: 08/31/07

Test Specimen: Superseal Manufacturing Co.'s Series "1700" Tilt Double Hung Vinyl Prime Window (H-R45 44x60).

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 tilt double hung vinyl prime window measuring 44" wide by 60" high overall. The top sash measured 40-1/2" wide by 28-13/16" high. The bottom sash measured 41-1/2" wide by 28-13/16" high. Both sash were removable via a single block and tackle balance with locking tilt shoe located in each jamb track. One (1) metal cam-type sweep lock was located at 6-1/4" from each end of the interior meeting rail. The metal keepers were located on the exterior meeting rail at the lock positions. One (1) metal tilt latch was located at each end of the top rail and interior meeting rail. One (1) die-cast metal pivot bar was fastened with two (2) screws at each end of the exterior meeting rail and bottom rail. A rigid vinyl sash stop was snap-fitted at the top of each interior jamb track and bottom of each exterior jamb track. A rigid vinyl combination cover/ weatherstrip holder/ interior vertical sill leg was snap-fitted at the sill. A rigid vinyl combination cover/ weatherstrip holder/ interlock was snap-fitted at the exterior meeting rail. One (1) 3/4" long steel reinforcement bar measuring 13/16" wide by 1/4" thick was housed by the exterior meeting rail hollow. One (1) 3/5" long steel reinforcement bar measuring 1" wide by 1/4" thick was housed by the bottom rail hollow. One (1) steel reinforcement bar measuring 1" wide by 5/16" thick filled the length of the interior meeting rail hollow. One (1) steel reinforcement bar measuring 1" wide by 1/4" thick filled the length of the top rail hollow and all sash stile hollows. The frame and sash were of welded mitered corner construction.

Glazing: Both sash were exterior glazed using sealed insulating glass with an adhesive foam tape back-bedding and a snap-in two (2) leaf dual durometer glazing bead. The overall insulating glass thickness was 3/4" consisting of two (2) lites of double strength annealed glass and one (1) space created by a desiccant matrix steel spacer system.

Weatherseals: A single strip of center fin weatherstrip (0.230" high) was located at the head, sill, top rail and both meeting rails. A single strip of center fin weatherstrip (0.250" high) was located at the exterior meeting rail. Double strips of center fin weatherstrip (0.250" high) were located at all sash stiles. A single strip of single leaf foam-filled single bulb weatherstrip was located at the bottom rail.

Weeps: One (1) weep hole measuring 3/4" x 5/32" was located at each end of the center sill leg. One (1) weep hole measuring 1/2" x 5/32" was located at 3" from each end of the screen retainer sill track. One (1) weep hole measuring 1-1/4" x 9/32" and employing a plastic weep cover was located at 2-7/8" from each end of the exterior sill face. One (1) weep hole measuring 3/8" x 1/8" was located at 2-1/4" from each end of the exterior meeting rail and bottom rail glazing channels and through the exterior horizontal surface of both rails.

Interior & Exterior Surface Finish: White vinyl (PVC)

Sealant: The sill insert was sealed to the sill with a silicone sealant.

Screen: An insect screen measuring 41-3/16" wide by 57-1/8" high was of butt type corner construction with pressure-fitted plastic corner keys. The screen employed fiberglass mesh cloth with a solid vinyl spline, two (2) pull tabs and four (4) plunger type retainers. A horizontal crossbar was located at midspan of the stiles.

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 - ASTM E2068		
	Top Sash		
	Up	26 lbf	30 lbf
	Down	20 lbf	30 lbf
	Bottom Sash		
	Up	29 lbf	30 lbf
	Down	20 lbf	30 lbf
2.2.1.6.2	Deglazing - ASTM E987		
	Top Sash		
	Top Rail (70 lbf)	10.8 % (0.054")	<100%
	Meeting Rail (70 lbf)	19.4 % (0.097")	<100%
	Left Stile (50 lbf)	8.0 % (0.040")	<100%
	Right Stile (50 lbf)	13.4 % (0.067")	<100%
	Bottom Sash		
	Meeting Rail (70 lbf)	53.8 % (0.269")	<100%
	Bottom Rail (70 lbf)	17.0 % (0.085")	<100%
	Left Stile (50 lbf)	14.4 % (0.072")	<100%
	Right Stile (50 lbf)	7.2 % (0.036")	<100%
2.1.2	Air Infiltration - ASTM E283		
	1.57 psf (25 mph)	0.2 cfm/ft ² (0.18 cfm/ft ²)	0.3 cfm/ft ²
2.1.3	* Water Resistance - ASTM E547		
	5.0 gph/ft ²		
	WTP= 2.86 psf	No Leakage	No Leakage
2.1.4.2	** Uniform Load Structural - ASTM E330		
	22.5 psf Exterior	0.002"	0.158"
	22.5 psf Interior	0.001"	0.158"
2.1.7	Welded Corner	Meets As Stated	

TEST RESULTS (Cont.)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
2.1.8	Forced Entry Resistance - ASTM F588 Grade 10 (See Appendix A for test results)		Meets As Stated

OPTIONAL PERFORMANCE

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
4.3 *	Water Resistance - ASTM E547 5.0 gph/ft ² WTP= 6.75 psf	No Leakage	No Leakage
4.4.2 **	Uniform Load Structural - ASTM E330 75.0 psf Exterior 75.0 psf Interior	0.010" 0.001"	0.158" 0.158"
*	Tested with and without screen		
**	No glass breakage or permanent damage causing the unit to be inoperable		


TEST COMPLETED 08/01/03

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 H-R45 44x60 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.

NATIONAL CERTIFIED TESTING LABORATORIES


MARC A. CRAMER
Technician


SCOTT R. HANLON
Manager of Testing Services

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=150 lbf	1 Minute	No Entry	No Entry
10.2.1.2-Test A2	L1=150 lbf L2= 75 lbf interior	1 Minute	No Entry	No Entry
10.2.1.3-Test A3	L1=150 lbf L2= 75 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.4-Test A4	L1=150 lbf L2= 75 lbf interior	1 Minute	No Entry	No Entry
10.2.1.5-Test A5	L1=150 lbf L2= 75 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.7-Test A7	L1=150 lbf L2= 75 lbf interior L3= 25 lbf interior	1 Minute	No Entry	No Entry
10.2.1.8 Lock Manipulation		5 Minutes	No Entry	No Entry