

STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-8742-1

Test Date: 05/09/03

Report Date: 06/23/03

Expiration Date: 05/31/07

Client: All Seasons Door & Window, Inc.
28 East Edgeboro Road
East Brunswick, NJ 08816

Test Specimen: All Seasons Door & Window, Inc.'s Series "V600" Tilt Double Hung Vinyl Prime Window (H-R60 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 41" wide by 29-1/8" high. The bottom sash measured 41-7/16" wide by 29-1/8" high. Both sash were removable via a single spiral balance with locking tilt shoe located in each jamb track. One (1) metal cam-type sweep lock was located at 6-1/8" from each end of the interior meeting rail. The metal keepers were located on the exterior meeting rail at the lock positions. One (1) metal lockable tilt latch was located at each end of the interior meeting rail. One (1) plastic tilt latch was slide-fitted and housed at each end of the top rail. One (1) T-shaped die-cast metal pivot bar was housed in a vinyl shoe and fastened with one (1) screw at each end of the exterior meeting rail. One (1) stamped metal pivot bar was housed in a vinyl shoe and fastened with one (1) screw at each end of the 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 spring-loaded plastic security stop was snap-fitted at 4-3/4" 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 head expander was pressure-fitted at the head. A rigid vinyl 2" long combination filler/ screen spacer was pressure-fitted at 7" from each end of the screen retainer sill track. One (1) tubular steel rectangular reinforcement channel (0.050" thick) filled the length of the interior meeting rail hollow. The frame and sash were of welded mitered corner construction.

Glazing: Both sash were exterior glazed using sealed insulating glass with a silicone back-bedding and a snap-in single leaf dual durometer glazing bead. The overall insulating glass thickness was 7/8" consisting of two (2) lites of double strength tempered glass and one (1) space created by a desiccant-filled aluminum spacer system. The glazing channels were back-filled with a structural silicone sealant.

Weatherseals: A single strip of center fin weatherstrip (0.190" high) was located at the head. A single strip of polypile weatherstrip (0.210" high) was located at the sill. A single strip of center fin weatherstrip (0.250" high) was located at the top rail and interior meeting rail. Double strips of center fin weatherstrip (0.250" high) were located at the exterior meeting rail and all sash stiles. A single strip of dual durometer foam-filled single bulb/ single leaf weatherstrip was located at the bottom rail.

Weeps: One (1) weep hole measuring 1" x 1/8" was located at 2" from each end of the interior and exterior screen retainer sill legs. One (1) weep hole measuring 1" x 3/16" was located at 12-1/4" from the left end and 8-1/2" from the right end of the interior and exterior screen retainer sill legs. One (1) weep hole measuring 1" x 1/4" and employing a plastic weep cover was located at 5-1/2" from each end of the exterior sill face. One (1) weep hole measuring 1" x 1/4" and employing a plastic weep cover was located at 14" from the left end and 10-1/2" from the right end of the exterior sill face. One (1) weep hole measuring 9/64" in diameter was located at 2-3/4" from each end of the exterior meeting rail and bottom rail exterior horizontal surfaces. The ends of the interior sill track were open, allowing drainage into the sill hollow.

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

Sealant: The glazing beads were sealed to the glass with a structural silicone sealant. The pivot bar shoes were cemented to the sash.

Insect Screen: An insect screen measuring 40-5/8" wide by 28-3/16" high was of mitered type corner construction with staked-in-place plastic corner keys. The screen employed fiberglass mesh cloth with a solid vinyl spline and two (2) jamb retainer springs.

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	16 lbf	30 lbf	
	Bottom Sash	Up	28 lbf	30 lbf	
		Down	22 lbf	30 lbf	
	2.2.1.6.2	Deglazing - ASTM E987 Top Sash	Top Rail (70 lbf)	0.4 % (0.002")	<100%
			Meeting Rail (70 lbf)	2.6 % (0.013")	<100%
Left Stile (50 lbf)			0.8 % (0.004")	<100%	
Right Stile (50 lbf)			1.6 % (0.008")	<100%	
Interior Sash		Meeting Rail (70 lbf)	1.2 % (0.006")	<100%	
		Bottom Rail (70 lbf)	0.6 % (0.003")	<100%	
		Left Hand Stile (50 lbf)	0.2 % (0.001")	<100%	
		Right Hand Stile (50 lbf)	0.4 % (0.002")	<100%	

TEST RESULTS (Cont.)

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
2.1.2	Air Infiltration - ASTM E283 1.57 psf (25 mph)	0.1 cfm/ft ² (0.11 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 22.5 psf Interior	0.009" 0.009"	0.160" 0.160"
2.1.7	Welded Corner	Meets As Stated	
2.1.8	Forced Entry Resistance - ASTM F588 Grade 10 (See Appendix A for test results)	Meets As Stated	

OPTIONAL PERFORMANCE

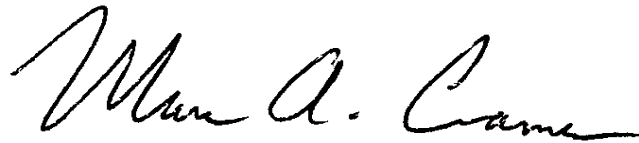
<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
4.3 *	Water Resistance - ASTM E547 5.0 gph/ft ² WTP= 9.0 psf	No Leakage	No Leakage
4.4.2 **	Uniform Load Structural - ASTM E330 127.5 psf Exterior 127.5 psf Interior	0.040" 0.105"	0.160" 0.160"
*	Tested with and without screen		
**	No glass breakage or permanent damage causing the unit to be inoperable		

TEST COMPLETED 05/09/03

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-R60 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