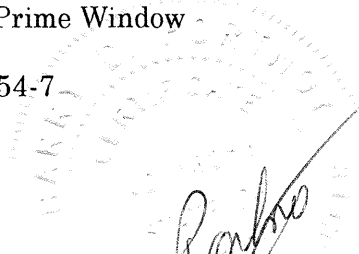


STANEK VINYL WINDOWS

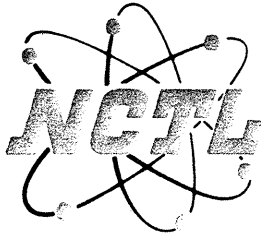
STRUCTURAL PERFORMANCE TEST REPORT

Model "Ultra Series 2000 Double Hung Standard"
Tilt Double Hung Vinyl Prime Window

NCTL-110-6654-7



Bang P. Parbo
6/6/02 *Bang P. Parbo*
2/19/02



NATIONAL CERTIFIED TESTING LABORATORIES

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STRUCTURAL PERFORMANCE TEST REPORT

REPORT NO: NCTL-110-6654-7
TEST DATE: 04/20/99
REPORT DATE: 05/07/99
EXPIRATION DATE: 04/30/03
REVISED DATE: 01/11/00

Client: Stanek Vinyl Windows
4582 Willow Parkway
Cuyahoga Heights, OH 44125

Test Specimen: Stanek Vinyl Windows' Model "Ultra Series 2000 Double Hung Standard"
Tilt Double Hung Vinyl Prime Window (H-R60 46 x 70).

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 46" wide by 70" high overall. The top sash measured 42" wide by 34" high. The bottom sash measured 43" wide by 33-7/8" high. Both sash were removable via a single spiral balance with locking tilt shoe located in each jamb track. One metal cam-type sweep lock was located at 8-1/4" from each end of the interior meeting rail. The metal keepers were located on the exterior meeting rail at the lock positions. One plastic tilt latch was located at each end of the top rail and interior meeting rail. One T-shaped die-cast metal pivot bar was fastened with three (3) pop rivets at each end of the exterior meeting rail and bottom rail. A rigid vinyl sash stop was snap-fitted at the bottom of each exterior jamb track. A spring-loaded plastic security stop was snap-fitted at 4-1/2" from the exterior meeting rail on the top right sash stile. A rigid vinyl balance cover was snap-fitted into the interior and exterior jamb tracks. A rigid vinyl cover was snap-fitted at the top rail. A rigid vinyl combination cover/weatherstrip holder/interlock was snap-fitted at the interior and exterior meeting rails. One 25" long steel reinforcement channel (0.050" thick) was housed by the top right sash stile hollow. One steel reinforcement channel (0.050" thick) filled the length of all other sash member hollows. The frame and sash were of welded mitered corner construction.

Glazing: Both sash were interior glazed using sealed insulating glass with a two (2) leaf dual durometer back-bedding and a snap-in two (2) leaf dual durometer glazing bead. The overall insulating glass thickness was 7/8" consisting of a "Heat Mirror" film suspended between two (2) lites of double strength annealed glass and two (2) spaces created by a twin desiccant-filled steel spacer system.

PROFESSIONALS IN THE SCIENCE OF TESTING

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Weatherseals: Double strips of center fin weatherstrip (0.270" high) were located at all sash stiles. A single strip of center fin weatherstrip (0.290" high) was located at the sill, bottom rail and both meeting rails. A single strip of bulb-vinyl weatherstrip was located at the head. A single strip of single-leaf/single-bulb weatherstrip was located at the bottom rail. A contour cut closed cell foam dust plug was located at the bottom of each interior jamb track. An open cell foam air baffle measuring approximately 3" x 1-3/8" x 5/8" was located at each end of the interior sub-sill track.

Weeps: One (1) weep hole measuring 1-1/2" x 1/4" was located at 2-7/8" from each end of the exterior vertical sill face. One (1) weep hole measuring 1/4" x 1/4" was located at each end of the exterior meeting rail and bottom rail glazing channels. One (1) weep hole measuring 1/4" x 1/4" was punched through the pivot bar and located at each end of the exterior meeting rail and bottom rail exterior horizontal surfaces.

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

Sealant: The sash rail covers were cemented to their respective members.

Screen: An insect screen measuring 41" wide by 66-5/8" high was of mitered type corner construction with staked-in-place die cast aluminum corner keys. The screen employed fiberglass mesh cloth with a hollow vinyl spline. A 5/8" long weep lower was located at 2-1/4" from each end of the bottom rail.

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 Top Sash	Up	25 lbf	30 lbf	
		Down	11 lbf	30 lbf	
	Bottom Sash	Up	27 lbf	30 lbf	
		Down	11 lbf	30 lbf	
	2.2.1.6.2	Deglazing - ASTM E987 Top Sash	Top Rail (70 lbf)	7.8% (0.039")	<100%
			Meeting Rail (70 lbf)	9.4% (0.047")	<100%
Left Hand Stile (50 lbf)		6.2% (0.031")	<100%		
Right Hand Stile (50 lbf)		11.0% (0.055")	<100%		
Bottom Sash		Meeting Rail (70 lbf)	6.2% (0.031")	<100%	
		Bottom Rail (70 lbf)	7.6% (0.038")	<100%	
		Left Hand Stile (50 lbf)	5.6% (0.028")	<100%	
		Right Hand Stile (50 lbf)	6.6% (0.033")	<100%	

Gary P. Perkins

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TEST RESULTS (cont.)

2.1.2	Air Infiltration - ASTM E283 0.57 psf (15 mph)	0.1 cfm/ft ² (0.09 cfm/ft ²)	-----
	1.57 psf (25 mph)	0.2 cfm/ft ² (0.17 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	0.004" 0.002"	0.162" 0.162"
2.1.7	Welded Corner	Meets As Stated	
2.1.8	Forced Entry Resistance - ASTM F588 Level 10 (See Appendix A for test results)	Meets As Stated	

OPTIONAL PERFORMANCE

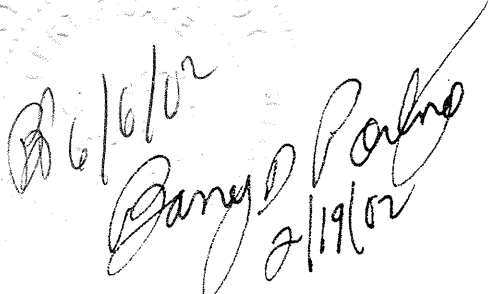
4.3 *	Water Resistance - ASTM E547 5.0 gph/ft ² WTP = 10.50 psf	No Leakage	No Leakage
4.4.2 **	Uniform Load Structural - ASTM E330 90.0 psf Exterior 90.0 psf Interior	0.018" 0.015"	0.162" 0.162"

* Tested with and without screen

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

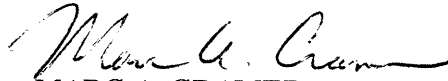
TEST COMPLETED 04/20/99

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 46 x 70 product designation.



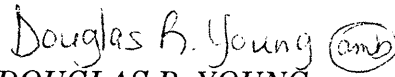
Detailed drawings were available for laboratory records and comparison to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years. The results obtained apply only to the specimen 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



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Acting Manager of Testing Services

DMA/clc



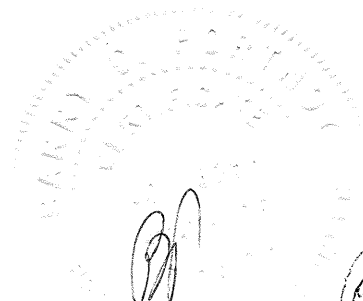
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APPENDIX A
Forced Entry Resistance Test Results

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=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



W/10/02

Samuel Perkins
2/19/02