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ALL SEASONS DOOR & WINDOW, INC.
AAMA/ WDMA/ CSA 101/ I.S.2/ A440-05
TEST SUMMARY REPORT

Report No: NCTL-110-12339-1S
Expiration Date: 12/31/13

Test Specimen

Manufacturer:	*All Seasons Door & Window, Inc.*
Product Type:	*Tilt Double Hung Aluminum Prime Window*
Series/Model:	*Model "HC Double Hung"*
Primary Product Designation:	*H-HC65 1524 x 2514.6 (60x99)*
Optional Product Designation:	*Not Applicable*
Test Completion Date:	*12/11/09*

Reference should be made to Structural Performance Test Report Number NCTL-110-12339-1 for complete specimen description and test data.

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JAY LEADER
Technician

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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-110-12339-1
Test Date: 12/11/09
Report Date: 03/31/10
Expiration Date: 12/31/13

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

Test Specimen: *All Seasons Door & Window, Inc.'s Model "HC Double Hung" Tilt Double Hung Aluminum Prime Window H-HC65 1524 x 2514.6 (60x99).*

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 aluminum prime window measuring 1524 mm (60") wide by 2514.6 mm (99") high overall. The top sash measured 1416.05 mm (55-3/4") wide by 1236.66 mm (48-11/16") high. The bottom sash measured 1454.15 mm (57-1/4") wide by 1239.84 mm (48-13/16") high. The frame and sash were thermally broken using poured urethane thermal barriers. Both sash were removable via a single spiral balance with locking tilt shoe located in each jamb track. One (1) extruded aluminum spring-loaded snap-lock was located at the length of the top and bottom rails. The keepers were extruded onto the head and sill at the lock positions. One (1) metal lockable tilt latch with thumb actuator was located at each end of the top rail and interior meeting rail. One (1) solid metal pivot bar was fastened with one (1) screw at each end of the exterior meeting rail and bottom rail. An extruded aluminum sash stop with rubber bumper was snap-fitted and fastened with screws at the top of each interior jamb track and bottom of each exterior jamb track. A metal anti-bow pin was secured with two (2) screws and was located at 495.3 mm (19-1/2") and 1111.25 mm (43-3/4") from the bottom of each bottom sash stile. The corresponding anti-bow pins were located on the jambs at the anti-bow locations. One (1) L-shaped reinforcement angle (3.05 mm (0.120") thick) was sealed to the exterior of the bottom sash stiles. The frame was of double screw butt-type corner construction with closed cell foam gaskets. The sash were of double screw butt-type corner construction.*

Glazing: *Both sash were interior glazed using sealed insulating glass with a foam tape and silicone back-bedding and a snap-in extruded aluminum glazing bead with a vinyl wedge gasket. The overall insulating glass thickness was 28.58 mm (1-1/8") consisting of two (2) lites of 5 mm (3/16" thick) tempered glass and one (1) space created by a desiccant-filled aluminum spacer system (A1-D).*

Weatherseals: *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 (7.87 mm (0.310") high) was located at the sill. Two (2) strips of center fin weatherstrip (7.37 mm (0.290") high) were located at the stiles. Two (2) strips of center fin weatherstrip (6.86 mm (0.270") high) were located at the exterior meeting rail. One (1) strip of center fin weatherstrip (6.86 mm (0.270") high) was located at the interior meeting rail and top rail. One (1) strip of foam bulb-vinyl weatherstrip was located at the interior meeting rail. One (1) strip of center fin weatherstrip (8.38 mm (0.330") high) was located at each interior sash stop. A center fin dust pad (8.89 mm (0.350") high) measuring 63.5 mm (2-1/2") x 4.76 mm (3/16") was located at the top of each center jamb leg. An adhesive backed polypile dust pad (11.94 mm (0.470") high) measuring 57.15 mm (2-1/4") x 4.76 mm (3/16") was located at the bottom of each center jamb leg. An adhesive backed polypile dust pad (10.41 mm (0.410") high) measuring 15.88 mm (5/8") x 25.4 mm (1") was located at each end of the interior and exterior meeting rails.*

Weeps: *One (1) weep hole measuring 31.75 mm (1-1/4") x 6.35 mm (1/4") and employing a plastic weep cover was located at 127 mm (5") from each end of the center sill leg.*

Interior & Exterior Surface Finish: *Brown painted aluminum.*

Sealant: *The frame and sash corners were sealed with a silicone sealant. A silicone cap bead was located at the exterior glazing perimeters.*

Insect Screen: *An insect screen measuring 1419.23 mm (55-7/8") wide by 1250.95 mm (49-1/4") 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.*

Installation: *The specimen was installed into a standard grade 50.8 mm (2") x 304.8 mm (12") lumber test buck with 15.88 mm (5/8") x 34.93 mm (1-3/8") wood blind stops employed at the interior and exterior perimeter of the specimen. Each specimen was secured with one (1) #8 x 41.28 mm (1-5/8") drywall screw located at 76.2 mm (3") from each end and 203.2 mm (8") on center. One (1) #8 x 50.8 mm (2") screw was located at 127 mm (5") and 381 mm (15") from each end and at midspan of the head, interior sill track and exterior sill track. One (1) #8 x 50.8 mm (2") screw was located at 241.3 mm (9-1/2") from the top of each interior jamb track, 177.8 mm (7") from the bottom of each exterior jamb track and 558.8 mm (22") from the bottom of each interior and exterior jamb track.*

TEST RESULTS

Par. No.	*Title of Test & Method*		*Measured*	*Allowed*
5.3.1.1	*Operating Force - ASTM E 2068*			
	Top Sash	*Initiate Open*	*209 N (47 lbf)*	-----
		Maintain Open	*169 N (38 lbf)*	*200 N (45 lbf)*
		Initiate Close	*187 N (42 lbf)*	-----
		Maintain Close	*173 N (39 lbf)*	*200 N (45 lbf)*
	Bottom Sash	*Initiate Open*	*164 N (37 lbf)*	-----
		Maintain Open	*133 N (30 lbf)*	*200 N (45 lbf)*
		Initiate Close	*142 N (32 lbf)*	-----
		Maintain Close	*120 N (27 lbf)*	*200 N (45 lbf)*
5.3.1.1.3	*Latch Operation - Opening / Closing*		*Meets As Stated*	

TEST RESULTS *(Cont.)*

Par. No.		*Title of Test & Method*	*Measured*	*Allowed*
5.3.2		*Air Infiltration - ASTM E 283* *300 Pa – (6.2 psf) (50 mph)*	*1.0 L/ (sec• m²)* *(0.2 cfm/ft²)* *(0.17 cfm/ft²) measured*	*1.5 L/ (sec• m²)* *(0.3 cfm/ft²)*
5.3.3	*	*Water Penetration - ASTM E 331 ASTM E 547* *3.4 L/ (min• m²) 5.0 gph/ft²* *WTP= 290 Pa (6.0 psf)*	*No Leakage*	*No Leakage*
5.3.4.2	**	*Uniform Load Deflection - ASTM E 330* *1920 Pa (40.0 psf) Exterior* *1920 Pa (40.0 psf) Interior*	*4.67 mm (0.184")* *4.52 mm (0.178")*	*7.87 mm (0.310")* *7.87 mm (0.310")*
5.3.4.3	**	*Uniform Load Structural - ASTM E 330* *2880 Pa (60.0 psf) Exterior* *2880 Pa (60.0 psf) Interior*	*0.03 mm (0.001")* *0.03 mm (0.001")*	*4.14 mm (0.163")* *4.14 mm (0.163")*
5.3.5		*Forced Entry Resistance Test - ASTM F 588 Grade 10*	*Meets As Stated*	
5.3.6.3		*Deglazing Test - ASTM E 987* *Bottom Sash* *Meeting Rail (320 N/70 lbf)* *Bottom Rail (320 N/70 lbf)* *Jamb Stile (230 N/50 lbf)* *Meeting Stile (230 N/50 lbf)* *Top Sash* *Top Rail (320 N/70 lbf)* *Meeting Rail (320 N/70 lbf)* *Jamb Stile (230 N/50 lbf)* *Meeting Stile (230 N/50 lbf)*	 *12.6 % (1.60 mm/ 0.063")* *10.8 % (1.37 mm/ 0.054")* *7.2 % (0.91 mm/ 0.036")* *7.8 % (0.99 mm/ 0.039")* *15.4% (1.96 mm/ 0.077")* *16.2 % (2.06 mm/ 0.081")* *8.4% (1.07 mm/ 0.042")* *7.4 % (0.94 mm/ 0.037")*	 *<90%* *<90%* *<90%* *<90%* *<90%* *<90%* *<90%* *<90%*

OPTIONAL PERFORMANCE

4.4.2.6	*	*Water Penetration - ASTM E 331 ASTM E 547* *3.4 L/(min• m²) 5.0 gph/ft²* *WTP= 510 Pa (10.50 psf)*	*No Leakage*	*No Leakage*

OPTIONAL PERFORMANCE *(Continued)*

Par. No.	*Title of Test & Method*	*Measured*	*Allowed*
4.4.2.6	** *Uniform Load Deflection - ASTM E 330*		
	3120 Pa (65.0 psf) Exterior	*7.72 mm (0.304")*	*7.87 mm (0.310")*
	3120 Pa (65.0 psf) Interior	*7.65 mm (0.301")*	*7.87 mm (0.310")*
4.4.2.6.2	** *Uniform Load Structural - ASTM E 330*		
	4680 Pa (97.5 psf) Exterior	*0.15 mm (0.006")*	*4.14 mm (0.163")*
	4680 Pa (97.5 psf) Interior	*0.43 mm (0.017")*	*4.14 mm (0.163")*

* *Tested with and without insect screen*
** *No glass breakage or permanent damage causing the unit to be inoperable*

TEST COMPLETED 12/11/09

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-HC65 1524 x 2514.6 (60x99) 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

Paragraph No.	*Loads*	*Duration*	*Measured*	*Allowed*
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*

APPENDIX B

Section 1:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were Reviewed (as submitted) for Product Verification
(Reference: NCTL-110-12339-1)

See Attached Documentation;
any deviations noted.

Note: The above referenced component drawings along with representative sections of the test specimen will be retained per procedure by NCTL. This testing facility assumes that all information provided by the client is accurate.

Section 2:

Identification	Date	Page & Revision
Original Issue	03/31/10	Not Applicable