ALL SEASONS DOOR & WINDOW, INC. *Report No: NCTL-110-8742-2S*
NFRC THERMAL TEST SUMMARY REPORT *Expiration Date: 07/31/07*

Test Specimen		*NFRC Code*
Manufacturer :	*All Seasons Door & Window, Inc.*	
Series/Model :	*V600*	
Window Type :	*Double Hung*	*VSDH*
Frame Composition :	*Vinyl*	*VY*
Sash/Vent/Panel Composition :	*Vinyl*	*VY*
Thermal Break Mat'l :	*Not Applicable*	
Overall Size :	*47-1/8" wide by 59-1/8" high*	
Glazing Description	*13/16" Overall w/Low E and Argon*	
No. of Glazing Layers (including films):	*2*	*2*
Primary Glazing :	*Double Glazed*	*DG*
Spacer Type :	*Aluminum*	*A1-S*
Gap Fill 1:	*Argon*	*ARG*
Gap Fill 2:	*Not Applicable*	
Gap Fill 3:	*Not Applicable*	
Glass/Film Thicknesses (ext to int):	*Top Sash - 0.093", 0.091", Bottom Sash - 0.122", 0.124"*	
Air Gap 1:	*Top Sash - 0.631"*	
Air Gap 2:	*Bottom Sash - 0.579"*	
Air Gap 3:	*Not Applicable*	
Secondary Glazing:	*Not Applicable*	
Low Emissivity Coatings:		
Emissivity 1:	*0.204 on Surface #3*	
Emissivity 2:	*None*	
Emissivity 3:	*None*	

Procedure: *Standardized Thermal Transmittance (U_{st}) was determined using the NFRC 102 procedure with a temperature of 70°± 0.5°F on the room side of the specimen and 0°± 0.5°F on the weather side of specimen. The net air leakage across the test specimen was 0.0 cfm.*

Test Results: *Results of the test period 0254-0454 on 07/10/03 using the Equivalent CTS Method:*

Thermal transmittance at test conditions (U_s) :	*0.41*	*BTU/hr/ft²/°F*
Standardized thermal transmittance of test specimen (U_{st}) :	***0.38***	***BTU/hr/ft²/°F***

Reference should be made to Thermal Performance Test Report Number NCTL-110-8742-2 for complete specimen description and test data.

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JUSTIN L. BUPP
Technician

THERMAL PERFORMANCE TEST REPORT

Report No: NCTL-110-8742-2
Test Date: 07/10/03
Report Date: 09/11/03
Expiration Date: 07/31/07

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

Test Specimen: *All Seasons Door & Window, Inc.'s Series "V600" Tilt Double Hung Vinyl Prime Window with Low E and Argon.*

Test Method: *"NFRC 102 Test Procedure for Measuring the Steady State Thermal Transmittance of Fenestration Systems (November 2002 edition)".*

TEST SPECIMEN DESCRIPTION

General: *The test specimen was a one-over-one tilt double hung vinyl prime window measuring 47-1/8" wide by 59-1/8" high overall. The top sash measured 44" wide by 28-11/16" high. The bottom sash measured 44-1/2" wide by 28-3/4" high. Frame and sash members were not thermally broken. 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 7-1/2" from each end of the interior meeting rail. The metal keepers were located on the exterior meeting rail at the lock positions. One (1) plastic tilt latch with thumb actuator was housed at each end of the top rail and interior meeting rail. One (1) T-shaped die-cast metal pivot bar was housed in a nylon shoe and fastened with one (1) screw 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 spring-loaded plastic security stop was snap-fitted at 6" 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 combination cover/ weatherstrip holder/ interior vertical sill leg was snap-fitted at the sill. A rigid vinyl combination cover/ weatherstrip holder/ interior vertical head leg was snap-fitted at the head. 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 rigid vinyl glazing bead. The overall insulating glass thickness of the top sash was 13/16" (measuring 0.815") consisting of two (2) lites of single strength (average thickness 0.093") annealed glass and one (1) argon-filled space created by a desiccant-filled aluminum spacer system. The overall insulating glass thickness of the bottom sash was 13/16" (measuring 0.825") consisting of two (2) lites of double strength (average thickness 0.122") annealed glass and one (1) argon-filled space created by a desiccant-filled aluminum spacer system. An AFG "Comfort EII" pyrolytic type low emissivity coating (e=0.204 per client) was applied to glazing surface no. 3.*

Weatherseals: *One (1) strip of center fin weatherstrip (0.260" high) was located at the head, sill, top rail and interior meeting rail. Two (2) strips of center fin weatherstrip (0.260" high) were located at the sash stiles and the exterior meeting rail. One (1) strip of single-leaf foam-filled bulb vinyl weatherstrip was located at the bottom rail. A closed cell foam plug measuring 1-1/4" x 1" x 1/2" was located at the bottom of the interior jamb track.*

Weeps: *One (1) weep hole measuring 7/8" x 3/16" was located at 4" from each end of the interior sill track. One (1) weep hole measuring 7/8" x 3/16" and employing a plastic weep cover was located at 5"from each end of the exterior sill track which drained to the exterior sill face. One (1) weep hole measuring 7/8" x 3/16" was located at 2" from each end of the interior and exterior screen retainer sill track. One (1) weep hole measuring 3/16" in diameter was located at 2-5/8" from each end of the exterior meeting rail and the bottom rail.*

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

Sealant: *The glazing bead was sealed to the glass with a silicone sealant.*

Insect Screen: *No screen employed.*

SPECIMEN PREPARATION PRIOR TO TEST

The test specimen was pre-conditioned at ambient laboratory conditions prior to the test. The surround panel-to-specimen interfaces were sealed with a non-reflective tape. The specimen was sealed on the interior with a caulk sealant resulting in a measured net air leakage of 0.0 cfm per square foot.

TEST PARAMETERS

Tests to determine the Standardized Thermal Transmittance (U_{st}) of the specimen were performed in the guarded hot box apparatus located at the York, PA facility. The most recent calibration of the hot box apparatus was in May, 2003. The thermal performance evaluations were completed in accordance with the NFRC 102 procedure using a dynamic wind perpendicular to the specimen on the weather side and simulated natural convection on the room side. A zero static pressure differential (0.00" ± 0.04" H_2O) was maintained across the specimen during the test by pressurizing the metering box on the room side. Data was collected over two successive 2 hour periods after 4 hours of steady state conditions as defined in section 5.2.3.2(A) of the NFRC 102 procedure were achieved. The test was considered completed when the data of the successive 2 hour periods also satisfied the criteria defined in section 5.2.3.2(A) of the NFRC 102 procedure.

Glass Thickness and Glazing Deflection

	Glass Thicknesses	*Glazing Deflection Before Test*	*Glazing Deflection During Test*
Top Sash	*0.09", 0.09"*	*0.01"*	*0.00"*
Bottom Sash	*0.12", 0.12"*	*0.05" convex*	*0.07"*

Measured Areas

Test Specimen Projected Area :	*19.26 ft²*
Test Specimen Interior Exposed (Wetted) Surface Area :	*20.23 ft²*
Test Specimen Exterior Exposed (Wetted) Surface Area :	*20.28 ft²*
Metering Box Opening Area :	*54.39 ft²*
Metering Box Baffle Area :	*46.44 ft²*
Exposed Area of Mods to Surround Panel Opening:	*6.65 ft²*
Surround Panel Interior Exposed Area :	*28.48 ft²*

Projected Frame Dimensions Of Members

Head	*4.00 in.*
Sill	*3.50 in.*
Meeting Rail	*5.50 in.*
Top Jamb	*4.375 in.*
Bottom Jamb	*5.438 in.*

THERMAL TRANSMITTANCE & CONDUCTANCE

The test chamber environmental systems were initiated at 1109 on 07/09/03. The test conditions were considered stable for two consecutive two hour test periods from 0054 to 0254 and 0254 to 0454 on 07/10/03. The thermal performance test results were derived from the 0254 to 0454 test period.

Test Conditions

Average Room Side Air Temperature t_h	*69.9*	*°F*
Average Weather Side Air Temperature, t_c	*0.2*	*°F*
Average Guard Box Air Temperature	*72.4*	*°F*
Metering Box Average Relative Humidity	*15*	*%*
Measured Weather Side Wind Velocity	*9.1*	*mph*
Measured Room Side Air Convection Velocity	*21.06*	*fpm*
Static Pressure Difference Across Specimen	*0*	*" H_2O*

Heat Flows

Heat Input Rate to Metering Box	*742.4*	*BTU/hr*
Surround Panel Heat Flow	*114.4*	*BTU/hr*
Heat Flow Through Mods to Surround Panel Opening (k = 0.252)	*24.5*	*BTU/hr*
Sensible Heat from Pressure Balance Air Flow	*3.2*	*BTU/hr*
Metering Box Heat Flow	*6.9*	*BTU/hr*
Flanking Loss Heat Flow	*42.4*	*BTU/hr*
Net Test Specimen Heat Flow	*551.0*	*BTU/hr*

Test Results & Calculated Test Data

Test Specimen Thermal Transmittance, U_s	*0.41*	*BTU/hr/ft²/°F*
Equivalent CTS Method		
Emittance of Glass, e1	*0.84*	
Warm Side Baffle Emittance, eb1	*0.93*	
Equivalent Room Side Surface Temperature	*50.8*	*°F*
Equivalent Weather Side Surface Temperature	*5.9*	*°F*
Room Side Baffle Surface Temperature	*68.2*	*°F*
Measured Room Side Surface Conductance, h_h	*1.51*	*BTU/hr/ft²/°F*
Measured Weather Side Surface Conductance, h_c	*5.05*	*BTU/hr/ft²/°F*
Test Specimen Thermal Conductance, C_s	*0.63*	*BTU/hr/ft²/°F*
Convection Coefficient, K	*0.357*	
Radiative Test Specimen Heat Flow, Q_{r1}	*262.5*	*BTU/hr*
Convective Test Specimen Heat Flow, Q_{c1}	*288.5*	*BTU/hr*
Radiative Heat Flux of Test Specimen, q_{r1}	*13.63*	*BTU/hr/ft²*
Convective Heat Flux of Test Specimen, q_{c1}	*14.98*	*BTU/hr/ft²*
Standardized Room Side Thermal Transmittance, h_{STh}	*1.21*	*BTU/hr/ft²/°F*

Test Results & Calculated Test Data (Cont.)

Standardized Weather Side Thermal Transmittance, h_{STc}	*5.28*	*BTU/hr/ft²/°F*
Test Specimen Standardized Thermal Transmittance, U_{ST}	*0.38*	*BTU/hr/ft²/°F*

Based on the listed test results, the standardized thermal transmittance of the test specimen (U_{ST}) was determined to be 0.38 BTU/hr/ft²/°F.

An estimate of the experimental uncertainty for these results is available upon request.

This test method does not include procedures to determine the heat flow due to either air movement through the specimen or solar radiation effects. As a consequence, the thermal transmittance results obtained do not reflect performances which may be expected from field installations due to not accounting for solar radiation, air leakage effects, and the thermal bridge effects that may occur due to the specific design and construction of the fenestration system opening. Therefore, it should be recognized that the thermal transmittance results obtained from this test method are for ideal laboratory conditions and should only be used for fenestration product comparisons and as input to thermal performance analyses which also include solar, air leakage, and thermal bridge effects.

Per the client, the test specimen described in this report was a production line unit submitted for initial certification and plant qualification. Detailed drawings were available for laboratory records and compared 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. This report may not be reproduced, except in full, without the written approval of National Certified Testing Laboratories. Testing described in this report was conducted in full compliance with NFRC requirements. Ratings included in this report are for submittal to an NFRC licensed IA for certification purposes and are not meant to be used for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) are to be used for labeling purposes.

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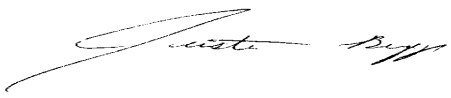

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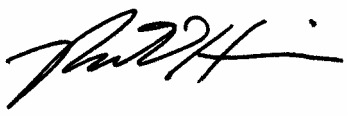

PATRICK D. HEIN
Engineering Manager
Person-in-Responsible Charge

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