NATIONAL CERTIFIED TESTING LABORATORIES

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STRUCTURAL PERFORMANCE TEST REPORT

Report No: *NCTL-210-2959-1*
Test Date: *10/30/03*
Report Date: *2/06/03*

Client: Kennedy Skylights, 5294 Tower Way, Sanford, FL 32773

Test Specimen: *Kennedy Skylights Model "SFG4" 48" x 48".*
Test Specification: *ASTM E283-91, "Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen"; ASTM E330-90, "Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."; ASTM E331-93, "Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference."; ASTM E547-93, "Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential."; ASTM E1886-99 Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted By Missile(S) And Exposed to Cyclic Pressure Differentials."; ASTM E1996,"Standard Specification For Performance Of Exterior Windows, Glazed Curtain Walls, Doors And Storm Shutters Impacted By Windborne Debris In Hurricanes." 2001 Florida Building Code.*

TEST SPECIMEN DESCRIPTION

General*: The test specimen was a welded 4" curb mounted aluminum clad self flashing glass skylight with wood interior, with a unit overall dimension of 55-1/4" x 55-1/4" including the mounting flange. The skylight sash was constructed of aluminum extruded metal with welded corners. The skylight provided a daylight opening of 43" x 43". The curb was mounted to the test buck using (# 8 x 1-5/8") pan head wood screws through the pre drilled nail holes located 3" from each end and 8" on center thereafter. The specimen employed a 1" x ¼" EPDM foam gasket around the curb perimeter. The sash interior was glazed with silicone and secured with a wood sash frame and stop. The wood sash frame was fastened with (#6 x 1" PHCS TEX) screws located 2" from each end and 8" on center thereafter. The overall glass thickness was ¾" consisting of (exterior to interior) 1/8" Tempered glass/ stainless steel spacer bar / 1/8" annealed .090" PVB / 1/8" annealed with low "E" on #2 surface. The sash was attached to the curb with #8 x 1" pan head screws on the sill and stile. The head of the unit incorporates an integral hinge for attachment. The stile screws are located 3 per side equally spaced 16" on centers. The sill screws are located 4" from each end and 13" on center thereafter.*

TEST RESULTS

AIR INFILTRATION TEST

Air infiltration test was conducted in accordance with ASTM E 283

Specimen 1

Air at 1.57 psf	*Measured*	*Allowed*
0.05	*0.00cfm/ft2*	*.3cfm/ft2*

WATER INFILTRATION TEST

Water infiltration test was conducted in accordance with, ASTM E 331

Specimen 1

Water Test Pressure @ 12 psf
15 Minute Duration

UNIFORM LOAD STRUCTURAL TEST

Uniform load structural test was conducted in accordance with ASTM E 330

Specimen 1

Design load + 70 psf, - 70 psf

Positive Loads	*Time (Sec)*	*Psf Load*	*Max Def*	*Perm. Set*
Design Load	*30*	*70.0*	*0.051”*	*0.003”*
Test Load	*10*	*105.0*	*0.086”*	*0.005”*

Negative Loads	*Time (Sec)*	*Psf Load*	*Max Def*	*Perm. Set*
Design Load	*30*	*70.0*	*0.049”*	*0.001”*
Test Load	*10*	*105.0*	*0.095”*	*0.007”*

Large Missile Impact Test – ASTM E 1886

Type and weight of missile: #2 Southern Yellow Pine 2x4, Length 102" & 9 lbs.

	Location	***Comments***	***Speed***
Specimen #2			
Impact No. 1	*Center of Lite*	*No penetration*	*50.0 Ft./Sec.*
Impact No. 2	*Top right corner of Lite*	*No penetration*	*50.0 Ft./Sec.*
Specimen #3			
Impact No. 1	*Center of Lite*	*No penetration*	*50.0 Ft./Sec.*
Impact No. 2	*Bottom left corner of Lite*	*No penetration*	*50.0 Ft./Sec.*
Specimen #4			
Impact No. 1	*Center of Lite*	*Glass breakage No penetration*	*50.0 Ft./Sec.*
Impact No. 2	*Top right corner of Lite*	*No penetration*	*50.0 Ft./Sec.*

Note: All impacts rejected the missile impacts without allowing penetration.

Cycle Test – ASTM E1996

Specimen #2 *D / P + 70 psf*

Positive Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
+0.2 - +0.5	*14.0 psf to 35.0 psf*	*3500*	*Passed*
+0.0 - +0.6	*00.0 psf to 42.0 psf*	*300*	*Passed*
+0.5 - +0.8	*35.0 psf to 56.0 psf*	*600*	*Passed*
+0.3 - +1.0	*21.0 psf to 70.0 psf*	*100*	*Passed*

Negative Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
-0.3 - -1.0	*21.0 psf to 70.0 psf*	*50*	*Passed*
-0.5 - -0.8	*35.0 psf to 56.0 psf*	*1050*	*Passed*
-0.0 - -0.6	*00.0 psf to 42.0 psf*	*50*	*Passed*
-0.2 - -0.5	*14.0 psf to 35.0 psf*	*3350*	*Passed*

Cycle Test – ASTM E 1996 (Cont.)

Specimen #3

Positive Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
+0.2 - +0.5	*14.0 psf to 35.0 psf*	*3500*	*Passed*
+0.0 - +0.6	*00.0 psf to 42.0 psf*	*300*	*Passed*
+0.5 - +0.8	*35.0 psf to 56.0 psf*	*600*	*Passed*
+0.3 - +1.0	*21.0 psf to 70.0 psf*	*100*	*Passed*

Negative Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
-0.3 - -1.0	*21.0 psf to 70.0 psf*	*50*	*Passed*
-0.5 - -0.8	*35.0 psf to 56.0 psf*	*1050*	*Passed*
-0.0 - -0.6	*00.0 psf to 42.0 psf*	*50*	*Passed*
-0.2 - -0.5	*14.0 psf to 35.0 psf*	*3350*	*Passed*

Specimen #4

Positive Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
+0.2 - +0.5	*14.0 psf to 35.0 psf*	*3500*	*Passed*
+0.0 - +0.6	*00.0 psf to 42.0 psf*	*300*	*Passed*
+0.5 - +0.8	*35.0 psf to 56.0 psf*	*600*	*Passed*
+0.3 - +1.0	*21.0 psf to 70.0 psf*	*100*	*Passed*

Negative Loads			***Mullion***
Range of test	***Actual***	***# of cycles***	***Max. Def.***
-0.3 - -1.0	*21.0 psf to 70.0 psf*	*50*	*Passed*
-0.5 - -0.8	*35.0 psf to 56.0 psf*	*1050*	*Passed*
-0.0 - -0.6	*00.0 psf to 42.0 psf*	*50*	*Passed*
-0.2 - -0.5	*14.0 psf to 35.0 psf*	*3350*	*Passed*

TEST COMPLETED 10/30/03

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

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