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Submitted By: United States Aluminum Corp.
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Attn: Mr. Doug Ellerbrock

Date: April 15, 1994
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Report No. 20990-R

REPORT

Subject: Performance testing in accordance with ASTM E 283-91 (Air Infiltration), ASTM E 331-86 (Water Resistance) and ASTM E 330-90 (Uniform Load Deflection and Uniform Load Structural).

PRODUCT DESCRIPTION

Product Type: Store-front

Series Model: FF451 Flush Front Exterior Glazed

Overall Size: 8'1/2" x 7'11-3/16" (2.451 m x 2.418 m)

Configuration:

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Glass: Two pieces 1/4" (6.35 mm) annealed, 1/2" (12.70 mm) air spacer, 1" (25.4 mm) overall thickness.

Glazing: Exterior glazed using NP-225 gasket at interior and exterior perimeter of glass.

Weep Arrangement: 1-1/4"x3/16" (31.75 mm x 4.763 mm) weep slot, approx. 2-1/2" (63.5 mm) from each vertical member - two under each lite (total of 4).

Sealant: Silicone sealant and foam backer rod used at full exterior perimeter of main frame. Silicone sealant at interior and exterior of sub-sill #FF400 to sill #FF582 full span, at each corner of sub-sill #FF400 to wood test buck and aluminum angle end cap to sub-sill #FF400. Silicone sealant applied to head of sill anchor bolts and vertical joints of mullion at head and sill of main frame.

Other Features: Frame corner construction by two (2) #10x1" (10 x 25.4 mm) screws. Snap-in glazing strip #M-473 at frame top rail. 1/4" (6.35 mm) dia. lag bolts employed to attach frame to wood test buck - one 2" (50.8 mm) from each vertical member and one at mid-point between mullion and frame jambs on frame head and frame sill. Horizontal member attached to mull and frame jamb with four (4) 10x1" (10 x 25.4 mm) screws at each corner (total of 8).

Date Testing Started: March 29, 1994

Date Testing Completed: March 29, 1994

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PERFORMANCE TEST RESULTS

TITLE OF TEST	TEST METHOD	MEASURED	ALLOWED
Air Infiltration @ 1.57 psf (7.664 kg/m^2)	ASTM E 283-91	0.005 CFM/Ft^2 (0.024 liter/sec)	0.06 CFM/Ft^2 (0.028 liter/sec)
Air Infiltration @ 6.24 psf (30.46 kg/m^2)	ASTM E 283-91	0.04 CFM/Ft^2 (0.0195 liter/sec)	0.06 CFM/Ft^2 (0.028 liter/sec)
Water Resistance @ 6.24 psf (30.46 kg/m^2)	ASTM E 331-86	No Leakage	No Leakage
Water Resistance @ 8.00 psf (39.051 kg/m^2)	ASTM E 331-86	No Leakage	No Leakage
Water Resistance @ 10.00 psf (48.82 kg/m^2)	ASTM E 331-86	No Leakage	No Leakage
Uniform Load Deflection	ASTM E 330-90		
- Exterior 30.0 psf (146.44 kg/m^2)		0.390" (9.91 mm)	0.546" (13.87 mm)
- Interior 30.0 psf (146.44 kg/m^2)		0.421" (10.69 mm)	0.546" (13.87 mm)
Uniform Load Structural	ASTM E 330-90		
- Exterior		45.0 PSF * (219.66 kg/m^2)	45.0 PSF * (219.66 kg/m^2)
- Interior		45.0 PSF * (219.66 kg/m^2)	45.0 PSF * (219.66 kg/m^2)
- Permanent		Negligible	0.386" (9.804 mm)

* No glass breakage, permanent deformation, or any other condition exists that caused any damage to the unit.

The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specifications.

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