Quality Accuracy Assurance

Fenestration Testing Laboratory, Inc.

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(4)

Lab. Number: 3421
May 22, 2002
Report Number: 2
File Number 02-113

A-4934

OFFICIAL TEST REPORT

MANUFACTURER: Flesher Windows, Inc
ADDRESS: dba AAA Aluminum Stamping
[illegible] Blvd. North
Lehigh Acres, Florida 33971

DESIGNATION: H-LC45 - 53 X 77
SPECIFICATIONS: AAMA/NWWDA 101/I.S.2-97

DESCRIPTION OF UNIT

Model Designation: Series: 1000; Aluminum Single Hung Window
Overall Size: 4' 5 1/8" (53 1/8") by 6' 5" (77") high by 1.875" deep
Configuration: O/X
No. & Size of Vents: One extruded aluminum vent, 4' 2 1/8" (50 1/8") by 3' 1 7/8" (37 7/8") high

MATERIAL CHARACTERISTICS

Frame Construction: Test unit has a flange type frame, butt joints with a bronze and white coated finish. Aluminum alloy 6063-T5. Frame corners were fastened with two No. 8 by 1" pan head sheet metal screws. Fixed meeting rail at each end was fastened with one of the same type and size screws. Unit tested with a 1 5/8" high overall interior sill flange. Size of frame members are as follows: frame head 0.687" by 1.875" by 0.656"; frame sill 1.925" by 2.124" by 1.487", frame jambs 1.423" by 1.875" by 0.050" wall thickness; fixed meeting rail 0.888" by 1.688" by 0.750". Frame members are solid extrusions. Extrusions have typical wall thicknesses of 0.062", except where indicated.
Vent Construction: Vent has butt joints and a bronze coated finish. Aluminum alloy 6063-T5. Vent corners were fastened with one No. 8 by 1" pan head sheet metal screw. Size of rails are as follows: top rail 0.750" by 1.406" by 0.950"; bottom rail 0.812" by 0.937" by 1.312"; vent jamb rails (solid extrusions) 0.844" by 0.750" by 0.050" wall thickness. Vent members are hollow extrusions, except where indicated. Extrusions have a typical wall thickness of 0.062", except where indicated.
Glazing:
Material: 3/16" annealed glass
Method: Unit is exterior glazed with a 0.358" glazing penetration using a white colored silicone and aluminum rolled glazing bead
Daylight Opening: Clear opening of fixed lite, 49 ½" by 36 3/4" high; vent, 48 7/16" by 36 3/4" high.
Weatherstripping:

Quantity	*Description*	*Location*
Single row	pile	at vent jamb rails on the interior and exterior
Single row	pile	at fixed meeting rail and vent top rail
Single row	vinyl bulb	at frame sill and vent bottom rail

Hardware:

Quantity	*Description*	*Location*
One	surface mount metallic cam lock, with no I.D. marks	at midspan of vent top rail
Two	spiral balances, with no I. D. marks	one at each frame jamb

MATERIAL CHARACTERISTICS

Hardware: (continued)

Quantity	*Description*	*Location*
Two	surface mount plastic night latch, with no I.D. marks	one at each end of vent top rail
Two	steel balance clips, with no I.D. marks	one at each end of frame jambs
Two	3" long aluminum vent stop, with no I.D. marks	one at top of each frame jamb

Weepholes:

Quantity	*Description*	*Location*
Two	1 11/16" weep notch	one at each end of sill screen retainer leg

Muntins: None

Mullions: None

Reinforcement: One 0.455" by 0.890" by 0.120" by 50" long aluminum angle at vent top rail on the interior, fastened with a single of 8 by 3/4" oval head self drilling screws, 4", 18", 32" and 46" from left.

Sealants: Frame and vent corners were sealed with a white colored sealant

Pads: None

Screen: None

Unit Installation: Test unit installed in a 2 x 12 wood test buck using a 2 x 4 buck strip. Frame installed with a single row of No. 10 by 2" pan head sheet metal screws in frame head and frame jambs. Location of installation screws are as follows: frame head from the left, 3" and 50", frame jambs from the bottom, 3", 27 5/8", 52 1/4" and 76 7/8". Frame sill not fastened to test buck.

Product Markings: None

OFFICIAL TEST RESULTS

Paragraph Number	Title of Test	Measured	Allowed
2.1.2	Air Infiltration Test: (ASTM E283-96) at 1.57 psf	0.13 cfm/sq.ft. (2.38 cmh/m²)	Passed 0.3 (5.49) maximum
Note:	The tested specimen meets or exceeds the performance levels specified in specification reference for air infiltration.		
2.1.3	Water Resistance Test: (ASTM E547-96/E331-96) with and without screen, no leakage	6.80 psf (326 Pa)	Passed 3.75 (180) minimum
2.1.4.2	Uniform Structural Load Test: (ASTM E330-96) Positive Load	67.5 psf (3232 Pa)	Passed 37.5 (1796) minimum

	Deflection	Permanent Set	
Reading at meeting rails	1.416" (36.01 mm)	0.059" (1.50 mm)	0.200 (5.09) maximum
Reading at frame sill	0.081" (2.06 mm)	None	
Reading at frame jamb	0.108" (2.75 mm)	None	

Uniform Structural Load Test: (ASTM E330-96) Negative Load	67.5 psf (3232 Pa)		Passed 37.5 (1796) minimum
Reading at meeting rails	1.449" (36.85 mm)	0.063" (1.60 mm)	0.200 (5.09) maximum
Reading at frame sill	0.095" (2.42 mm)	None	
Reading at frame jamb	0.115" (2.92 mm)	None	

2.1.8	Forced Entry Resistance Test AAMA 1303.2-1976, Paragraph 3.1.1 Test A through 3.1.5 Test G	No entry	Passed None Allowed

OFFICIAL TEST RESULTS

Paragraph Number	Title of Test	Measured	Allowed
2.2.1.6.1	Starting Force:	5 pounds (22 N)	30 (133) maximum
	Operating Force:	4 pounds (18 N)	30 (133) maximum
2.2.1.6.2	Deglazing Test: (ASTM E987-88)		Passed
	No disengagement at:		
	Horizontal Rails	70 pounds (311 N)	70 (311) minimum
	Vertical Rails	50 pounds (222 N)	50 (222) minimum
	Percent Deglazement	4 percent	99 maximum

SECTION 4, OPTIONAL PERFORMANCE CLASS:

4.3	Water Resistance Test: (ASTM E547-96/E331-96)			Passed
	with and without screen, no leakage	6.80 psf (326 Pa)		4.50 (215) minimum
4.4.2	Uniform Structural Load Test: (ASTM E330-96)			Passed
	Positive Load	67.5 psf (3232 Pa)		45.0 (2155) minimum
		Deflection	**Permanent Set**	
	Reading at meeting rails	1.416" (36.01 mm)	0.059" (1.50 mm)	0.200 (5.09) maximum
	Reading at frame sill	0.081" (2.06 mm)	None	
	Reading at frame jamb	0.108" (2.75 mm)	None	
	Uniform Structural Load Test: (ASTM E330-96)			Passed
	Negative Load	67.5 psf (3232 Pa)		45.0 (2155) minimum
	Reading at meeting rails	1.449" (36.85 mm)	0.063" (1.60 mm)	0.200 (5.09) maximum
	Reading at frame sill	0.095" (2.42 mm)	None	
	Reading at frame jamb	0.115" (2.92 mm)	None	

Note: At conclusion of above tests, there was no apparent damage to unit, glass or fasteners.

Temperature: 71.0 F
Barometric: 30.17

Test Began - April 11, 2002
Test Completed - May 20, 2002
Report Expires - April 11, 2006

Remarks: This test report does not constitute certification of this product, but only that the above test results were obtained using the designated test methods and the performance requirements (paragraphs as listed) of the above referenced specifications. As per manufacturer, unit complies with section 3, material and component requirements.

Detailed assembly drawings showing wall thickness of all members, corner construction and hardware application are on file and have been compared to the sample submitted. A test sample will be retained at the test laboratory. A copy of this report and detailed drawings will be forwarded to the Validator.

Flesher Windows Inc.
DBA AAA Aluminum

Comparitive Analysis Chart
Design Pressures
1000 Series Single Hung

Test Report FTL No. 3421-02-113
Design Pressure: +45.0/-45.0 PSF

Test Size: 53" x 77"
Glazing: 3/16" Annealed Glass
Configuration: 1/1

Width>>	19	26 1/2	30	37	42	48	53
Heights							
26	224.8	200.7	179.2	160.0	142.9	116.1	103.7
30	213.3	190.4	170.0	151.8	123.4	100.4	89.6
36	180.7	161.3	144.0	128.6	104.6	85.0	75.9
38 3/8	174.7	156.0	139.3	124.4	101.1	82.2	73.4
48	146.0	130.4	116.4	103.9	84.5	68.7	58.3
50 5/8	146.0	125.9	112.4	100.4	82.1	67.0	57.1
60	146.0	120.0	106.5	95.1	75.4	61.5	50.2
63	146.0	120.0	104.6	93.4	73.2	58.1	49.2
72	146.0	120.0	100.5	89.7	69.6	54.3	46.1
77	146.0	120.0	76.7	68.5	59.4	51.2	45.0

Limitations

The above are Structural Designs from Comparitive Analysis and have not been capped by water resistance or glass thickness. The Positive Pressure for water Resistance should be capped at 60 PSF. The ASTM-1300 Glass Chart must be used to comply with the pressues for each product.

Test Report and results from these charts indicate compliance with ANSI/AAMA/NWWDA 101/I.S.2-97

CENTRAL FLORIDA E.O.A.F.
MANUFACTURER NAME:
FLESHER WINDOW
MASTER FILE # 1

11/16/02

FLESHER WINDOWS
DBA AAA ALUMINUM

Glass Design Pressure
Resistance - ASTM 1300
Single Hung Window

Maximum Allowable PSF Design Load

Unit Size	Glass Width	Glass Height	SSB Glass	DSB Glass	3/16" Glass	1/4" Glass	DSB Temp	3/16" Temp
12	16	10 7/8	112	181	209	209	724	835
13	16	17 1/8	82.2	119	209	209	477	835
14	16	23 1/4	61.6	82.6	183	209	345	733
15	16	29 7/16	46.8	67.6	145	209	270	580
16	16	35 1/2	36.8	54.7	129	189	219	516
H32	23 1/2	10 7/8	75	130	209	209	522	835
H33	23 1/2	17 1/8	59.6	81.7	166	209	327	665
H34	23 1/2	23 1/4	50	70.1	122	170	280	490
H35	23 1/2	29 7/16	41	56.6	96.6	133	226	386
H36	23 1/2	35 1/2		46.4	79.4	109	186	318
22	34	10 7/8	58.2	105	209	209	418	835
23	34	17 1/8	38.5	54.4	120	176	218	478
24	34	23 1/4		48.8	83	116	195	332
245	34	26 15/16		46.3	75.5	98	183	302
25	34	29 7/16		43.6	70.6	91.7	174	282
26	34	35 1/2		38.3	60.7	78.3	153	243
32	50 1/8	10 7/8	50.6	93	209	209	372	835
33	50 1/8	17 1/8		39.5	94.1	139	158	376
34	50 1/8	23 1/4			57.1	81.1	119	228
35	50 1/8	29 7/16			46.7	60.7	118	187
36	50 1/8	35 1/2			42.9	52.7	108	172

Design Pressures were calculated using the top lite of the product being the larger glass
Design Pressures were calculated using "Comprehensive Glass Design V 1.2" software
Design Pressures may exceed Comparative Analysis and Product Testing
The lowest pressure of the two must be used to find the correct pressure

ASTM-1300
Aug-1-2002