

Hurricane Test Laboratory, Inc.

Windows / Doors / Storefronts / Curtain Walls / Skylights / Shutters / EIFS / Metal Building Systems

Internet:
www.hurricanetest.com

E-Mail:
Info@hurricanetest.com

6655 Garden Road
Riviera Beach
Florida 33404

Phone: (561) 881-0020
Fax: (561) 881-0075

MISSILE IMPACT & CYCLIC LOAD TEST REPORT – FIXED WINDOW

Test Date: 12/1/99

Job #: 0217-1202-99

Specimen #: 2

Page #: 1

MANUFACTURER'S IDENTIFICATION

- 1.0 NAME OF APPLICANT: Specialty Windows of Florida
690 Heinburg Street
Pensacola, FL 32501
- 2.0 CONTACT PERSON: Richard Bradley
- 3.0 HTL NOTIFICATION #: HTL99075
- 4.0 HTL LAB CERTIFICATION: Miami-Dade County (99-0301.04)

PRODUCT IDENTIFICATION

- 5.0 Product Type: Aluminum Fixed Window
- 6.0 Model Number: Specialty Windows Series 100 Window System
- 7.0 Performance Class: ±60 PSF Design Load
- 8.0 Overall Size: 50 5/16-in. (w) x 98 5/16-in. (h)
- 9.0 Sash Size: N/A
- 10.0 Configuration: Fixed.

PRODUCT DESCRIPTION

GENERAL DESCRIPTION: Please note that Specialty Windows Drawing #1 and all accompanying sheets are incorporated into this test report by reference.

11.0 MATERIAL CHARACTERISTICS:

11.1 Overall Window Frame Construction: The window frame in this test specimen was fabricated using the following aluminum extrusions:

Description	Part #	Overall Cross Section	Alloy
Frame Head	SW-001	1.577" x 1.875" x 0.065"	6063-T5
Frame Sill	SW-001	1.577" x 1.875" x 0.065"	6063-T5
Frame Jambs	SW-001	1.577" x 1.875" x 0.065"	6063-T5

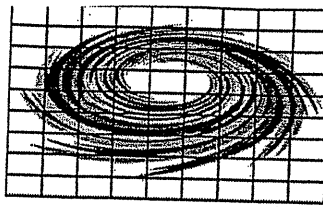
At each frame corner, the vertical frame member end was notched, butted and mechanically attached to the horizontal frame member using two (2), #8 x 1-in. zinc, self tapping sheet metal screws at each corner. Each frame corner was sealed using a bead of PTI-200 small joint sealant. This test specimen was interior glazed using a series of removable glazing stops that were each fabricated from a common aluminum alloy 6063-T5 extrusion, Specialty Windows' Part # SW-016, having overall cross sectional dimensions of 0.562-in. (face) x 0.500-in. (deep) x 0.062-in. (wall thickness). This glazing stop was

ENGINEER OF RECORD

11/2/00

Vinu J. Abraham, P.E.

FL Reg. # 53820



MISSILE IMPACT & CYCLIC LOAD TEST REPORT – FIXED WINDOW

Test Date: 12/1/00 Job #: 0217-1202-99 Specimen #: 1 Page #: 2

attached to the frame using #8 X 1-in zinc, self tapping sheet metal screws located 3-in. from the corners and 6-in. o.c. thereafter.

11.2 Glazing:

11.2.1 Glazing Material: The glazing material used in this sample was 3/8-in. thick (overall) Laminated Glass, consisting of the following components:

- 1/8-in. clear annealed glass
- 0.090-in. SAFLEX PVB interlayer (Miami-Dade County N.O.A. #98-0728.05)
- 3/16-in. clear annealed glass

11.2.2 Glazing Method:

Interior Side: using a continuous 1/8" x 1/2" bead of PECORA 895 Silicone Sealant.

Exterior Side: using a continuous 1/8" x 1/2" bead of PECORA 895 Silicone Sealant.

11.2.3 Daylight Opening:

Quantity	Location	Daylight Opening	Glass Bite
1	Fixed Lite.	47-in. (w) x 95-in. (h)	1/2-in.

11.3 Weather-stripping: None used.

11.4 Hardware: None used.

11.5 Weep Holes: None used.

11.6 Muntins: None used.

11.7 Additional Reinforcement: None used.

11.8 Sealant's Used:

Frame Perimeter Sealant – PECORA 895 Silicone Sealant

Frame Joint Sealant – PECORA Silicone Sealant

INSTALLATION

12.0 This window sample was installed into the wood opening as follows:

12.1 Frame Jambs: Each jamb member of the window frame was attached to the wood buck using a single row of #10 x 2-1/2-in. stainless steel, PH SMS (Type AB) located 3-in. away from each corner and then 6-in. on center thereafter.

12.2 Frame Head & Sill: The head and sill of the window frame were each attached to the wood buck using a single row of #10 x 2-1/2-in. stainless steel, PH SMS (Type AB) located 3-in. away from each corner and then 6-in. on center thereafter.

TEST RESULTS

13.0 TEST CONCLUSION:

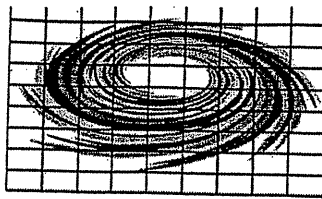
Test Method	Test Condition	Conclusion
Large Missile Impact Test	PA 201 & SSTD 12-99	PASS
Cyclic Load Test (PA 203 & SSTD 12-99)	± 60 psf Design Pressure	PASS

ENGINEER OF RECORD

11/2/00

Vinu J. Abraham, P.E.

FL Reg. # 53820



MISSILE IMPACT & CYCLIC LOAD TEST REPORT – FIXED WINDOW

Test Date: 12/1/00 Job #: 0217-1202-99 Specimen #: 1 Page #: 3

14.0 TEST SEQUENCE:

- a. Missile Impact Test per Miami-Dade PA 201 and SSTD 12-99.
- b. Positive Cyclic Load Test per Miami-Dade PA 203 and SSTD 12-99.
- c. Negative Cyclic Load Test per Miami-Dade PA 203 and SSTD 12-99.

15.0 LARGE MISSILE IMPACT TEST:

15.1 IMPACT DATA:

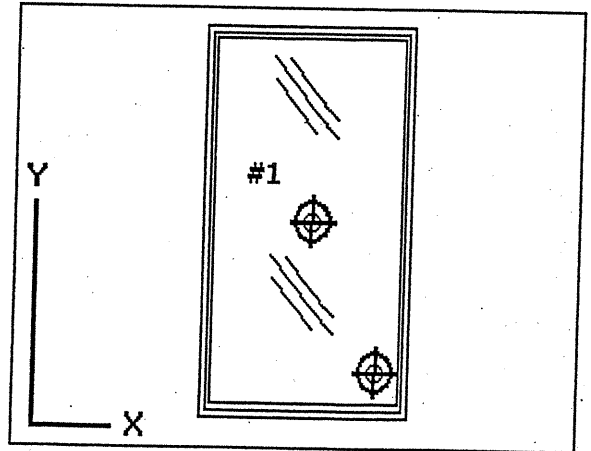
Impact #	Glass Temp. (°F)	Velocity (ft/s)	Missile Length (in.)	Missile Weight (g)	X Coordinate (in.)	Y Coordinate (in.)
1	69	50.50	98.50	9.25	24.50	49.50
2	69	51.00	98.50	9.25	41.00	8.50

15.2 IMPACT LOCATIONS AND REMARKS:

Impact # 1 – 2 hit the intended targets resulting in the recorded measurements.

No openings were observed on the glass during or after the small missile impact test.

Upon completion of the large missile impact test, this sample subsequently underwent the cyclic load test as specified in protocol PA 203 and SSTD 12-99.



16.0 CYCLIC LOAD TEST:

16.1 CYCLIC TEST PRESSURE:

$$(P_d)_{in} = P_{max} = 60 \text{ psf}$$

$$(P_d)_{out} = P_{max} = 60 \text{ psf}$$

16.2 POSITIVE CYCLIC LOAD SPECTRUM:

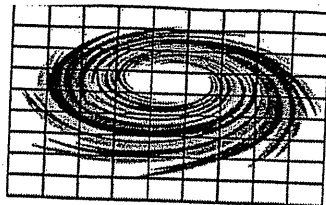
# OF INWARD ACTING CYCLES/STAGE			
12 - 30 (psf)	0 - 36 (psf)	30 - 48 (psf)	18 - 60 (psf)
3500	300	600	100

ENGINEER OF RECORD

11/2/00

Vinu J. Abraham, P.E.

FL Reg. # 53820



MISSILE IMPACT & CYCLIC LOAD TEST REPORT – FIXED WINDOW

Test Date: 12/1/00 Job #: 0217-1202-99 Specimen #: 1 Page #: 4

16.3 NEGATIVE CYCLIC LOAD SPECTRUM:

# OF OUTWARD ACTING CYCLES/STAGE			
18 – 60 (psf)	30 – 48 (psf)	0 – 36 (psf)	12 – 30 (psf)
50	1050	50	3350

16.6 REMARKS:

No deflection measurements were taken, because there was no place to place a deflection gage, and because it is a fixed window (direct set). No failures were observed during cycling. As such this unit has met the requirements of Miami-Dade County Protocol PA 203.

MISCELLANEOUS INFORMATION

17.0 CERTIFICATION & DISCLAIMER STATEMENT:

The test and the results summarized in this test report were conducted in accordance with the specifications of the applicable codes, standards & test methods listed below by the Hurricane Test Laboratory, Inc. located at 6655 Garden Road, Riviera Beach, FL 33404. This report is only intended for the use of the entity named in section 1.0 of this report. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the referenced specification. This report does not constitute certification of this product which may only be granted by the Validator.

18.0 APPLICABLE CODES, STANDARDS & TEST METHODS:

Miami-Dade County Protocol PA 201 – Impact Test Procedures
Miami-Dade County Protocol PA 203 – Criteria For Testing Products Subject To Cyclic Wind Pressure Loading.

19.0 LIST OF OFFICIAL OBSERVERS:

Vinu Abraham – HTL, Professional Engineer
José Colón – HTL, Engineer
Terry Roberts – HTL, Technician

ENGINEER OF RECORD

11/2/00

Vinu J. Abraham, P.E.

FL Reg. # 53820