



Quality Accuracy Assurance

Fenestration Testing Laboratory, Inc.

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Cert. No: TST1657
Report Date: 12/7/2010
Completion Date: 11/30/2010
Expiration Date: 11/30/2020
File Number: 10-541
Page: 1
Lab. Number: 6418
Project Number: 10-2522

OFFICIAL TEST REPORT

MANUFACTURER: Hurricanefabric.com

SPECIFICATIONS: ASTM E330
ASTM E1886
ASTM E1996

ADDRESS: PO Box 50153
Clayton, MO 63105

PROJECT: Florida State Approval

DESCRIPTION OF SAMPLE	
Model Designation:	Series: Astro Guard Hurricane Abatement System
Overall Size of Screen:	18'-2" (218") by 7'-4" (88") high
Fabric Type:	**1680 DENIER
Mesh Construction:	**WARP and FILL COUNT: 25.0/IN
Mesh Finish:	**Resin Coated Finish
Sample A-1, A-2 and A-3	

Clips/Product Markings

Screen had eight anchor clips at each side of fabric. The anchor clips were fastened to the fabric using eight No. 8 by 1/2" pan head sheet metal screws. Location of anchor clips from bottom: 2", 14", 26", 38", 50", 62", 74", and 86".

Clips have product marking hurricanefabric.com.

Sample Installation

Sample was tested in a steel test chamber and installed onto a 3000 psi concrete beam at each side of system. Screen was installed using eight anchor clips at each side of screen and a single row of 1/4-20 by 1 1/4" side walk bolts with 2" long hurricane shutter insert anchors located 2 1/2", 14 1/2", 26 1/2", 38 1/2", 50 1/2", 62 1/2", 74 1/2" and 86 1/2" from bottom.

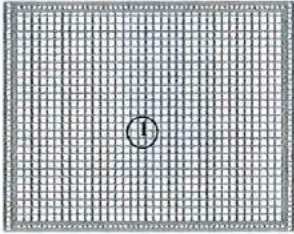


Cert. No: TST1657
 Report Date: 12/7/2010
 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 2
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-1	Temperature: 73.4°F	Barometric Reading: 30.59 inches Hg	
Title of Test		Pressure	Notes
1/2 Structural Load Test Positive Load		45.0 psf	
		Results	Passed

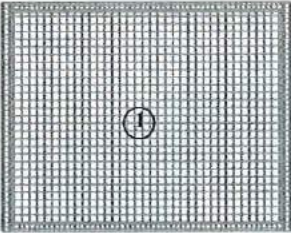
Sample: A-1	Temperature: 75.6°F	Barometric Reading: 50.53 inches Hg	
Title of Test		Pressure	Notes
1/2 Structural Load Test Negative Load		45.0 psf	
		Results	Passed

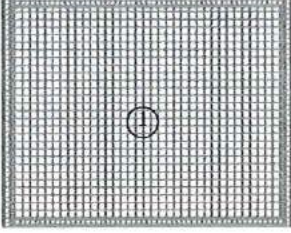
Sample: A-1	Temperature: 73.4°F	Barometric Reading: 30.59 inches Hg		
Title of Test		Pressure	Notes	
Design Load Test Positive Load		60.0 psf		
				
Reading#	Deflection	Permanent Set	Results	Add. Info
1	28.250"	n/a	Passed	



Cert. No: TST1657
 Report Date: 12/7/2010
 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 3
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

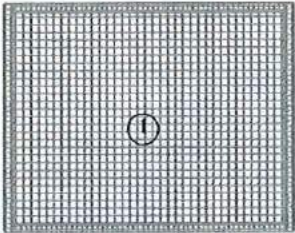
Sample: A-1	Temperature: 75.6°F	Barometric Reading: 30.59 inches Hg		
Title of Test		Pressure	Notes	
Design Load Test Negative Load		60.0 psf		
				
Reading#	Deflection	Permanent Set	Results	Add. Info
1	27.000"	n/a	Passed	

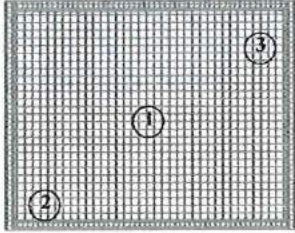
Sample: A-1	Temperature: 73.4°F	Barometric Reading: 30.59 inches Hg		
Title of Test		Pressure	Notes	
Uniform Structural Test Positive Load		90.0 psf		
				
Reading#	Deflection	Permanent Set	Results	Add. Info
1	34.500"	n/a	Passed	



Cert. No: TST1657
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 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 4
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-1	Temperature: 75.6°F	Barometric Reading: 30.59 inches Hg		
Title of Test		Pressure	Notes	
Uniform Structural Test Negative Load		90.0 psf		
				
Reading#	Deflection	Permanent Set	Results	Add. Info
1	31.000"	n/a	Passed	

Sample: A-1	Temperature: 77.9°F	Barometric Reading: 30.62 inches Hg			
Title of Test		Notes			
Large Missile Impact Test					
Missile Weight		Missile			
9.25 pounds		2" by 4" by 92" long			
					
Impact	Speed	Orientation	Deflection	Results	Add. Info
1	50.9 ft/sec	4.187°	14.500"	Passed	
2	50.2 ft/sec	3.338°	8.875"	Passed	
3	50.7 ft/sec	4.087°	9.250"	Passed	



Cert. No: TST1657
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 File Number: 10-541
 Page: 5
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-1		Temperature: 72.5°F		Barometric Reading: 30.80 inches Hg		
Title of Test		Positive Pressure		Notes		
Cyclic Wind Load Test		60.0 psf				
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.2-0.5	3500	2.1 sec	1	29.250"	n/a	Passed
0.0-0.6	300	2.4 sec				
0.5-0.8	600	2.0 sec				
0.3-1.0	100	2.8 sec				

Sample: A-1		Temperature: 71.6°F		Barometric Reading: 30.74 inches Hg		
Title of Test		Negative Pressure		Notes		
Cyclic Wind Load Test		60.0 psf				
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.3-1.0	50	2.8 sec	1	31.125"	n/a	Passed
0.5-0.8	1050	2.1 sec				
0.0-0.6	50	2.5 sec				
0.2-0.5	3350	2.0 sec				



Cert. No: TST1657
 Report Date: 12/7/2010
 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 6
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-2		Temperature: 75.6°F		Barometric Reading: 30.20inches Hg	
Title of Test			Notes		
Large Missile Impact Test					
Missile Weight			Missile		
9.25 pounds			2" by 4" by 92" long		
Impact	Speed	Orientation	Deflection	Results	Add. Info
1	49.6 ft/sec	3.338°	10.250"	Passed	
2	50.2 ft/sec	4.787°	16.500"	Passed	
3	50.3 ft/sec	4.012°	9.875"	Passed	

Sample: A-2		Temperature: 75.6°F		Barometric Reading: 30.30inches Hg		
Title of Test			Positive Pressure		Notes	
Cyclic Wind Load Test			60.0 psf			
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.2-0.5	3500	2.1 sec	1	31.125"	n/a	Passed
0.0-0.6	300	2.5 sec				
0.5-0.8	600	1.9 sec				
0.3-1.0	100	2.9 sec				



Cert. No: TST1657
 Report Date: 12/7/2010
 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 7
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-2		Temperature: 75.6°F		Barometric Reading: 30.30 inches Hg		
Title of Test			Negative Pressure		Notes	
Cyclic Wind Load Test			60.0 psf			
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.3-1.0	50	3.0 sec	1	32.500"	n/a	Passed
0.5-0.8	1050	1.8 sec				
0.0-0.6	50	2.5 sec				
0.2-0.5	3350	1.4 sec				

Sample: A-3		Temperature: 76.2°F		Barometric Reading: 30.30inches Hg		
Title of Test			Notes			
Large Missile Impact Test						
Missile Weight			Missile			
9.25 pounds			2" by 4" by 92" long			
Impact	Speed	Orientation	Deflection	Results	Add. Info	
1	50.5 ft/sec	2.925°	11.250"	Passed		
2	50.4 ft/sec	3.162°	15.875"	Passed		
3	49.5 ft/sec	3.320°	10.500"	Passed		



Cert. No: TST1657
 Report Date: 12/7/2010
 Completion Date: 11/30/2010
 Expiration Date: 11/30/2020
 File Number: 10-541
 Page: 8
 Lab. Number: 6418
 Project Number: 10-2522

OFFICIAL TEST REPORT

Sample: A-3		Temperature: 77.9°F		Barometric Reading: 30.20 inches Hg		
Title of Test			Positive Pressure		Notes	
Cyclic Wind Load Test			60.0 psf			
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.2-0.5	3500	1.5 sec	1	31.500"	n/a	Passed
0.0-0.6	300	2.0 sec				
0.5-0.8	600	1.9 sec				
0.3-1.0	100	2.5 sec				

Sample: A-3		Temperature: 77.9°F		Barometric Reading: 30.20 inches Hg		
Title of Test			Negative Pressure		Notes	
Cyclic Wind Load Test			60.0 psf			
Range	Cycle	Measured	Reading#	Deflection	Permanent Set	Results
0.3-1.0	50	2.7 sec	1	34.750"	n/a	Passed
0.5-0.8	1050	1.9 sec				
0.0-0.6	50	2.2 sec				
0.2-0.5	3350	2.0 sec				

Revision	Description	Author	Effective Date
0	Initial Release	Mrs. Iliana Francisco	12/7/2010



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File Number: 10-541
Page: 9
Lab. Number: 6418
Project Number: 10-2522

OFFICIAL TEST REPORT

Notes

* designates measurements by laboratory

** as per manufacturer

Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement or certification by this laboratory.

This test report is considered the exclusive property of the client named herein and is applicable to the sample tested. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc.

At conclusion of above tests, there was no apparent damage to fasteners. Test specimens were covered with 1.5 mil plastic sheeting to seal from air leakage when load test were performed, however this had no effect on above results.

Remarks

Representative samples of the test specimens, detailed drawings and digital video disc of testing will be retained by Fenestration Testing Laboratory for a period of five years from the original test date, and test report for a period of ten years. Due to the code cycle change of four years, it is recommended that this report be evaluated during the lifespan of this document.

This product was tested in accordance with the ASTM E330-02, ASTM E1996-05, and ASTM E1886-05 with no deviations.

Testing was conducted as per instructions received from your company representative.

Witnessed by:

Mr. Jorge A. Causo, P.E.

Reviewing Engineer:

Mr. Marlin D. Brinson, P.E..

Mr. Scott Purcell, Hurricane Fabric

Technicians:

Mr. Jose Sanchez

FENESTRATION TESTING LABORATORY, INC.

Mr. Manny Sanchez
Chief Executive Officer

Frank L. Bennardo, P.E.
160 SW 12th Avenue, #106
Deerfield Beach, FL 33442

Powered by the
Innovations of



February 1, 2016

Work Prepared For:
Hurricane Fabric, LLC
PO Box 50153
Clayton, MO 63105

Regarding: Astroguard Fabric Hurricane Protection System

To Whom It May Concern:

This office provides product validation and engineering services for the Astroguard Fabric Hurricane Protection System. This product was tested in accordance with ASTM E330, ASTM E1886, and ASTM E-1996 and carries a Florida Product Approval #FL15208.1-R0 (<http://approvalzoom.com/listing/FL15208.1-R0>)

This letter serves to advise that this product meets the base requirements of the current International Building and Residential Codes for use as a large missile impact protection system. Be advised that all limitations of use of the product must still conform to site specific design parameters of the intended use based of the Florida approval referenced above which are outside the scope of this engineer's review and certification. Thank you for your attention to this matter.

Respectfully,

FEB 01 2016

Frank L. Bennardo, P.E.
GA PE 027525