



PRODUCT EVALUATION REPORT

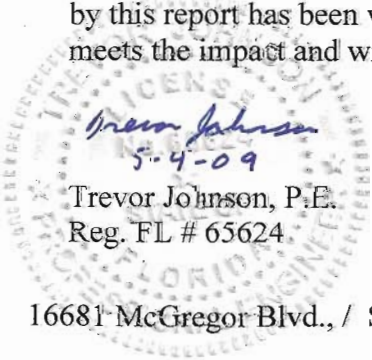
1. **Report No:** 5240.01R1
2. **Date:** May 4, 2009
3. **Product Category:** Shutters
4. **Product Sub-Category:** Roll-up
5. **Other Sub-Category:** None
6. **Product Name:** 58 mm Bertha End-Retention / Non-Retention Roll Shutter System
7. **Evaluation Entity:** Arnold/Sanders Consulting Engineers, Inc.
16681 McGregor Blvd, Suite 102
Fort Myers, FL 33908
239-267-3666
8. **Manufacturer:** American Shutter System Association, Inc
4268 Westroads Drive
West Palm, FL 33407
1-800-432-2204

9. **Product Description:**

The aluminum 58 mm slat end-retention and non-retention roll-up shutter for impact protection of openings. These roll-up shutter systems can be used for new installations or for replacement of existing shutters.

10. **Statement of Compliance:**

This product evaluation report is issued by Arnold/Sanders Consulting Engineers, Inc to American Shutter System Association, Inc in accordance with Section 9B-72.070 Method 1D, F.A.C., Department of Community Affairs-Florida Building Commission. The product covered by this report has been verified to be in compliance with the 2007 Florida Building Code and meets the impact and wind resistance requirements of Section 1609.1.2.

A circular professional engineer seal for Trevor Johnson, P.E. The seal contains the text "TREVOR JOHNSON, P.E.", "FLORIDA", and "REGISTERED PROFESSIONAL ENGINEER". The seal is partially obscured by a signature and date.
Trevor Johnson
5-4-09
Trevor Johnson, P.E.
Reg. FL # 65624

11. Evidence Submitted:

11.1. Testing Reports:

Fenestration Testing Laboratory, Inc.

Laboratory No. 4760

Date: December 1, 2005

Report No. 05

File No. 05-418

End-Retention tested for large missile impact, cycle loading and uniform static load in accordance with ASTM Standards E330-02, E1886-02, and E1996-02.

Maximum Width Tested 120"

Design Pressure Tested 140 PSF

Configurations Tested Direct Mount

Laboratory No. 4744

Date: November 14, 2005

Report No. 04

File No. 05-418

Non-Retention tested for large missile impact, cycle loading and uniform static load in accordance with ASTM Standards E330-02, E1886-02, and E1996-02.

Maximum Width Tested 97"

Design Pressure Tested 45 PSF

Configurations Tested Direct Mount

Laboratory No. 4740

Date: November 14, 2005

Report No. 03

File No. 05-418

Non-Retention tested for large missile impact, cycle loading and uniform static load in accordance with ASTM Standards E330-02, E1886-02, and E1996-02.

Maximum Width Tested 120"

Design Pressure Tested 23 PSF

Configurations Tested Direct Mount



Product Evaluation Report
58mm Bertha End-Retention / Non-Retention Roll-up Shutter System
Report No: 5240.01R1

Laboratory No. 4644
Date: June 17, 2005
Report No. 02
File No. 05-418
End-Retention tested for large missile impact, cycle loading and uniform static load in accordance with ASTM Standards E330-02, E1886-02, and E1996-02.
Maximum Width Tested 280.75"
Design Pressure Tested 60 PSF
Configurations Tested Direct Mount

Laboratory No. 4596
Date: April 29, 2005
Report No. 01
File No. 05-418
End-Retention tested for large missile impact, cycle loading and uniform static load in accordance with ASTM Standards E330-02, E1886-02, and E1996-02.
Maximum Width Tested 242.5"
Design Pressure Tested 80 PSF
Configurations Tested Direct Mount, Build-Outs, & Build-Ins

American Test Lab of South Florida

ATLSF Report # 0404.01-08
Date: April 4, 2008
ATLSF Certification # 01-0516.16
Mullion tested for large missile impact in accordance with TAS 201-94 and ASTM Standards E1886-05, and E1996-05.
Sizes Tested: 4x6x1/4x144

ATLSF Report # 0323.01-09
Date: April 16, 2009
ATLSF Certification # 09-0203.02
Mullion tested for large missile impact in accordance with TAS 201-94 and ASTM Standards E1886-05, and E1996-05.
Sizes Tested: 3x4x1/8x144, 4x4x1/8x144, 4x4x1/4x144, 4x6x1/8x144



11.2. Product Evaluation Document:

Approval Document titled “58mm Bertha End-Retention / Non-Retention Roll Shutter System”, dated 5/4/09, Sheet 1 of 20 through Sheet 20 of 20, Signed and Sealed by Trevor Johnson, P.E. These Drawings are an integral part of this Evaluation Report.

11.3. Structural Engineering Calculations:

The 58mm Bertha End-Retention / Non-Retention shutter for maximum slat span vs. design wind loads for multiple mounting conditions and anchor spacing including mullions. The design wind load and slat span are based on rational and comparative analysis, and in accordance with section 1612 and 2003 of the Florida Building Code. Calculations prepared by Arnold/Sanders Consulting Engineers, Inc dated May 4, 2009, Signed and Sealed by Trevor Johnson, P.E.

12. Missile Impact Resistance:

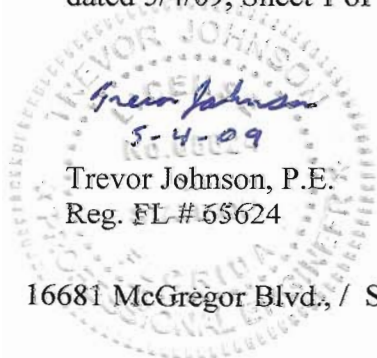
The 58mm Bertha End-Retention / Non-Retention shutter has been verified to withstand large missile impact under Section 1609.1.2, as per ASTM E1886-02 & E1996-02. The mullions have been verified to withstand large missile impact under Section 1609.1.2, as per TAS 201-94 and ASTM E1886-05 & E1996-05.

13. Wind Load Resistance:

The 58mm Bertha End-Retention / Non-Retention shutter has been verified to withstand sustained and cyclic wind pressures under Section 1609.1.2, as per ASTM E330-02, E1886-02, and E1996-02. The maximum slat span, wind pressure, anchor spacing, and mullion lengths shall be as indicated on sheets 6 through 10 and sheets 13 through 20 of Approval Document titled “58mm Bertha End-Retention / Non-Retention Roll Shutter System”.

14. Installation and Specifications:

Installation shall be in strict accordance with the General Notes, components, and details of the Approval Document titled “58mm Bertha End-Retention / Non-Retention Roll Shutter System”, dated 5/4/09, Sheet 1 of 20 through Sheet 20 of 20, Signed and Sealed by Trevor Johnson, P.E.



15. Limitation and Condition of Use:

- 15.1. Product shall not be installed in the “High Velocity Hurricane Zone” as defined in the Section 1620 of the Florida Building Code.
- 15.2. Product shall be manufactured and installed strictly in accordance with Approval Document titled “58mm Bertha End-Retention / Non-Retention Roll Shutter System”, dated 5/4/09, Sheet 1 of 20 through Sheet 20 of 20, Signed and Sealed by Trevor Johnson, P.E.
- 15.3. Product shall be installed in accordance with Means of Egress requirements of Section 1008.1.3.6 of the Florida Building Code.

