



Product Evaluation Report

Date: December 9, 2012

PTC Report No.: 2118

Report Revision No.: 0

PTC Project No.: 412-0601

Product Mfg.: QMI
1661 Glenlake Ave.
Itasca, Illinois 60143

Product Name: StormSafe Screen – Fixed Impact Screen – Non-HVHZ
StormSafe Screen – Operable Impact Screen – Non-HVHZ

Product Category: Shutters

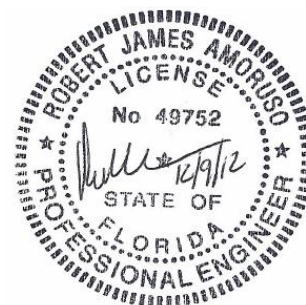
Product Sub-Category: Products Introduced as a Result of New Technology

Compliance Method: Product Approval Rule 9N-3.005(1)(a) – Certification Mark or Listing

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FBPE Certification of Authorization No. 25935

CERTIFICATE OF INDEPENDENCE

PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire, any financial interest in the company manufacturing or distributing product(s) covered by this Product Evaluation Report. PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire any financial interest in any other entity involved in the approval process or testing of the product(s) covered by this Product Evaluation Report.



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Scope

Evaluate QMI's StormSafe Screen – Fixed Impact Screen and StormSafe Screen – Operable Impact Screen for conformance to the 2010 Florida Building Code – Building and Residential Volumes excluding the High Velocity Hurricane Zone (HVHZ). Prepare the following:

- Product Installation Details/Drawings (Reference 1)
- Installation Anchorage Evaluation (Reference 3)
- Product Evaluation Report (this report)

Description of Product – Installation Requirements

See Reference 1.a for a description of the product, its installation and other pertinent data related to its approved use.

Limitations and Conditions of Use

This product evaluation report contains or makes reference to specifications, technical details and installation details and/or methods that pertain to the proper use and/or installation of the product specified herein. Specific limitations and conditions of its use including but not limited to the following are contained in Reference 1 and are the subject of Product Approval in accordance with the State of Florida Product Approval Rule 9N-3.

- Design Pressure Rating (psf)
- Installation substrate requirements.
- Installation anchor requirements.
- Installation restrictions.
- Product description.
- Product components.

Applications/Installations outside the Limitations and Conditions of Use of this Product's Approval

Rule 9N-3.005(1)(e) states "Rational engineering analysis cannot be used in lieu of a standard test required by the Code for approval of products within the scope of the standard, except that project specific approval by the local authorities having jurisdiction in accordance with alternate methods and materials authorized in the Code." Any modification to this product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others. As allowed in Rule 9N-3.005(1)(e), a project specific approval by the local authorities having jurisdiction may be used given an appropriate rational analysis is conducted and deemed acceptable to the local authorities having jurisdiction.

Quality Assurance

This product is manufactured under a quality assurance program audited by an approved Certification and Quality Assurance Entity **National Accreditation & Management Institute (NAMI)** as required in Rule 9N-3.005(3). See FBC Organization No. CER1773 and QUA1789 for approval under Rule 9N-3.

Performance and Testing Standards

Reference 2 conducted testing to the following standard(s).

- 1) ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- 2) ASTM E1886 - 02, Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
- 3) ASTM E1996 - 02, Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes

Code Conformance

Structural Performance, Impact & Cyclic Loading

DESIGN PRESSURE LIMITATIONS

- Design Pressure is based on the following requirements:
 - 2010 Florida Residential Code, Section R615.1
 - Tested at 1.5 x Design Pressure
 - 2010 Florida Building Code, Section 1609.1.2.3
 - Tested at 1.5 x Design Pressure
- Testing documented in Reference 2 test reports was based on
 - Static Wind Loading testing to 1.5 x Design Pressure.
 - Post-Impact Cyclic Wind Loading testing to the Design Pressure.
 - The Design Pressure limitations shown on the Installation Anchorage Details (Reference 1.a) are based on the Design Pressure results.

References and Supporting Documents

1) Drawings

- a. QMI0001, Original Issue, dated 12/09/12, *QMI StormSafe Screen – Fixed Impact Screen – Non-HVHZ, Installation and Anchorage Details.*
- b. QMI0002, Original Issue, dated 12/09/12, *QMI StormSafe Screen – Operable Impact Screen – Non-HVHZ, Installation and Anchorage Details.*

2) Tests

- a. Element Material Technology Test Report No. ESP010921P-3, 280P/Egress Impact Screen Specimens 65" wide x 148" high. Reissue Dated 8/20/12, Signed and Sealed by Ramesh Patel, P.E., NC License No. 20224.
- b. Element Material Technology Test Report No. ESP010921P-4, 28FX/Impact Screen 62" wide x 145" high. Reissue Dated 8/20/12, Signed and Sealed by Ramesh Patel, P.E., NC License No. 20224.

3) Reports

- a. Fixed Screen – QMI0001
 - i. PTC Report No. 2052A, Rev. 0, Anchor Calculations, signed and sealed by L.R. Lomas, P.E. No. 62514
 - ii. PTC Report No. 1693, Rev. 0, Anchor Calculations, signed and sealed by Robert J. Amoruso, P.E. No. 49752
- b. Operable Screen – QMI0002
 - i. PTC Report No. 2051A, Rev. 0, Anchor Calculations, signed and sealed by L.R. Lomas, P.E. No. 62514
 - ii. PTC Report No. 1692, Rev. 0, Anchor Calculations, signed and sealed by Robert J. Amoruso, P.E. No. 49752

4) 2010 Florida Building Code & 2010 Florida Residential Code

- a. Testing Requirements, Static Loading at 1.5 x Design Pressure
 - i. Section 1609.1.2.3
 - ii. Section R615.1
- b. Impact Testing Requirements
 - i. Section 1609.1.2
 - ii. Section R301.2.1.2