

LUMENESSE 777-S SAFETY & SECURITY WINDOW FILM

SUMMARY OF TEST RESULTS

We are proud to present Lumenesse 777-S the first ever safety and security film to receive a Metro Dade Approval for hurricane protection (NOA 13-0408.01) at a design pressure of 100 psf.

Test Site: Fenestration Testing Laboratory
For all Impact & cycling tests
(Full Test Reports available upon request)

Date of Testing: June 6th 2013

Test Objective: To measure the performance of Lumenesse window laminate when subjected to the criteria of **Dade County Small Missile Impact, Wind Cycling and Uniform Structural Load standards.**

Test Specimen: **48" x 118"** window with ¼" tempered glass in aluminum frame with rubber gaskets. Inside surface was coated with **Lumenesse 777S**. Film was applied as in an actual retrofit application in the field and did not extend under the gasket to the edges of the glass. The film was then anchored to the frame using Dow Corning 995 structural adhesive.

Testing was performed on three identical specimens and consisted of the following in sequential order:

Uniform Structural Load Test

The specimen was subjected to a static pressure with both Positive and negative loads of 150 psf equivalent to a wind pressure of 244.94 MPH.

Result: No breakage – Glass remained in the frame.

Water Test

The specimen was exposed to the equivalent of eight inches of rainfall in a 77.45 MPH wind for a fifteen minute duration.

Result: No leakage

Small Missile Impact Test

10 Stainless steel balls were fired from an air cannon at the outside surface of the specimen. The test demands three shots per specimen. Fired first at the center, then near the edge and finally near the lower corner at a speed of 130' per second (89 MPH)

Result: Successfully passes with no penetration

Cyclic Wind Pressure

The specimen was subjected to inward and outward pressure of up to the equivalent of 200 MPH wind velocity. A total of 4500 inward cycles (positive pressure) and 4500 outward cycles (negative pressure) were performed. Each cycle lasted for a minimum of one second and a maximum of three seconds.

Result: Film remained intact with shattered glass adhered to it. No tears occurred. No breach of the envelope occurred. Glass stayed completely in the frame. Minimal glass shards on floor.

TAS 201,202,203 SUMMARY

All three specimens passed each segment of the testing. At no point did the Lumenesse 777S show any cohesive failure.

Important Note: After the Lumenesse 777-S had successfully passed all of the tests an ASTM E-330 Positive loads was performed and after the glass had been shattered, fatigued and tested it still withstood a pressure equivalent to 209.7 mph.