

**ENGINEERING EXPRESS® EXPERT
PRODUCT EVALUATION REPORT**

April 20, 2015

Application Number: FL 6416.1-R3
FLB Project Number: 14-1509Product Manufacturer: Transparent Protection Systems, Inc.
Manufacturer Address: 633 Dunksferry Road
Bensalem, PA 19020

Product Name & Description: ClearGuard Polycarbonate Storm Panels (HVHZ)

Scope of Evaluation:

This Product Evaluation Report is being issued in accordance with the requirements of the Florida Department of Business and Professional Regulation (Florida Building Commission) Rule Chapter 61G20-3.005, F.A.C., for statewide acceptance per Method 1(d). The product noted above has been tested and/or evaluated as summarized herein to show compliance with the Florida Building Code Fifth Edition (2014) and is, for the purpose intended, at least equivalent to that required by the Code. Re-evaluation of this product shall be required following pertinent Florida Building Code modifications or revisions.

Substantiating Data:

- **PRODUCT EVALUATION DOCUMENTS**

FLB drawing #14-1509 titled "ClearGuard Polycarbonate Storm Panels (HVHZ)", sheets 1-5, prepared by Engineering Express, signed & sealed by Frank L. Bennardo, P.E. is an integral part of this Evaluation Report.

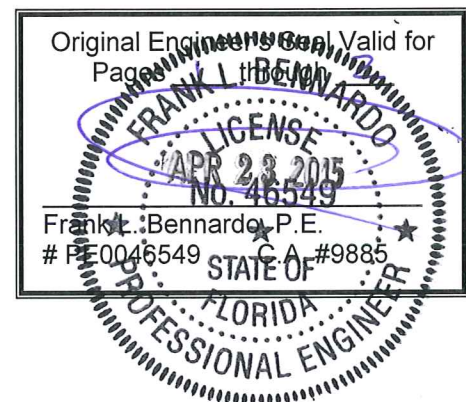
- **TEST REPORTS**

Uniform static structural performance has been tested in accordance with TAS 202 test standards per test report(s) #04-009-FE-FBC & #04-009-LE-FBC by Construction Testing Corporation (CTC) and test report(s) #0239-0312-06 & #0239-1013-07 by Hurricane Test Laboratory (HTL).

Large missile impact resistance and cyclic loading performance have been tested in accordance with TAS 201 & 203 test standards per test report(s) #04-009-FE-FBC & #04-009-LE-FBC by Construction Testing Corporation (CTC) and per test report(s) #0239-0107-05, #0239-1013-07 & #0239-0312-06 by Hurricane Test Laboratory (HTL).

Self-ignition temperature, Rate of Burning, and Smoke Density have been tested in accordance with ASTM D1929-96, ASTM D635-98, & ASTM D2843-99 standards (respectively) per test report #ETC-01-753-10724.1 by ETC Laboratories (ETC).

UV weathering resistance has been tested in accordance with ASTM G26 (equivalent to ASTM G155-05a) and ASTM D638 standards per test report #TPI-005-02-01 by PRI Asphalt Technologies (PRI).



- **STRUCTURAL ENGINEERING CALCULATIONS**

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

1. Minimum Glass Separation
2. Anchor Spacing
3. Maximum Allowable Size/Pressure Combinations

No 33% increase in allowable stress has been used in the design of this product.

Separation from glazing is required for all installations within ASTM wind zone 4, essential facilities and the high velocity hurricane zone (HVHZ).

Impact Resistance:

Large Missile Impact Resistance has been demonstrated as evidenced in previously listed test reports, and is accounted for in the engineering design of this product.

Wind Load Resistance

This product has been designed to resist wind loads as indicated in the span schedule(s) on the Product Evaluation Document (i.e. engineering drawing).

Installation

The product listed above shall be installed in strict compliance with the Product Evaluation Document (i.e. engineering drawing), along with all components noted therein.

The product components shall be of the material specified in the Product Evaluation Document (i.e. engineering drawing).

Limitations & Conditions of Use:

Use of this product shall be in strict accordance with the Product Evaluation Document (i.e. engineering drawing) as noted herein.

All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in this product's respective anchor schedule. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer.

All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times.

This product has been designed for use within the High Velocity Hurricane Zone (HVHZ).