

Building Envelope Issues: Impact Glazing

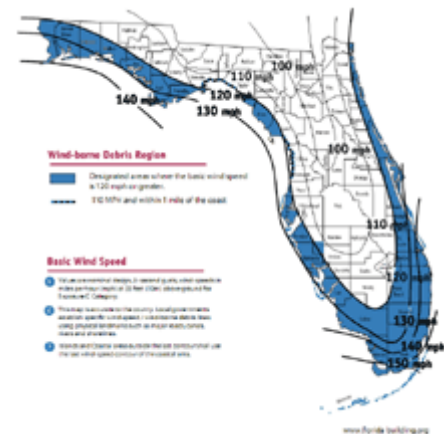
Timothy A. Roda, PE, StS2 - Senior Project Engineer, Bracken Engineering, Inc

During hurricane conditions, the most potentially susceptible areas of a structure are its window openings. Within the state of Florida the Florida Building Code (FBC) requires that window openings of structures located within the Wind-Born Debris Region be protected against wind-borne debris. Per Section 1609.2 of the FBC:

WIND-BORNE DEBRIS REGION.

Portions of hurricane-prone regions that are within 1 mile (1.61 km) of the coastal mean high water line where the basic wind speed is 110 mph (48 m/s) or greater; or portions of hurricane-prone regions where the basic wind speed is 120 mph (53 m/s) or greater; or Hawaii. This region is also depicted in Figure 1609 of the FBC.

When a structure requires protection from wind-borne debris, it is important to determine the type of protection. Within Section 1609.1.4, the FBC describes the requirements for opening protection:



1609.1.4 Protection of openings.

In wind-borne debris regions, glazing in buildings shall be impact resistant or protected with an impact resistant covering meeting the requirements of SSTD 12, ASTM E 1886 and ASTM E 1996, ANSI/DASMA 115 (for garage doors and rolling doors) or Miami-Dade TAS 201, 202 and 203 or AAMA 506 referenced therein as follows:

1. Glazed openings located within 30 feet (9.1 m) of grade shall meet the requirements of the Large Missile Test.
2. Glazed openings located more than 30 feet (9.1 m) above grade shall meet the provisions of the Small Missile Test.

Debris impact protection can be provided in the form of impact resistant window glazing. Impact glazing is typically constructed of multiple panes of glass laminated together. It is important to note that impact resistant glass does not mean that it will not crack. Impact resistant glass is intended to break and fracture without complete tear-away, similar to a car windshield. This is to avoid pressurization of the interior space and subsequent related damage to the interior of structures. In lieu of impact glazing, other forms of impact protection include plywood shutters, corrugated metal shutters, and roll-away type shutters.

If you would like information on preparing your structure for or recovering from a structural disaster, Bracken Engineering's Disasters Group is ready to assist you. Please contact Tim Roda at troda@brackenengineering.com.