

Guideline for Specifying Windstorm Products

Guideline for Specifying Windstorm-Resistant Products

1 Introduction

Modern building design and construction science have evolved to a degree where ‘near-absolute’ protection can be achieved, providing occupants and contents safety from nature’s most severe windstorm events. In parallel to this evolution, building codes have advanced to provide both optional and mandatory requirements to ensure life safety and the protection of property from these destructive forces of nature.

This guide is intended to inform the reader about the methodology and criteria used for specification and selection of windstorm-resistant door opening assemblies for non-residential construction. In order to properly specify products for these applications, the user must understand multiple parameters including the type of threat – hurricane or tornado – the geographic area in which the building is located, and the design pressures as calculated by the structural engineer of record. It is important to note that buildings with multiple openings will often have different calculated design pressures for each opening, based on multiple factors as determined by ASCE 7. Once these parameters have been identified, a specification and product selection process can begin. The following sections provide an overview of the definitions and process for determining the design requirements associated with each threat.

2 Definitions

ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

Design Pressure – expressed in pounds-per-square-foot, the positive and negative wind loads to which a door opening assembly is subjected.

Enhanced Hurricane Protection Area (EHPA) – criteria within the FBC applicable to specific portions of K-12 and Florida college educational facilities in order to serve as public hurricane evacuation shelters.

Florida Building Code (FBC) – set of standards designed by the Florida Building Commission for the construction of buildings in the state of Florida.

High Velocity Hurricane Zone (HVHZ) – the geographic area of Broward and Dade counties.

ICC 500 – Standard for the Design and Construction of Storm Shelters.

International Building Code (IBC) – a model building code developed by the International Code Council (ICC) and adopted for use as a base code by most jurisdictions in the United States.

International Existing Building Code (IEBC) – a model code applicable to renovations and additions to existing buildings, developed by the International Code Council (ICC) and adopted for use by many jurisdictions in the United States.

Large Missile – a No. 2 or better Southern Yellow Pine or Douglas Fir 2 × 4 in. lumber having a mass of between 9 and 15 lbs.

Registered Design Professional – an individual registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

Risk Category – a categorization of buildings for determination of loads based on the risk associated with unacceptable performance of the building.

Small Missile – a solid steel ball having a mass of 0.07 oz with a 0.315 in nominal diameter.

Wind-Borne Debris Region – Areas within hurricane-prone regions located within 1 mile of the mean high water line where an Exposure D condition exists upwind at the waterline and the ultimate design wind speed is 130 mph or greater; or in areas where the ultimate design wind speed is 140 mph or greater.

Wind Speed Map – graphic depiction of wind velocity indicated by contour lines