

Opening the Door to Florida's New Building Code: A Summary of Changes for Therma-Tru Customers

Introduction

After several delays, the winds of change finally blew through Florida as the state's new building code became effective March 1, 2002. In the wake of that legislative storm, construction professionals throughout the state are learning to understand and work with the new requirements.

The unified Florida Building Code is a legacy of Hurricane Andrew, which caused about \$30 billion in property damage as it swept across southern Florida in 1992. Before Andrew, the response to storm damage had been to clear away the debris and build again. After Andrew's sustained winds of 145 mph – with gusts up to 170 mph – leveled Homestead and other cities in its path, taxpayers and the insurance industry questioned the practice of “just build again.” As a result, the country's toughest building codes were adopted in southern Florida.

While the new standards were stringent, particularly in Miami-Dade and Broward Counties, there was not a uniform code for the state. Areas outside “hurricane alley” were not subject to the new requirements. In response, Florida appointed a commission to develop a statewide building code for homes and businesses. The new Florida Building Code is the result.

Some 24 product categories are covered in 3,000 pages of new code, including doors and door systems. Therma-Tru studied the new requirements and confirmed that the company has a wide range of products and systems that meet the new codes. The company obtained the required state approvals and prepared this summary for builders, contractors, distributors and others who need to understand the impact of the new code on building entryways.

While some people are upset about the changes, most observers applaud the state for its work on the new code. The added expense and effort of the new unified code will be a good investment when the next hurricane hits the state of Florida.

Key Requirements

Two performance requirements highlight the new code:

- **Design Pressure (DP)**, or structural load, which is aimed at preventing significant pressurization of the interior by setting a minimum wind load standard. The higher the DP requirement for the door system, the higher the velocity of wind the system must be able to resist.
- **Small and large missile impact**, aimed at preventing punctures of the building envelope, which allows significant pressurization of the interior and potential roof damage from lifting. This is a pass/fail test.

The Design Pressure or DP requirement is the most significant change. To set DP provisions, the Florida code adopted the current revisions of the national wind protection standard developed by the American Society of Civil Engineers. Published four years ago in “ASCE 7-98, Minimum Design Loads for Buildings and Other Structures,” the standard requires significant building design and construction changes in certain areas of the state. In developing its standards, ASCE also changed the way the wind speed calculations are made, effectively creating higher DP requirements.

Further complicating the situation is the fact that ratings for a particular opening are determined through complex architectural calculations that consider such factors as the proximity of the structure to the coast, the building type and overall height, the angle of the roof, the surrounding topography and the location of the opening along the wall. DP ratings are specific to each home or commercial building and must be calculated by the architect or design engineer.

To help buyers select appropriate products, Therma-Tru has determined the performance ratings for each of its door systems and obtain the required approvals from code officials. Therma-Tru will also certify certain products that pass the required missile impact tests.

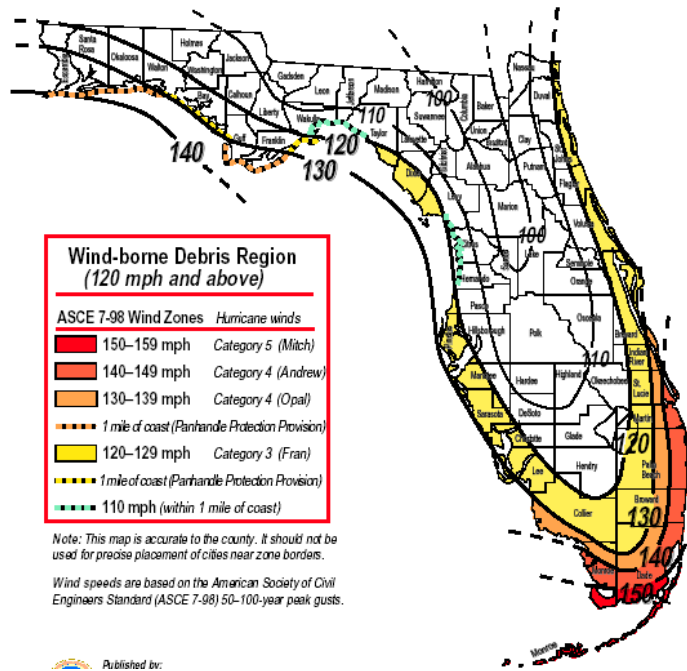
Systems Only

Another very significant factor in the new code is that entryways must be tested and approved as complete systems. Approvals specify the type of door, doorlite, sill, jamb, mullion, astragal, weatherstripping and lock. There are no component approvals. Builders and contractors will not be able to buy individual components and put them together to make a door system unless those component manufacturers have obtained a door system approval for that particular combination of products. Therma-Tru already has fiberglass and steel door system approvals that are suitable for all counties in Florida.

Wind Zone Requirements

A special feature of the new Florida Building Code is the designation of four wind zones that require special consideration from architects and engineers. The zones are identified in part by the ASCE 7-98 base wind speed map. Design wind speeds are based on gust speeds.

State of Florida
Wind-Borne Debris Region



The four wind zones are:

1. **Special Protection Zone** – The area most vulnerable to storm surge, which lies within 1,500 feet of the coastal construction control line, or within 1,500 feet of the mean high tide line, whichever is less.
2. **High Velocity Hurricane Zone** – Specifically for Miami-Dade and Broward counties, this section of the code replaces the South Florida Building Code. In these highly vulnerable counties, stricter design and construction measures have been adopted in addition to those provided by ASCE 7-98.
3. **Wind-Borne Debris Region** – Areas with wind speeds in excess of 120 mph and/or areas within one mile of the coast where wind speed is 110 mph or higher.
4. **Panhandle Protection Provision Zone** – From Franklin County to the Alabama line, the wind-borne debris region is the area within one mile of the coast.

In these zones, buildings must be designed to protect glazed openings or to withstand the increase in internal pressures that will occur if an unprotected window or glass door is broken by debris.

Design Pressure

Design Pressure is generally expressed in two numbers, one positive and the other negative. The positive number is the standard for wind blowing at the structure, and the negative number is for the vacuum pressure on the opposite side of the structure. To test a door system for DP, technicians put the system through a cycle that includes both positive and negative air pressure.

Design Pressure requirements are site specific and can vary significantly depending on the location of the structure. For example, a two-story home built in a 110 mph wind zone of Central Florida might require a design pressure rating of +24/-27 psf. That same home built in Broward County would require +53/-58 psf, while +58/-63 psf would be required for Dade County.

While those rough guidelines may apply in most situations, DP requirements must be determined by a local architect or engineer and are specific to each structure. Factors to be considered include the location of the building, i.e., which wind speed zone, the overall height and type of structure, and whether the building stands alone or in a development with other buildings. DP requirements also vary depending on the location of the opening along a wall. Because wind pressure is higher at the edges of buildings where it rushes to move around the structure, openings closer to the corner will have higher DP requirements than openings at the center of a wall.

Impact Test

The test for impact strength fires a nine-foot length of 2x4 stud at various parts of the product being tested. The stud weighs about nine pounds and is moving at 50 feet per second – about 34 mph – when it hits the test object.

The impact test is not new for the southernmost counties, but it hasn't been required in other parts of the state.

Any construction site within the Wind-Borne Debris zones, or in the Panhandle Protection zone, will require impact-rated systems or shutters.

Responsibilities

Florida's residential and commercial construction business changed significantly under the new building code. It is no longer sufficient to get a building permit before starting construction. Builders also need a certificate from an architect or professional engineer that indicates the design requirements for a particular structure.

Manufacturers must help builders and contractors by identifying the performance characteristics of their products and systems. This is no small project as several tests are required at independent testing facilities, and a professional engineer licensed by the state of Florida must witness each test.

Challenge and Opportunity

All of the changes will clearly challenge builders and homeowners. But as storms are always followed by sunshine, so the new code will bring opportunities for professional builders. The people and firms having the ability to learn, adapt quickly to change and serve as a helpful resource for their customers, will be sought for the knowledge they have and the value they add.

They, in turn, will rely on quality manufacturers who help them understand the new requirements and identify the products and systems that meet the needs of their projects. With more than three decades of experience manufacturing entry doors, Therma-Tru will continue to lead the way in this new environment. And as the Florida building industry fully understands its new code, Therma-Tru door systems will look more attractive than ever.

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While reasonable efforts have been made to ensure that this Paper includes an accurate summary of the new legislation, review of this Paper alone is not a substitute for a review of the legislation itself or consultation with appropriate building professionals or counsel. Further, while the material presented above is believed to be accurate as of the date hereof, Therma Tru has no obligation to update this information and is not responsible for any inaccuracies resulting from subsequent legislative or regulatory changes.

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