PREFACE

History

The State of Florida first mandated statewide building codes during the 1970s at the beginning of the modern construction boom. The first law required all municipalities and counties to adopt and enforce one of the four state-recognized model codes known as the "state minimum building codes." During the early 1990s a series of natural disasters, together with the increasing complexity of building construction regulation in vastly changed markets, led to a comprehensive review of the state building code system. The study revealed that building code adoption and enforcement was inconsistent throughout the state and those local codes thought to be the strongest proved inadequate when tested by major hurricane events. The consequences of the building codes system failure were devastation to lives and economies and a statewide property insurance crisis. The response was a reform of the state building construction regulatory system that placed emphasis on uniformity and accountability.

The 1998 Florida Legislature amended Chapter 553, Florida Statutes, Building Construction Standards, to create a single state building code that is enforced by local governments. As of March 1, 2002, the *Florida Building Code* supercedes all local building codes which are developed and maintained by the Florida Building Commission. It is updated every three years and may be amended annually to incorporate interpretations and clarifications.

Scope

The *Florida Building Code* is based on national model building codes and national consensus standards which are amended where necessary for Florida's specific needs. The code incorporates all building construction-related regulations for public and private buildings in the State of Florida other than those specifically exempted by Section 553.73, Florida Statutes. It has been harmonized with the *Florida Fire Prevention Code*, which is developed and maintained by the Department of Financial Services, Office of the State Fire Marshal, to establish unified and consistent standards.

The base codes for the 2004 edition of the *Florida Building Code* include: the *International Building Code*, 2003 edition; the *International Plumbing Code*, 2003 edition; the *International Mechanical Code*, 2003 edition; the *International Fuel Gas Code*, 2003 edition; the *International Residential Code*, 2003 edition; the *International Existing Building Code*, 2003 edition; the *National Electrical Code*, 2002 edition; the U. S. Department of Housing and Urban Development, Fair Housing Guidelines, and; substantive criteria from the American Society of Heating, Refrigerating and Air-conditioning Engineers' (ASHRAE) Standard 90.1-2001. State and local codes adopted and incorporated into the code include the *Florida Energy Efficiency Code for Building Construction*, the *Florida Accessibility Code for Building Construction* and special hurricane protection standards for the high-velocity hurricane zone.

The code is composed of seven main volumes: the *Florida Building Code, Building,* which also includes Chapter 13 (energy efficiency) and Chapter 11 (accessibility) as well as state regulations for licensed facilities; the *Florida Building Code, Plumbing*; the *Florida Building Code, Mechanical*; the *Florida Building Code, Fuel Gas*; the *Florida Existing Building Code*; the *Florida Building Code, Test Protocols for High-Velocity Hurricane Zones* and the *Florida Building Code, Residential*. Chapter 27 of the *Florida Building Code, Building*, adopts the *National Electrical Code*, NFPA 70, by reference. Chapter 33 of the *Florida Building Code, Residential* adopts the *National Electrical Code Requirements for One- and Two-Family Dwellings*, NFPA 70A, by reference.

Under certain strictly defined conditions, local governments may amend requirements to be more stringent than the code. All local amendments to the *Florida Building Code* must be adopted by local ordinance and reported to the Florida Building Commission then posted on the www.floridabuilding.org web site in Legislative format for a month before being enforced. Local amendments to the *Florida Building Code* and the *Florida Fire Prevention Code* may be obtained from the Florida Building Commission web site, or from the Florida Department of Community Affairs or the Florida Department of Financial Services, Office of the State Fire Marshal, respectively.

Adoption and Maintenance

The *Florida Building Code* is adopted and updated with new editions triennially by the Florida Building Commission. It is amended annually to incorporate interpretations, clarifications and to update standards. Minimum requirements for permitting, plans review and inspections are established by the Code, and local jurisdictions may adopt additional administrative requirements that are more stringent. Local technical amendments are subject to strict criteria established by Section 553.73, *Florida Statutes*. They are subject to commission review and adoption into the code or repeal when the code is updated triennially and are subject to appeal to the Commission according to the procedures established by Section 553.73, *Florida Statutes.*

Nine Technical Advisory Committees (TACs), which are constituted consistent with American National Standards Institute (ANSI) Guidelines, review proposed code changes and clarifications of the Code and make recommendations to the Commission. The TACs include: Joint Building Fire (a joint committee of the Commission and the State Fire Marshal); Building Structural; Plumbing and Fuel Gas; Mechanical; Electrical; Energy; Accessibility; Special Occupancy (state agency construction and facility licensing regulations); and Code Administration/Enforcement.

The Commission may only issue official code clarifications using procedures of Chapter 120, *Florida Statutes*. To obtain such a clarification, a request for a Declaratory Statement (DEC) must be made to the Florida Building Commission in a manner that establishes a clear set of facts and circumstances and identifies the section of the code in question. Requests are analyzed by staff, reviewed by the appropriate Technical Advisory Committee, and sent to the Florida Building Commission takes first action. Draft Declaratory Statements are subject to public comment and finalized by the Commission at its next meeting. These interpretations establish precedents for situations having similar facts and circumstances and are typically incorporated into the code in the next code amendment cycle.

Marginal Markings

Vertical lines in the margins within the body of the code indicate a change from the requirements of the base codes to the 2004 *Florida Building Code* effective October 1, 2005.

An asterisk (*) inserted in the margin indicates a change from the 2004 *Florida Building Cod*e to the 2005 *Florida Building Code* revisions filed with the Florida Department of State November 21, 2005.

** Two asterisks (**) inserted in the margin indicates a change in the 2004 *Florida Building Cod*e to the 2006 *Florida Building Code* revisions, effective December 8, 2006.

*** Three asterisks (***) inserted in the margin indicates a change in the 2004 *Florida Building Code* to the 2007 *Florida Building Code* revisions, effective July 1, 2007.

Sections deleted from the base code are designated "Reserved."

Acknowledgments

The *Florida Building Code* is produced through the efforts and contributions of building designers, contractors, product manufacturers, regulators and other interested parties who participate in the Florida Building Commission's consensus processes, Commission staff and the participants in the national model code development processes.

tion, the AF&PA *Wood Frame Construction Manual for One- and Two-Family Dwellings, High Wind Edition*, the FC & PA *Guide to Concrete Masonry Residential Construction in High Wind Areas,* and the WPPC *Guide to Wood Construction in High Wind Areas* are applicable only to buildings located within Exposure A, B or C as defined in Section 1609.4. The provisions shall not apply to buildings sited on the upper half of an isolated hill, ridge, or escarpment meeting the following conditions:

1. The hill, ridge or escarpment is 60 feet (18.3 m) or higher if located in exposure B or 30 feet (9.1 m) or higher if located in exposure C;
2. The maximum average slope of the hill exceeds 10 percent; and
3. The hill, ridge or escarpment is unobstructed upwind by other such topographic features for a distance from the high point of 50 times the height of the hill or 1 mile (1.6 km), whichever is greater.

1609.1.2 Minimum wind loads. The wind loads used in the design of the main wind-force-resisting system shall not be less than 10 psf (0.479 kN/m^2) multiplied by the area of the building or structure projected on a vertical plane normal to the wind direction. In the calculation of design wind loads for components and cladding for buildings, the algebraic sum of the pressures acting on opposite faces shall be taken into account. The design pressure for components and cladding of buildings shall not be less than 10 psf (0.479 kN/m^2) acting in either direction normal to the surface. The design force for open buildings and other structures shall not be less than 10 psf (0.479 kN/m^2) multiplied by the area A_f.

1609.1.3 Anchorage against overturning, uplift and sliding. Structural members and systems and components and cladding in a building or structure shall be anchored to resist wind-induced overturning, uplift and sliding and to provide continuous load paths for these forces to the foundation. Where a portion of the resistance to these forces is provided by dead load, the dead load, including the weight of soils and foundations, shall be taken as the minimum dead load likely to be in place during a design wind event. Where the alternate basic load combinations of Section 1605.3.2 are used, only two-thirds of the minimum dead load likely to be in place during a design wind event shall be used.

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.
3. Storage sheds that are not designed for human habitation and that have a floor area of 720 square feet (67 m^2) or less are not required to comply with the mandatory windborne debris impact standards of this code.
4. Openings in sunrooms, balconies or enclosed porches constructed under existing roofs or decks are not required to be protected provided the spaces are separated from the building interior by a wall and all openings in the separating wall are protected in accordance with Section 1609.1.4 above. Such spaces shall be permitted to be designed as either partially enclosed or enclosed structures.
5. Louvers. Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9144 mm) of grade shall meet requirements of the Large Missile Test.

Impact-resistant coverings shall be tested at 1.5 times the design pressure (positive or negative) expressed in pounds per square feet as determined by the *Florida Building Code, Building* Section 1609 for which the specimen is to be tested.

Exceptions:

1. Wood structural panels with a minimum thickness of $^7/_{16}$ inch (11.1 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and all required hardware shall be provided. Attachment shall be designed to resist the components and cladding loads determined in accordance with the provisions of Section 1609.6.1.2, with permanent corrosion-resistant attachment hardware provided and anchors permanently installed on the building. Attachment in accordance with Table 1609.1.4, with permanent corrosion-resistant attachment hardware provided and anchors permanently installed on the building, is permitted for buildings with a mean roof height of 45 feet (13 716 mm) or less where wind speeds do not exceed 140 mph (63 m/s)
2. Glazing in Occupancy Category I buildings as defined in Table 1604.5, including production greenhouses that are occupied for growing plants on a production or research basis, without public access shall be permitted to be unprotected.
3. Glazing in Occupancy Category II, III or IV buildings located over 60 feet (18 288 mm) above the ground and over 30 feet (9144 mm) above aggregate surface roofs located within 1,500 feet (458 m) of the building shall be permitted to be unprotected.

1609.1.4.1 Building with openings. Where glazing is assumed to be an opening in accordance with Section 1609.1.4, the building shall be evaluated to determine if the openings are of sufficient area to constitute an open or partially enclosed building as defined in Section 1609.2. Open and partially enclosed buildings shall be designed in accordance with the applicable provisions of ASCE 7.

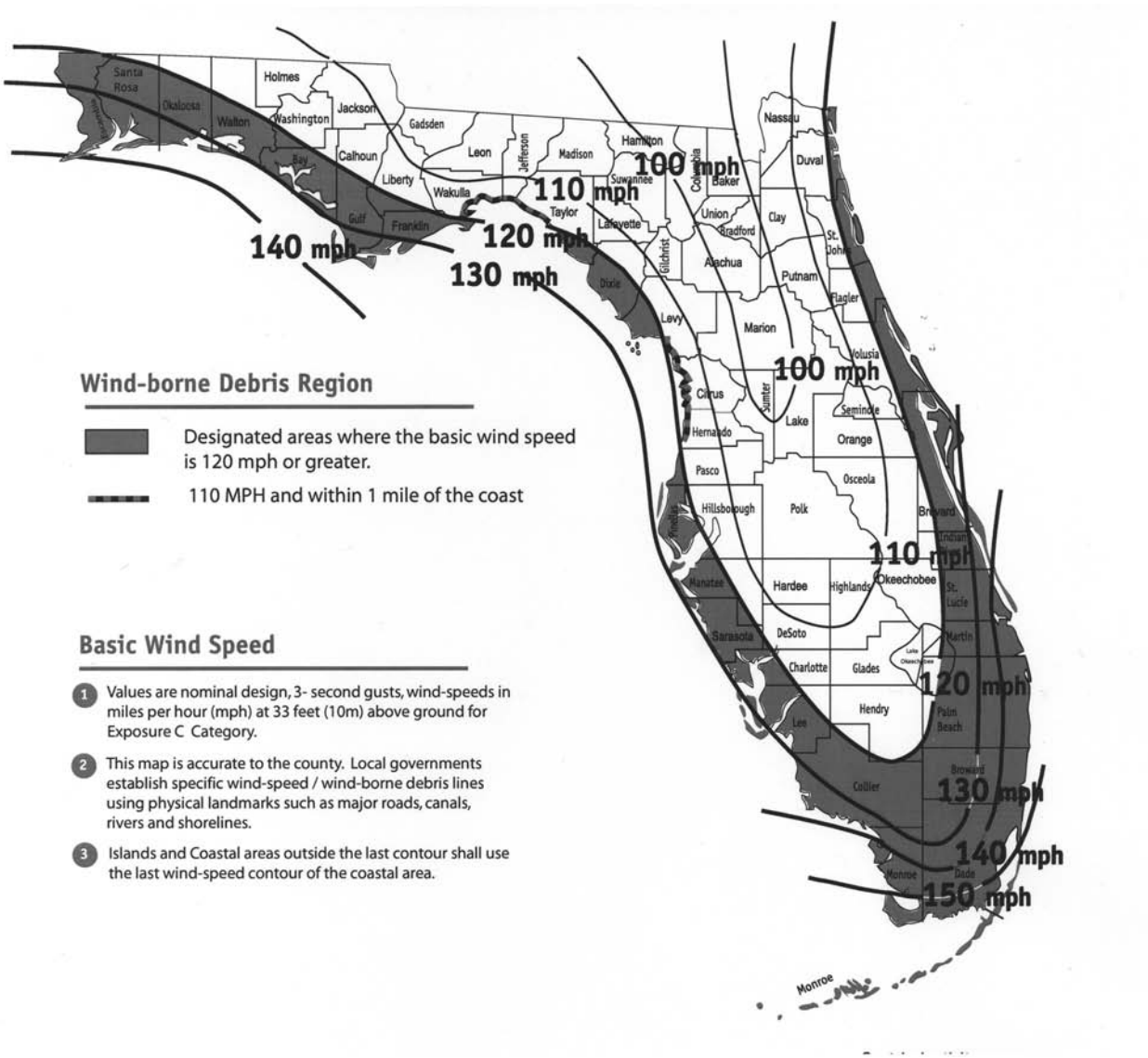

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FIGURE 1609
STATE OF FLORIDA
WIND-BORNE DEBRIS REGION & BASIC WIND SPEED

TABLE 1609.1.4
WIND-BORNE DEBRIS PROTECTION FASTENING SCHEDULE FOR WOOD STRUCTURAL PANELS

FASTENER TYPE	FASTENER SPACING (inches)[1, 2]			
	Panel span ≤ 2 feet	2 feet < Panel span ≤ 4 feet	4 feet < Panel span ≤ 6 feet	6 feet < Panel span ≤ 8 feet
#8 Wood screw-based anchor with 2-inch embedment length[3]	16	16	10	8
#10 Wood screw-based anchor with 2-inch embedment length[3]	16	16	12	9
¼ Lag screw-based anchor with 2-inch embedment length[3]	16	16	16	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

1. This table is based on a maximum wind speed of 140 mph (63 m/s) and mean roof height of 45 feet (13 716 m) or less.
2. Fasteners shall be installed at opposing ends of the wood structural panel.
3. Where screws are attached to masonry or masonry/stucco, they shall be attached using vibration-resistant anchors having a minimum withdrawal capacity of 1,500 lb (6673 kN).

1609.1.4.2 Optional exterior door component testing. Exterior side-hinged door assemblies shall have the option to have the components of the assembly tested and rated for impact resistance in accordance with the following specification: SDI 250.13.

1609.1.5 The wind-borne debris regions requirements shall not apply landward of the designated contour line in Figure 1609. A geographical boundary that coincides with the contour line shall be established.

1609.2 Definitions. The following words and terms shall, for the purposes of Section 1609.6, have the meanings shown herein.

BUILDINGS AND OTHER STRUCTURES, FLEXIBLE. Slender buildings and other structures that have a fundamental natural frequency less than 1 Hz.

BUILDING, ENCLOSED. A building that does not comply with the requirements for open or partially enclosed buildings.

BUILDING, LOW-RISE. Enclosed or partially enclosed buildings that comply with the following conditions:

1. Mean roof height, h, less than or equal to 60 feet (18 288 mm).
2. Mean roof height, h, does not exceed least horizontal dimension.

BUILDING, OPEN. A building having each wall at least 80 percent open. This condition is expressed for each wall by the equation:

$$A_o \geq 0.8 A_g \qquad \textbf{(Equation 16-31)}$$

where:

A_o = Total area of openings in a wall that receives positive external pressure, in square feet (m^2).

A_g = The gross area of that wall in which A_o is identified, in square feet (m^2).

BUILDING, PARTIALLY ENCLOSED. A building that complies with both of the following conditions:

1. The total area of openings in a wall that receives positive external pressure exceeds the sum of the areas of openings in the balance of the building envelope (walls and roof) by more than 10 percent; and
2. The total area of openings in a wall that receives positive external pressure exceeds 4 square feet (0.37 m^2) or 1 percent of the area of that wall, whichever is smaller, and the percentage of openings in the balance of the building envelope does not exceed 20 percent.

These conditions are expressed by the following equations:

$$A_o > 1.10 A_{oi} \qquad \textbf{(Equation 16-32)}$$

$A_o > 4$ square feet (0.37 m^2) or $> 0.01 A_g$, whichever is smaller, and $A_{oi}/A_{gi} \leq 0.20$ **(Equation 16-33)**

where:

A_o, A_g are as defined for an open building.

A_{oi} = The sum of the areas of openings in the building envelope (walls and roof) not including A_o, in square feet (m^2).

A_{gi} = The sum of the gross surface areas of the building envelope (walls and roof) not including A_g, in square feet (m^2).

BUILDING, SIMPLE DIAPHRAGM. A building in which wind loads are transmitted through floor and roof diaphragms to the vertical lateral-force-resisting systems.

COMPONENTS AND CLADDING. Elements of the building envelope that do not qualify as part of the main windforce-resisting system.

EFFECTIVE WIND AREA. The area used to determine *GCp*. For component and cladding elements, the effective wind area in Tables 1609.6.2.1(2) and 1609.6.2.1(3) is the span length multiplied by an effective width that need not be less than one-third the span length. For cladding fasteners, the effective wind area shall not be greater than the area that is tributary to an individual fastener.

HURRICANE-PRONE REGIONS. Areas vulnerable to hurricanes defined as:

1. The U.S. Atlantic Ocean and Gulf of Mexico coasts where the basic wind speed is greater than 90 mph (39.6 m/s) and

2. Hawaii, Puerto Rico, Guam, Virgin Islands and American Samoa.

IMPORTANCE FACTOR, I_w. A factor that accounts for the degree of hazard to human life and damage to property.

MAIN WINDFORCE-RESISTING SYSTEM. An assemblage of structural elements assigned to provide support and stability for the overall structure. The system generally receives wind loading from more than one surface.

MEAN ROOF HEIGHT. The average of the roof eave height and the height to the highest point on the roof surface, except that eave height shall be used for roof angle of less than or equal to 10 degrees (0.1745 rad).

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.

** **1609.3 Basic wind speed.** The basic wind speed in miles per hour, for the development of wind loads, shall be determined from Figure 1609. The exact location of wind speed lines shall be established by local ordinance using recognized physical landmarks such as major roads, canals, rivers and lake shores, wherever possible.

1609.3.1 Wind speed conversion. When required, the 3-second gust wind velocities of Figure 1609 shall be converted to fastest-mile wind velocities using Table 1609.3.1.

1609.4 Exposure category. For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the site at which the building or structure is to be constructed. For a site located in the transition zone between categories, the category resulting in the largest wind forces shall apply. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features. For any given wind direction, the exposure in which a specific building or other structure is sited shall be assessed as being one of the following categories. When applying the simplified wind load method of Section 1609.6, a single exposure category shall be used based upon the most restrictive for any given wind direction.

** 1. **Exposure A.** This exposure category is no longer used in ASCE 7.

2. **Exposure B.** Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meets the definition of another type of exposure.

** 3. **Exposure C.** Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm) extending more than 1,500 feet (456 m) from the building site in any quadrant. This exposure shall also apply to any building located within Exposure B-type terrain where the building is directly adjacent to open areas of Exposure C-type terrain in any quadrant for a distance of more than 600 feet (182.9 m). Short-term (less than two years) changes in the preexisting terrain exposure, for the purposes of development, shall not be considered open fields. Where development build out will occur within three years and the resultant condition will meet the definition of Exposure B, Exposure B shall be regulating for the purpose of permitting. This category includes flat open country, grasslands and ocean or gulf shorelines. This category does not include inland bodies of water that present a fetch of 1 mile (1.61 km) or more or inland waterways or rivers with a width of 1 mile (1.61 km) or more (see Exposure D).

4. **Exposure D.** Flat, unobstructed areas exposed to wind flowing over open water (excluding shorelines in hurricane-prone regions) for a distance of at least 1 mile (1.61 km). Shorelines in Exposure D include inland waterways, the Great Lakes and coastal areas of California, Oregon, Washington and Alaska. This exposure shall apply only to those buildings and other structures exposed to the wind coming from over the water. Exposure D extends inland from the shoreline a distance of 1,500 feet (460 m) or 10 times the height of the building or structure, whichever is greater.

1609.5 Importance factor. Buildings and other structures shall be assigned a wind load importance factor, I_w, in accordance with Table 1604.5.

1609.6 Simplified wind load method. **

1609.6.1 Scope. The procedures in Section 1609.6 shall be permitted to be used for determining and applying wind pressures in the design of enclosed buildings with flat, gabled and hipped roofs and having a mean roof height not exceeding the least horizontal dimension or 60 feet (18 288 mm), whichever is less, subject to the limitations of Sections 1609.6.1.1 and 1609.6.1.2. If a building qualifies only under Section 1609.6.1.2 for design of its components and cladding, then its main windforce-resisting system shall be designed in accordance with Section 1609.1.1.

Exception: The provisions of Section 1609.6 shall not apply to buildings sited on the upper half of an isolated hill or escarpment meeting all of the following conditions:

1. The hill or escarpment is 60 feet (18 288 mm) or higher if located in Exposure B or 30 feet (9144 mm) or higher if located in Exposure C.
2. The maximum average slope of the hill exceeds 10 percent.

TABLE 1609.3.1
EQUIVALENT BASIC WIND SPEEDS[a, b, c]

V_{3S}	85	90	100	105	110	120	125	130	140	145	150	160	170
V_{fm}	70	75	80	85	90	100	105	110	120	125	130	140	150

For SI: 1 mile per hour = 0.44 m/s.

a. Linear interpolation is permitted.
b. V_{3S} is the 3-second gust wind speed (mph).
c. V_{fm} is the fastest mile wind speed (mph).