• Contents
  ▫ Part 1 - The Florida Building Code
  ▫ Part 2 – Wind Speeds
  ▫ Part 3 – Impact
Part 1

The Florida Building Code
• How to use the next chart

<table>
<thead>
<tr>
<th>Effective Date</th>
<th>2001 FBC</th>
<th>2004 FBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Volume – Based on...</td>
<td>March 1, 2002</td>
<td>October 1, 2003</td>
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<tr>
<td>Plumbing Volume – Based on...</td>
<td>1997 Southern Building Code</td>
<td>2003 IBC</td>
</tr>
<tr>
<td>Mechanical Volume – Based on...</td>
<td>1998 IPC</td>
<td>2003 IPC</td>
</tr>
</tbody>
</table>

The 2004 Florida Building Code Mechanical Volume is based on the 2003 IMC (International Mechanical Code)
## Florida Building Code Editions

<table>
<thead>
<tr>
<th>Volume – Based on...</th>
<th>2001 FBC</th>
<th>2004 FBC</th>
<th>2007 FBC</th>
<th>2010 FBC</th>
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<td><strong>Effective Date</strong></td>
<td>March 1, 2002</td>
<td>October 1, 2005</td>
<td>March 1, 2009</td>
<td>March 15, 2012</td>
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<td>1997 IPC</td>
<td>2003 IPC</td>
<td>2006 IPC</td>
<td>2009 IPC</td>
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<tr>
<td><strong>Mechanical</strong></td>
<td>1998 IMC</td>
<td>2003 IMC</td>
<td>2006 IMC</td>
<td>2009 IMC</td>
</tr>
<tr>
<td><strong>Fuel/Gas</strong></td>
<td>1998 IFGC</td>
<td>2003 IFGC</td>
<td>2006 IFGC</td>
<td>2009 IFGC</td>
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<tr>
<td><strong>Electrical</strong></td>
<td>2002 NEC</td>
<td>2005 NEC</td>
<td>2005 NEC</td>
<td>2005 NEC</td>
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<td><strong>Fire</strong></td>
<td>2001 FFPC</td>
<td>2004 FFPC</td>
<td>2007 FFPC</td>
<td>2010 FFPC</td>
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<td><strong>Existing Building</strong></td>
<td>---</td>
<td>2003 IEBC</td>
<td>2006 IEBC</td>
<td>2009 IEBC</td>
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<tr>
<td><strong>Residential</strong></td>
<td>---</td>
<td>2003 IRC</td>
<td>2006 IRC</td>
<td>2009 IRC</td>
</tr>
<tr>
<td><strong>Energy Conservation</strong></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>2009 IECC</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>2010 ADA</td>
</tr>
</tbody>
</table>
2010 FBC Integration (current process)

Florida Specific Requirement
- 2007 FBC Florida specific requirements
- HVHZ (Miami-Dade and Broward counties) requirements
- Special Occupancy—state rules and statutes
- Correlation requirements with the Florida Fire Prevention Code

Approved Code Changes

Glitch

3 Year Cycle

2009 I-code
Florida Specific

Mods

2010 FBC

Glitch
Code development Schedule

- 2009 I- Codes and FBC Supplement posted 2/1/10
- Proposed amendment due and closes 4/2/10
- Proposed amendment posted for comments 4/15/10
- 45 day comment period ends 5/31/10
- TAC review and make recommendations 7/27-8/25
- TAC recommendations posted 9/3/10
- 45 day comment period ends 10/18/10
- TAC review comments on recommendations 11/15/10
- Commission considers TAC recommendation 12/7-8/10
- Code amended to resolve glitches 4/11-6/11
- Code printed 10/1/11
- **Code implemented** 3/15/12
Materials Available
BCIS www.floridabuilding.org
Proposed Code Module -
FBC 2010

- **1609.1.1 Determination of wind loads.** Wind loads on every building or structure shall be determined in accordance with Chapters 26 through 30 of ASCE 7 or the provisions of the alternate all-heights method in Section 1609.6. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

- **Exceptions:**
  1. ICC 600 for Group R-2 and R-3 buildings.
  2. AF&PA WFCM.
  3. AISI S230.
  6. Wind tunnel tests in accordance with Section 6.6 of ASCE 7. subject to the limitations in Section 1609.1.1.2.
The wind speeds in Figure 1609A, 1609B and 1609C shall be converted to nominal wind speeds, $V_{asd}$, in accordance with Section 1609.3.1 when the provisions of the standards referenced in Exceptions 1 through 5 and 7 are used unless the wind provisions in the standards are based on Ultimate Wind Speeds as specified in accordance with Figures 1609A, 1609B, or 1609C or Chapter 26 of ASCE 7.

[S4673]
Part 2 – Wind Speeds

ASCE 7-10
### TABLE 1604.5 OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES

<table>
<thead>
<tr>
<th>OCCUPANCY CATEGORY</th>
<th>NATURE OF OCCUPANCY</th>
</tr>
</thead>
</table>
| I                  | Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to:  
  • Agricultural facilities.  
  • Certain temporary facilities.  
  • Minor storage facilities. |
| II                 | Buildings and other structures except those listed in Occupancy Categories I, III and IV |
| III                | Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:  
  • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.  
  • Buildings and other structures containing elementary school, secondary school or day care facilities with an occupant load greater than 250.  
  • Buildings and other structures containing adult education facilities, such as colleges and universities, with an occupant load greater than 500.  
  • Group I-2 occupancies with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities.  
  • Group I-3 occupancies.  
  • Any other occupancy with an occupant load greater than 5,000.  
  • Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Occupancy Category IV.  
  • Buildings and other structures not included in Occupancy Category IV containing sufficient quantities of toxic or explosive substances to be dangerous to the public if released. |
| IV                 | Buildings and other structures designated as essential facilities, including but not limited to:  
  • Group I-2 occupancies having surgery or emergency treatment facilities.  
  • Fire, rescue, ambulance and police stations and emergency vehicle garages.  
  • Designated earthquake, hurricane or other emergency shelters.  
  • Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.  
  • Power-generating stations and other public utility facilities required as emergency backup facilities for Occupancy Category IV structures.  
  • Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of Table 307.1(2).  
  • Aviation control towers, air traffic control centers and emergency aircraft hangars.  
  • Buildings and other structures having critical national defense functions.  
  • Water storage facilities and pump structures required to maintain water pressure for fire suppression. |
## Risk Category of Buildings and Other Structures

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to:</td>
</tr>
<tr>
<td></td>
<td>• Agricultural facilities.</td>
</tr>
<tr>
<td></td>
<td>• Certain temporary facilities.</td>
</tr>
<tr>
<td></td>
<td>• Minor storage facilities.</td>
</tr>
</tbody>
</table>

2010 Florida Building Code – Projected to go into effect 12/31/2011
Risk Category of Buildings and Other Structures Cont.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Buildings and other structures except those listed in Occupancy Categories I, III and IV</td>
</tr>
</tbody>
</table>
### Risk Category of Buildings and Other Structures Cont

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
</table>
| III       | Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:  
- Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. |

**2010 Florida Building Code – Projected to go into effect 12/31/2011**
## Risk Category of Buildings and Other Structures Cont.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
</table>
| III       | • Group I-2 occupancies with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities.  
• Group I-3 occupancies.  
• Any other occupancy with an occupant load greater than 5,000.  
• Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Occupancy Category IV.  
• Buildings and other structures not included in Occupancy |

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2010 Florida Building Code – Projected to go into effect 12/31/2011
Risk Category of Buildings and Other Structures Cont.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Buildings and other structures designated as essential facilities, including but not limited to:</td>
</tr>
<tr>
<td></td>
<td>• Group I-2 occupancies having surgery or emergency treatment facilities.</td>
</tr>
<tr>
<td></td>
<td>• Fire, rescue, ambulance and police stations and emergency vehicle garages.</td>
</tr>
<tr>
<td></td>
<td>• Designated earthquake, hurricane or other emergency shelters.</td>
</tr>
</tbody>
</table>

2010 Florida Building Code – Projected to go into effect 12/31/2011
Risk Category of Buildings and Other Structures Cont.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>CATEGORY NATURE OF OCCUPANCY</th>
</tr>
</thead>
</table>
| IV        | • Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of Table 307.1(2).  
            • Aviation control towers, air traffic control centers and emergency aircraft hangars.  
            • Buildings and other structures having critical national defense functions.  
            • Water storage facilities and pump structures required to maintain water pressure for fire suppression. |
Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour at 33ft (10m) above ground for Exposure C Category.
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to annual exceedance probability of 0.00333.
Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10m) above ground for Exposure C category.
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (Annual Exceedance Probability = 0.00145, MRI = 700 years).

Figure 1609A Ultimate Design Wind Speeds, $V_{ult}$, for Risk Category II Buildings and Other Structures
**FINAL FIGURE B**

Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (mph) at 33 ft (10 m) above ground for Exposure C category.
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 3% probability of exceedance in 50 years (Annual Exceedance Probability = 0.00068, M = 1780 years).

For Risk Category III and IV Buildings and other Structures.
# TABLE C26.5-6
Design Wind Speeds: ASCE 7-93 to ASCE 7-10

<table>
<thead>
<tr>
<th>ASCE 7-05 Design Wind Speed (3-sec gust in mph)</th>
<th>ASCE 7-10 Design Wind Speed (3-sec gust in mph)</th>
<th>ASCE 7-93 Design Wind Speed (fastest mile in mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>110*</td>
<td>71</td>
</tr>
<tr>
<td>90</td>
<td>115*</td>
<td>76</td>
</tr>
<tr>
<td>100</td>
<td>126</td>
<td>85</td>
</tr>
<tr>
<td>105</td>
<td>133</td>
<td>90</td>
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<td>110</td>
<td>139</td>
<td>95</td>
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<td>120</td>
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<td>104</td>
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<td>130</td>
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<td>114</td>
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<td>140</td>
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<td>145</td>
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<td>150</td>
<td>190</td>
<td>133</td>
</tr>
<tr>
<td>170</td>
<td>215</td>
<td>152</td>
</tr>
</tbody>
</table>

* Wind speed values of 110 mph and 115 mph were rounded from the “exact” conversions of $85\sqrt{1.6} = 108$ and $90\sqrt{1.6} = 114$ mph, respectively.
### ASCE 7 – 05 VS. ASCE 7 – 10  Design Wind Loads

**TABLE 1609.3.1**  
WIND SPEED CONVERSIONS<sup>abc</sup>

<table>
<thead>
<tr>
<th>$V_{ul}$</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
<th>140</th>
<th>150</th>
<th>160</th>
<th>170</th>
<th>180</th>
<th>190</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{asd}$</td>
<td>78</td>
<td>85</td>
<td>93</td>
<td>101</td>
<td>108</td>
<td>116</td>
<td>124</td>
<td>132</td>
<td>139</td>
<td>147</td>
<td>155</td>
</tr>
</tbody>
</table>

$V_{asd}$ = nominal design wind speed  
$V_{ult}$ = ultimate design wind speed determined from Figures 1609A, 1609B, or 1609C
ASCE 7 – 05 VS. ASCE 7 – 10  Design Wind Loads

The new maps, when used in combination with the 1.0 load factor on wind for strength design and the 0.6 factor on wind for allowable stress design, result in a net decrease in design wind loads in Hurricane-Prone Regions. Parts of southern Florida (due to the re-introduction of Exposure D for coastal areas) are approximately the same when compared to previous editions of the maps. In the remainder of the Hurricane-Prone Regions of Florida, the design wind pressures are on average approximately 20% less than the loads determined from ASCE 7-05.
ASCE 7 – 05 VS. ASCE 7 – 10 Design Wind Loads

Nominal design wind speed \( V_{\text{asd}} \) - using Allowable Stress Design (ASCE 7 - 2005) - old maps

Ultimate design wind speed \( V_{\text{ult}} \) - using Strength Design (ASCE - 2010) - new maps

In order to convert the load "dp/design pressure" from ultimate to nominal you multiply by a factor of .6.
### ASCE 7 – 05 VS. ASCE 7 – 10 Design Wind Loads

<table>
<thead>
<tr>
<th>2007 FBC</th>
<th>ASCE 7-10</th>
<th>ASCE 7 – 10</th>
<th>ASCE 7 – 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat. I</td>
<td>Cat. B. II</td>
<td>Cat. B III &amp; IV</td>
<td></td>
</tr>
<tr>
<td>棕榈滩 170 MPH</td>
<td>130</td>
<td>150</td>
<td>160</td>
</tr>
<tr>
<td>墙面 –cc</td>
<td>30.4/-33.0</td>
<td>40.5/-43.9</td>
<td>46.1/-50.0</td>
</tr>
<tr>
<td>dp - psf</td>
<td>(X .6) 24.3/-26.34</td>
<td>27.66/-30.0</td>
<td>30.66/-33.6</td>
</tr>
</tbody>
</table>
1620.2 – Change to read as shown.
1620.2 Wind velocity (3-second gust) used in structural calculations shall be as follows:

**Miami-Dade County**
- Risk Category I Buildings and Structures: 165 mph
- Risk Category II Buildings and Structures: 175 mph
- Risk Category III and IV Buildings and Structures: 186 mph

**Broward County**
- Risk Category I Buildings and Structures: 156 mph
- Risk Category II Buildings and Structures: 170 mph
- Risk Category III and IV Buildings and Structures: 180 mph

[S4799]
Part 3 - Impact
Wind-Borne Debris Region

- Areas within hurricane-prone regions located:
- Within 1 mile (1.61 km) of the coastal mean high water line where the ultimate design wind speed $V_{ult}$ is 130 (48 m/s) or greater; or
- In areas where the ultimate design wind speed $V_{ult}$ is 140 mph (53 m/s) or greater;
- For Risk Category II buildings and structures and occupancy category III buildings and structures, except health care facilities, the windborne debris region shall be based on Figure 1609A. For occupancy category IV buildings and structures and occupancy category III health care facilities, the windborne debris region shall be based on Figure 1609B.
Wind-Borne Debris Region

- Designated areas where the basic wind speed is 120 mph or greater.
- 110 MPH and within 1 mile of the coast.

**Basic Wind Speed**

1. Values are nominal design, 3-second gusts, wind speeds in miles per hour (mph) at 11 feet (10m) above ground for Exposure C Category.
2. This map is accurate to the county. Local governments establish specific wind-speed/wind-borne debris lines using physical landmarks such as major roads, canals, rivers and shorelines.
3. Islands and coastal areas outside the last contour shall use the last wind-speed contour of the coastal area.

**Wind-borne Debris Region Counties**

1. Bay
2. Brevard
3. Broward
4. Calhoun
5. Charlotte
6. Citrus
7. Collier
8. Dixie
9. Duval
10. Escambia
11. Flagler
12. Franklin
13. Glades
14. Gulf
15. Hardee
16. Hendry
17. Hernando
18. Highlands
19. Hillsborough
20. Indian River
21. Jefferson
22. Lake
23. Lee
24. Levy
25. Liberty
26. Manatee
27. Martin
28. Miami/Dade
29. Monroe
30. Osceola
31. Palm Beach
32. Pasco
33. Pinellas
34. Santa Rosa
35. Sarasota
36. St. Johns
37. St. Lucie
38. Taylor
39. Volusia
40. Walton
41. Washington

www.florida building.org
Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10m) above ground for Exposure C category
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 3% probability of exceedance in 50 years (Annual Exceedance Probability = 0.000588, MRI = 1700 years).

Wind-Borne Debris Region

- Designated areas where the basic wind speed is 140 mph or greater.
- 130 mph and within 1 mile of the coast.
- New to 2010 FBC
- Removed

Figure 1609A Wind-Borne Debris Region, Category II and III Buildings and Structures except health care facilities in Miles Per Hour.
Figure B

Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10m) above ground for Exposure C category
2. Linear interpolation between contours is permitted
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 3% probability of exceedance in 50 years (Annual Exceedance Probability = 0.0000588, MRE = 1700 years).

Wind-Borne Debris Region
- Designated areas where the basic wind speed is 140 mph or greater.
- 130 mph and within 1 mile of the coast
- New to 2010 FBC
- Removed

Figure 16098 Risk Category III and IV Buildings and other Structures and Category III healthcare facilities
Wind-borne Debris Region

- Designated areas where the basic wind speed is 140 mph or greater.
- 130 MPH and within 1 mile of the coast

Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10m) above ground for Exposure C category.
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (Annual Exceedance Probability = 0.000143, MRI = 700 years).

Figure R301.2(4) Ultimate Design Wind Speeds, $V_{ult}$
Background Information

• Wind speed lines have changed because of the improved science (i.e. computer simulations).
• The updated maps are based on a new and more complete analysis of hurricane characteristics performed over the past 10 years.
• The wind speed indicated for each wind speed line is different for the 2010 standard due to change in wind speed calculation philosophy.
• The wind borne debris was changed from opening protection required for currently for 120 mph and higher wind speeds under current code to opening protection required for 110 mph equivalent current code wind speed (140 mph 2010 wind speeds) and higher wind speeds for the 2010 standard.