2020 Advanced Florida Building Code: Significant Changes to the 7th Edition – Chapter 16 STRUCTURAL DESIGN BUILDING – Internet

Florida Board of Professional Engineers Approved Course No. 0010328 / Florida Building Commission Approved Course No. 994.0

1 PDH Hour

This course is divided into 2 sections

- Section 1 Highlighted Significant Changes to 7th Edition (2020) Florida Building Code, Chapter 16 STRUCTURAL DESIGN, BUILDING (FBCB)

- Section 2 Course exam composed of 12 questions intended to advance your current understanding of the significant code changes and how it relates to your role as a Professional Engineer.

A test is provided to assess your comprehension of the course material – 12 questions have been chosen from each of the above sections. You will need to answer at least 9 out of 12 questions correctly (>70%) in order to pass the overall course. You can review the course material and re-take the test if needed.

You are required to review each section of the course in its entirety. Because this course information is part of your Professional Licensure requirements it is important that your knowledge of the course contents and your ability to pass the test is based on your individual efforts.

Course Description:

This course is intended to introduce Professional Engineers to the significant changes to the 7th Edition (2020) Florida Building Code, Chapter 16 STRUCTURAL DESIGN, BUILDING (FBCB). The purpose of this course is to highlight changes in the building code and to assist in identifying specific code changes that have occurred and the reasoning and discussion behind the change.

How to reach Us …

If you have any questions regarding this course or any of the content contained herein you are encouraged to contact us at Easy-PDH.com. Our normal business hours are Monday through Friday, 10:00 AM to 4:00 PM; any inquiries will be answered within 2 days or less. Contact us by:

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Here's How the Course Works…

What do you want To do?	LOOK For This!
 **Search for Test Questions and the relevant review section**	 Q1 **Search the PDF for: Q1 for Question 1, Q2 for Question 2, Q3 for Question 3, Etc…** **(Look for the icon on the left to keep you ON Target!)**

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12 TEST QUESTIONS

Q1:

Per Chapter 16 STRUCTURAL DESIGN, FBCB (2020), which of the following roof rain load parameters shall be shown regardless of whether the rain loads govern the design:

a. typical wind speed
b. rain load
c. rain intensity
d. b and c

Q2:

If a building or structure is designated as an emergency shelter, the building classification shall be:

a. Category I
b. Category II
c. Category III
d. Category IV

Q3:

When considering flood loads in a design, the reference code for load combinations is:

a. ASCE 7
b. ASCE 16
c. ASCE 24
d. ASCE 25

Q4:

The Maximum Uniform live load for balconies and decks has been modified in FBCB (2020) to:

a. 75 psf
b. 100 psf
c. 125 psf
d. 150 psf

Q5:

In addition to any other applicable live loads, structural elements that support hoists for facade access and building maintenance equipment shall be designed for:

a. live load of 2.5 times the rated load of the hoist OR the stall load of the hoist, whichever is larger
b. live load of 2.5 times the rated load of the hoist OR the stall load of the hoist, whichever is smaller
c. live load of 2.5 times the rated load of the hoist AND the stall load of the hoist
d. the difference between the live load of 2.5 times the rated load of the hoist AND the stall load of the hoist

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Q6:

A structure with open-grid framing is used to support a photovoltaic panel system. The uniform roof live load shall be permitted to be reduced to:

a. 24 psf
b. 18 psf
c. 12 psf
d. 10 psf

Q7:

Per Figure 1609.3(3) FBCB (2020), The Ultimate Design Wind Speed for a Risk Category IV Building in Lake County Florida is:

a. 130 MPH
b. 140 MPH
c. 150 MPH
d. 160 MPH

Q8:

Nominal (ASD) Garage Door and Rolling Door Wind Loads for a Building with a Mean Roof Height of 30 feet Located in Exposure B have been revised to be 10 psf as shown in Table:

a. 1609.6(1)
b. 1609.6(2)
c. 1609.6(3)
d. 1609.6(4)

Q9:

A new exception has been added under Section 1612, FLOOD LOADS, FBCB (2020) that modifies Section 9.6 of ASCE 24 regarding pools. Pool equipment can be located below the required base flood elevation provided the equipment:

a. is elevated to the extent practical
b. is anchored to resist flotation and flood force
c. is supported by branch circuits having ground-fault circuit-interrupter protection
d. all of the above

Q10:

A Category IV High-rise building is a bearing wall structure. The Structural Inegrity requirements of the structure must comply with which section of Chapter 16, STRUCTURAL DESIGN, FBCB (2020):

a. 1615.2
b. 1615.3
c. 1615.4
d. 1615.5

Q11:

What is the DIFFERENCE in wind velocity (3-second gust) used in structural calculations for a Risk Category II Building in Broward County versus Miami-Dade County:

a. 10 MPH
b. 9 MPH
c. 6 MPH
d. 5 MPH

Q12:

Louvers that are located on the building envelope shall meet the requirements of AMCA 540 or TAS 201 (large missile test) if the louvers are within how many feet of grade:

a. 20 feet
b. 30 feet
c. 75 feet
d. 100 feet

END OF TEST QUESTIONS

CHAPTER 16 STRUCTURAL DESIGN

(Significant Changes)

Significant 2020 FBCB Changes include, by section:

SECTION 1603 CONSTRUCTION DOCUMENTS

1603.1.8	**Special loads**	**Section revised to require machinery or equipment loads which are a greater magnitude than the loads defined in the specified floor and roof loads, to be specified by their description and locations on the construction documents.**

1603.1.8 Special loads.

Special loads that are applicable to the design of the building, structure or portions thereof, including but not limited to the loads of machinery or equipment, that are of greater magnitude than the loads defined in the specified floor and roof loads shall be specified by their descriptions and locations.

1603.1.9	**Roof rain load data**	**New section requiring specific roof rain load data to be included on the construction documents. The rain load and rain intensity, i, are required to be identified.**

Q1

1603.1.9 Roof rain load data.

The following roof rain load parameters shall be shown regardless of whether the rain loads govern the design:

1. Rain load
2. Rain intensity, *i* (in./hr) (cm/hr)

SECTION 1604 GENERAL DESIGN REQUIREMENTS

1604.3.3	**Steel (deflection criteria)**	**Section revised to update the Steel Joist Institute standards which have been combined into SJI 100 and SJI 200.**

1604.3.3 Steel.

The deflection of steel structural members shall not exceed that permitted by AISC 360, AISI S100, ASCE 8. SJI 100 or SJI 200, as applicable.

Table 1604.3	**Deflection Limits**	**Refer to Table 1604.3 Deflection Limits. Note "d" has been revised to recognize different creep behavior of specific wood products in accordance with the NDS.** **Deflection limits of structural members shall not exceed the limitations of Sections 1604.3.2 through 1604.3.5 or that permitted by Table 1604.3**

Table 1604.3 Deflection Limits

(Updated Note d)

d. The deflection limit for the *D+L* load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For lumber, structural glued laminated timber, prefabricated wood I-joists and structural composite lumber members that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS. The creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5D For lumber and glued laminated timber members installed or used at all other moisture conditions or cross-laminated timber and wood structural panels that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS. The creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from D. The value of 0.5*D* shall not be used in combination with ANSI/AWC NDS provisions for long-term loading.

1604.5.1	**Multiple occupancies (Risk Category assignment)**	**New exception added to clarify that the entire building does not have to be classified as Risk Category IV where a storm shelter designed and constructed in accordance with ICC 500 is provided. The risk category for the normal occupancy of the building applies unless the storm shelter is a designated emergency shelter.**

1604.5.1 Multiple occupancies.

Where a building or structure is occupied by two or more occupancies not included in the same *risk category,* it shall be assigned the classification of the highest *risk category* corresponding to the various occupancies. Where buildings or structures have two or more portions that are structurally separated, each portion shall be separately classified. Where a separated portion of a building or structure provides required access to, required egress from or shares life safety components with another portion having a higher *risk category*, both portions shall be assigned to the higher *risk category.*

Exception: Where a *storm shelter* designed and constructed in accordance with ICC 500 is provided in a building, structure or portion thereof normally occupied for other purposes, the *risk category* for the normal occupancy of the building shall apply unless the *storm shelter* is a designated emergency shelter in accordance with Table 1604.5.

SECTION 1605 LOAD COMBINATIONS

1605.2.1	Other loads (flood)	Section references have been updated to correlate with ASCE 7-16.

Q3

1605.2.1 Other loads.

Where flood loads, F_a, are to be considered in the design, the load combinations of Section 2.3.2 of ASCE 7 shall be used. Where self-straining loads, *T*, are considered in design, their structural effects in combination with other loads shall be determined in accordance with Section 2.3.4 of ASCE 7. Where an ice-sensitive structure is subjected to loads due to atmospheric icing, the load combinations of Section 2.3.3 of ASCE 7 shall be considered.

SECTION 1607 LIVE LOADS

Table 1607.1	Minimum Uniformly Distributed Live Loads, L_o, and Minimum Concentrated Live Loads	Uniform live loads for balconies and decks have been modified to be 1.5 times the live load for the area served but not more than 100 psf. This change will align the uniform live loads on decks and balconies with ASCE 7-16. Additionally, the table and notes have been revised to identify more clearly which live loads are permitted to be reduced and which ones are not.

Q4

Table 1607.1 (Partial View)

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (pounds)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150[n]	—
4. Assembly areas		
Fixed seats (fastened to floor)	60[m]	
Follow spot, projections and control rooms	50	
Lobbies	100[m]	—
Movable seats	100[m]	
Stage floors	150[n]	
Platforms (assembly)	100[m]	
Other assembly areas	100[m]	
5. Balconies and decks[h]	1.5 times the live load for the area served. Not required to exceed 100	—

1607.4	Concentrated live loads	Editorial clarification that roofs have to be designed for concentrated live loads.

1607.4 Concentrated live loads.

Floors, roofs and other similar surfaces shall be designed to support the uniformly distributed live loads prescribed in Section 1607.3 or the concentrated live loads, given in Table 1607.1, whichever produces the greater *load effects.* Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of $2^1/_2$ feet by $2^1/_2$ feet (762 mm by 762 mm) and shall be located so as to produce the maximum *load effects* in the structural members.

1607.8	Loads on handrails, guards, grab bars and seats	Section editorially revised for clarity.

1607.8 Loads on handrails, guards, grab bars and seats.

Handrails and guards shall be designed and constructed for the structural loading conditions set forth in Section 1607.8.1. Grab bars, shower seats and accessible benches shall be designed and constructed for structural loading conditions set forth in Section 1607.8.2.

Q5

1607.9.3	Elements supporting hoists for facade access and building maintenance equipment	Section editorially revised for consistency with ASCE 7-16.

1607.9.3 Elements supporting hoists for facade access and building maintenance equipment.

In addition to any other applicable live loads, structural elements that support hoists for facade access and building maintenance equipment shall be designed for a live load of 2.5 times the rated load of the hoist or the stall load of the hoist, whichever is larger.

1607.9.4	Fall arrest and lifeline anchorages	Section editorially revised for consistency with ASCE 7-16.

1607.9.4 Fall arrest and lifeline anchorages.

In addition to any other applicable live loads, fall arrest and lifeline anchorages and structural elements that support these anchorages shall be designed for a live load of at least 3,100 pounds (13.8 kN) for each attached lifeline, in every direction that a fall arrest load may be applied.

1607.12.3.1	Vegetative and landscaped roofs	Section revised to require the weight of all landscaping materials to be determined in accordance with Section 3.1.4 of ASCE 7 instead of ASTM 2397.

1607.12.3.1 Vegetative and landscaped roofs.

The weight of all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil as determined in accordance with Section 3.1.4 of ASCE 7. The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m^2). The uniform design live load for occupied landscaped areas on roofs shall be determined in accordance with Table 1607.1.

1607.12.5.1	Roof live load	Section editorially reformatted to clarify that roof assemblies and supporting structures are designed, not the roof surfaces.

Q6

1607.12.5 Photovoltaic panel systems.

Roof structures that provide support for *photovoltaic panel systems* shall be designed in accordance with Sections 1607.12.5.1 through 1607.12.5.4, as applicable.

1607.12.5.1 Roof live load.

Roof structures that support photovoltaic panel systems shall be designed to resist each of the following conditions:

1. Applicable uniform and concentrated roof loads with the photovoltaic panel system dead loads.

Exception: Roof live loads need not be applied to the area covered by photovoltaic panels where the clear space between the panels and the roof surface is 24 inches (610 mm) or less.

2. Applicable uniform and concentrated roof loads without the photovoltaic panel system present.

1607.12.5.2.1	Photovoltaic panels installed on open-grid roof structures	New section requiring structures with open grid framing and no roof deck or sheathing supporting photovoltaic panel systems to be designed to support the roof live loads specified in Section 1607.12.5.1. The uniform roof live load is be permitted to be reduced to 12 psf.

1607.12.5.2 Photovoltaic panels or modules.

The structure of a roof that supports solar photovoltaic panels or modules shall be designed to accommodate the full solar photovoltaic panels or modules and ballast dead load, including concentrated loads from support frames in combination with the loads from Section 1607.12.5.1 and other applicable loads. Where applicable, snow drift loads created by the photovoltaic panels or modules shall be included.

1607.12.5.2.1 Photovoltaic panels installed on open-grid roof structures.

Structures with open-grid framing and no roof deck or sheathing supporting photovoltaic panel systems shall be designed to support the uniform and concentrated roof live loads specified in Section 1607.12.5.1, except that the uniform roof live load shall be permitted to be reduced to 12 psf (0.57 kN/m^2).

1607.14.2	Fire walls (live loads)	New section added requiring fire walls to withstand a minimum horizontal allowable stress load of 5 psf.

1607.14.2 Fire walls.

In order to meet the structural stability requirements of Section 706.2 where the structure on either side of the wall has collapsed, fire walls and their supports shall be designed to withstand a minimum horizontal allowable stress load of 5 psf (0.240 kN/m^2).

SECTION 1609 WIND LOADS

1609.1.1	**Determination of wind loads**	**The reference to the alternate all-heights method for determining wind loads in Section 1609.6 has been deleted.** **Exception 4 has been revised to add the title Guide Specifications for Design of Metal Flagpoles to the standard reference NAAMM FP 1001.** **Chapter 35 has been revised to update ASCE 7 to the 2016 edition (ASCE 7-16).**

1609.1.1 Determination of wind loads.

Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7. 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. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R- 3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AWC WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001, *Guide Specifications for Design of Metal Flagpoles.*
5. Designs using TIA-222 for antenna-supporting structures and antennas. Design using this standard shall be permitted for communication tower and steel antenna support structures.
6. Wind tunnel tests in accordance with ASCE 49 and Sections 31.4 and 31.5 of ASCE 7.
7. Wind loads for screen enclosures shall be determined in accordance with Section 2002.4.
8. Exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, walls, or other means are deemed to comply with the wind resistance requirements of the 2007 *Florida Building Code*, as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the *Florida Building Code.*

The wind speeds in Figures 1609.3(1), 1609.3(2), 1609.3(3) and 1609.3(4) are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

1609.6 **Deleted from FBCB 2017**	**Alternate all-heights method**	**The alternate all-heights method for determining wind loads has been deleted in its entirety.**

Figure 1609.3(3)	**Ultimate Design Wind Speed, Vult, for Risk Category IV Buildings and Other Structures**	**A new wind speed map specific to Risk Category IV buildings and structures has been added. Figure 1609.3(2) now only applies to Risk Category III buildings and structures. The new wind speed map is consistent with ASCE 7-16 and is based on a mean recurrence interval of 3000 years.** **Numerous sections throughout the code have been modified to incorporate reference to Figure 1609.3(3).**

Figure 1609.3(3)
Ultimate Design Wind Speed, Vult, for Risk Category IV Buildings and Other Structures

Q7

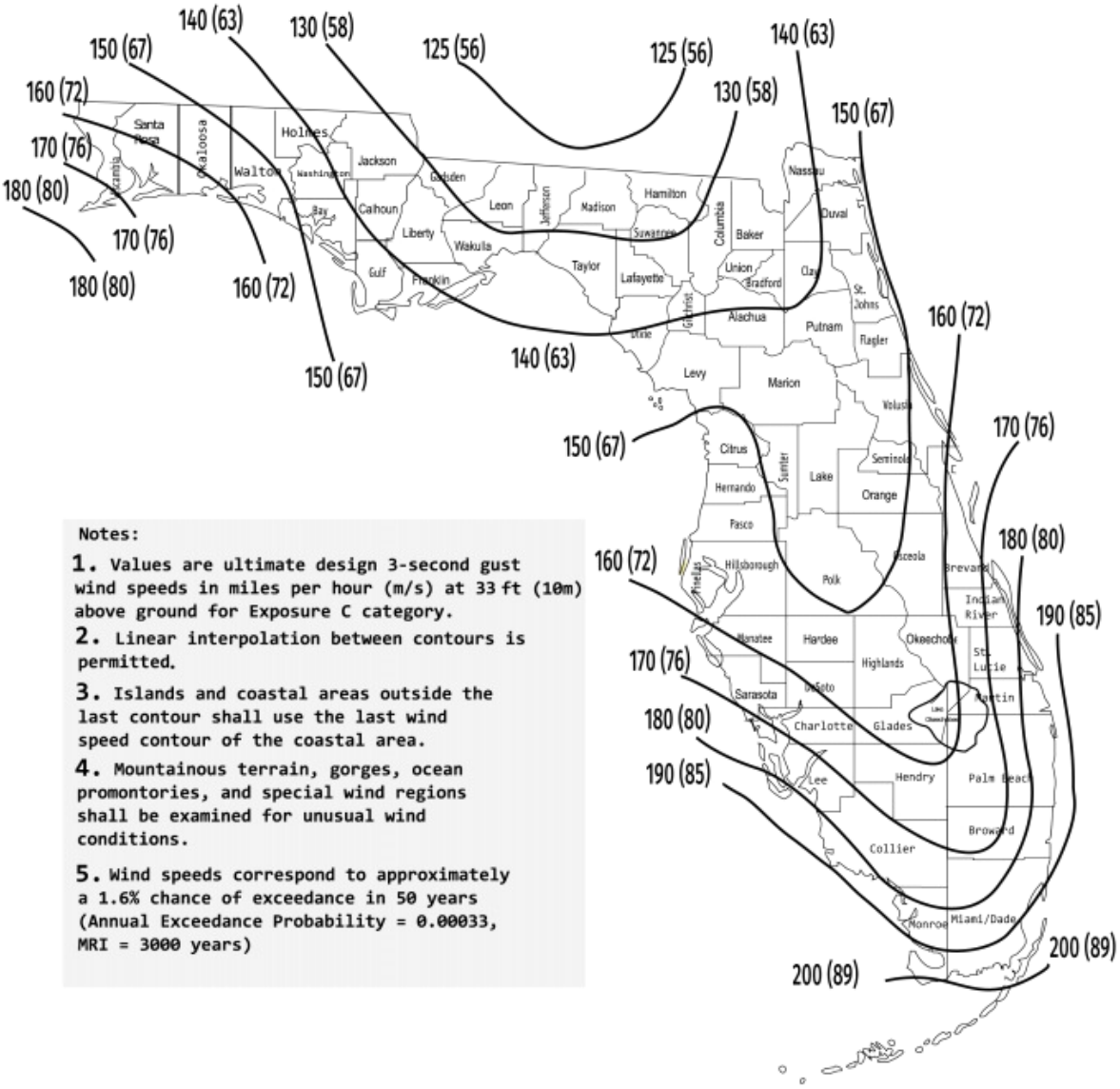

FIGURE 1609.3(3)
ULTIMATE DESIGN WIND SPEEDS, V_{ULT}, FOR RISK CATEGORY IV BUILDINGS AND OTHER STRUCTURES

Table 1609.6(1)	**Nominal (ASD) Garage Door and Rolling Door Wind Loads for a Building with a Mean Roof Height of 30 feet Located in Exposure B**	**Design pressure values in the table less than 10 psf have been revised to be 10 psf minimum. Note 2 has been revised to clarify that the minimum positive and negative ASD wind load for garage doors is 10 psf.**

Q8

Table 1609.6(1)
Nominal (ASD) Garage Door and Rolling Door Wind Loads for a Building with a Mean Roof Height of 30 feet Located in Exposure B

TABLE 1609.6(1)
NOMINAL (ASD) GARAGE DOOR AND ROLLING DOOR WIND LOADS FOR A BUILDING WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (PSF)[1, 2, 3, 4, 5]

Note Section below:

Nominal Design Wind Speed (V_{asd}) converted from Ultimate Design Wind Speed per Section 1609.3.1

1. For door sizes or wind speeds between those given above the load may be interpolated, otherwise use the load associated with the lower door size.
2. Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table 1609.6(2). Minimum positive wind load shall be 10 psf and minimum negative wind load shall be 10 psf.
3. Plus and minus signs signify pressures acting toward and away from the building surfaces.
4. Negative pressures assume door has 2 feet of width in building s end zone.
5. Table values include the 0.6 load reduction factor.

1609.6 **Deleted from FBCB 2017**	**Alternate all-heights method**	**The alternate all-heights method for determining wind loads has been deleted in its entirety.**

SECTION 1612 FLOOD LOADS

Q9

1612.4.2	**Modification of ASCE 24 9.6 Pools**	**A new exception has been added that modifies Section 9.6 of ASCE 24 regarding pools. The exception permits equipment for pools, spas and water features to be located below the elevation required in Table 7-1 of ASCE 24 provided the equipment is elevated to the extent practical, is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection.**

1612.4.2 Modification of ASCE 24 9.6 Pools.

Modify Section 9.6 in ASCE 24 by adding an exception as follows:

9.6 Pools. In-ground and above-ground pools shall be designed to withstand all flood-related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems and filtering systems, and their associated electrical systems, shall comply with Chapter 7.

Exception: Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1, provided it is elevated to the extent practical, is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection.

SECTION 1615 STRUCTURAL INTEGRITY

Q10

1615.1	**General (structural integrity)**	**General section revised to clarify that Section 1615.3 applies to frame structures and Section 1615.4 applies to bearing wall structures.**

1615.1 General.

High-rise buildings that are assigned to *Risk Category* III or IV shall comply with the requirements of Section 1615.3 if they are frame structures, or Section 1615.4 if they are bearing wall structures.

SECTION 1620 HIGH-VELOCITY HURRICANE ZONES – WIND LOADS

1620.2	**Design wind speeds (HVHZ)**	**Specific design wind speeds have been added for Risk Category IV buildings and structures located in the HVHZ for consistency with ASCE 7-16. For Miami-Dade County, the Risk Category IV wind speed for the entire county is 195 mph. For Broward County, the Risk Category IV wind speed for the entire county is 185 mph.**

1620.1

Buildings and structures, and every portion thereof, shall be designed and constructed to meet the requirements of Chapters 26 through 31 of ASCE7.

Exception: Exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, walls, or other means are deemed to comply with the wind resistance requirements of the 2007 Florida Building Code, as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the *Florida Building Code.*

1620.2

Q11

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 Buildings and Structures: 186 mph
Risk Category IV Buildings and Structures: 195 mph

Broward County

Risk Category I Buildings and Structures: 156 mph
Risk Category II Buildings and Structures: 170 mph
Risk Category III Buildings and Structures: 180 mph
Risk Category IV Buildings and Structures: 185 mph

1620.6	**Rooftop equipment and structures (HVHZ)**	**The wind loading criteria for rooftop structures has been deleted and the section now references ASCE 7 for wind loads on rooftop structures. The specific requirements are now covered in ASCE 7-16.**

1620.6 Rooftop equipment and structures.

Wind loads on rooftop equipment and other structures shall be in accordance with Chapter 29 of ASCE 7.

Exception: Exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, walls, or other means are deemed to comply with the wind-resistance requirements of the 2007 *Florida Building Code,* as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the *Florida Building Code.*

SECTION 1626 HIGH-VELOCITY HURRICANE ZONES – IMPACT TESTS FOR WIND-BORNE DEBRIS

1626.1	**Impact tests for wind-borne debris (HVHZ)**	**The exception to impact testing for louvers has been revised to require that they also comply with Section 1626.5.3. New section 1626.5.3 requires open and closed louvers to comply with the uniform pressure testing required in TAS 202 and either the cyclical wind pressure loading required in TAS 203 or impact and cyclical pressure testing of AMCA 540.**

1626.1

All parts or systems of a building or structure envelope such as, but not limited, to exterior walls, roof, outside doors, skylights, glazing and glass block shall meet impact test criteria or be protected with an external protection device that meets the impact test criteria. Test procedures to determine resistance to wind-borne debris of wall cladding, outside doors, skylights, glazing, glass block, shutters and any other external protection devices shall be performed in accordance with this section.

Exception: The following structures or portion of structures shall not be required to meet the provisions of this section:

a. Roof assemblies for screen rooms, porches, canopies, etc., attached to a building that do not breach the exterior wall or building envelope and have no enclosed sides other than screen.
b. Soffits, soffit vents and ridge vents. Size and location of such vents shall be detailed by the designer and shall not compromise the integrity of the diaphragm boundary.
c. Vents in a garage with four or fewer cars. Size and location of such vents shall be detailed by the designer and shall not exceed the minimum required area by more than 25 percent.
d. Exterior wall or roof openings for wall- or roof mounted HVAC equipment.
e. Openings for roof-mounted personnel access roof hatches.
f. 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.
g. Louvers as long as they properly considered ASCE 7 in the design of the building and meet the requirements of Section 1626.5.3.
h. Buildings and structures for marinas, cabanas, swimming pools and greenhouses.
i. Exterior balconies or porches under existing roofs or decks enclosed with screen or removable vinyl and acrylic panels complying with Section 1622.1 or 1622.2 shall not be required to be protected and openings in the wall separating the unit from the balcony or porch shall not be required to be protected unless required by other provisions of this code.

Q12

1626.5	**Louvers (HVHZ)**	**New sections have been added specifying impact criteria for louvers. Louvers located on the building envelope and within 30 feet of grade are now required to meet AMCA 540 or TAS 201 (large missile) or protected with an impact-resistant cover complying with TAS 201 (large missile), TAS 202, and TAS 203.** **Louvers required to be open for life safety purposes and located within 30 feet of grade are required to comply with AMCA 540 or TAS 201 (large missile).** **Open and closed louvers are required to comply with the uniform pressure testing required in TAS 202 and either the cyclical wind pressure loading required in TAS 203 or impact and cyclical pressure testing of AMCA 540.**

1626.5 Louvers.

1626.5.1
Louvers that are located on the building envelope and are within 30 feet (9144 mm) of grade shall meet the requirements of AMCA 540 or TAS 201 (large missile test) or shall be protected by an impact-resistant cover complying with TAS 201 (large missile test), TAS 202 and TAS 203.

1626.5.2
Louvers required to be open for life safety purposes such as providing a breathable atmosphere that are located on the building envelope and are within 30 feet (9144 mm) of grade shall meet the impact requirements of AMCA 540 or TAS 201 (large missile test).

1626.5.3
Open and closed louvers located on the building envelope, regardless of their function or location from grade, shall also comply with uniform air pressure testing per TAS 202 protocol and either the cyclical wind pressure loading per TAS 203 protocol or by complying with both the impact and cyclical pressure testing of AMCA 540.

END OF COURSE MATERIAL