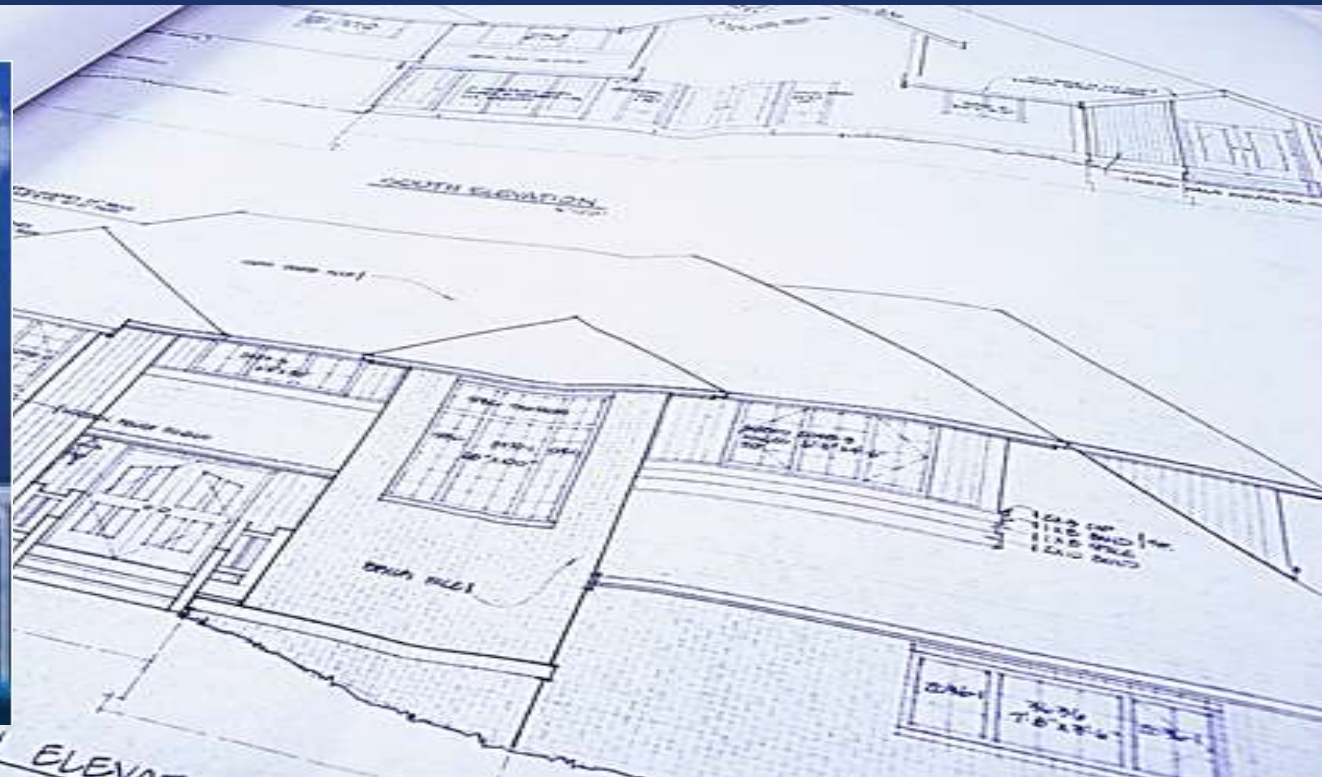
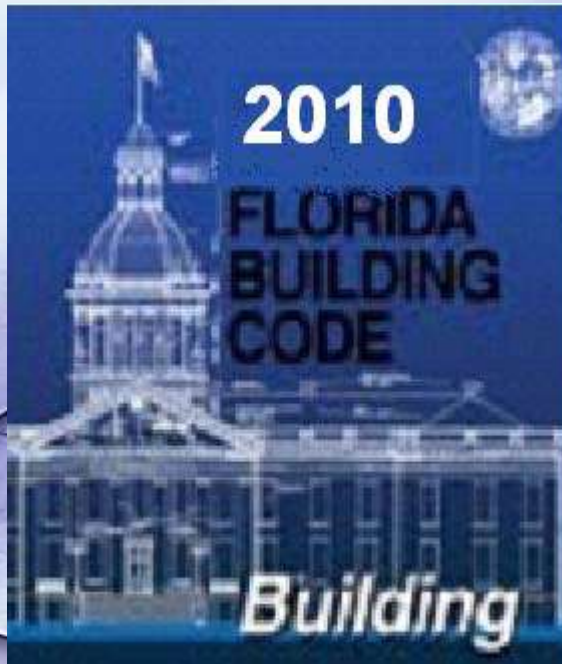


# JC Code & Construction Consultants, Inc.



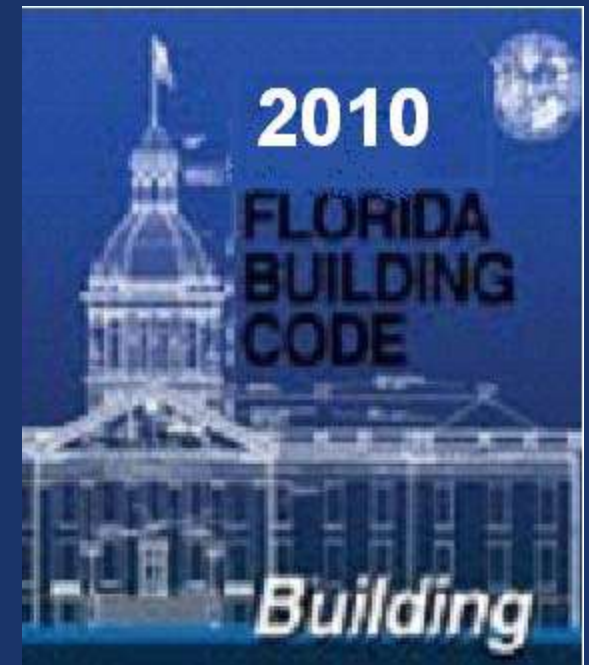
## Advanced 2010 FBC Update – Ch. 1 to 16



# Welcome!



- This course is designed to provide an overview of the most significant changes to the 2010 edition of the Florida Building Code, Building Volume.

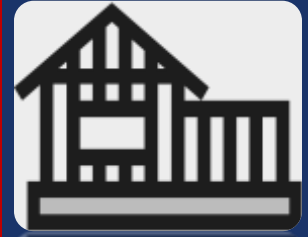


# Introduction



- The 2010 Florida Building Code is based upon the 2009 Edition of the International Building Code.
- The Florida Building Commission (FBC) reviewed a total of 827 proposed changes to the 2009 family of International Codes in the development of the 2010 Florida Building Code.

# Introduction



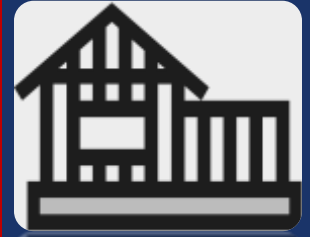
- While that may sound like a large number, it is small compared to the almost 1,400 changes approved by the International Code Council (ICC).
- The FBC approved approximately 55% of the changes submitted for consideration.
- Of that number (452) there were 112 changes approved that removed previously approved “Florida Specific Amendments”.

# Introduction



- Due to the large number of revisions, deletions and new code sections added, this course DOES NOT discuss all of the changes made to the code and is limited to the significant changes made to the Florida Building Code – Building Volume, Chapters one through sixteen.

# Effective Date of The 2010 Florida Building Code



- Original effective date: 12/31/11
- At the August 9, 2011 of the Florida Building Commission, the vote was unanimous (21 – 0 in favor) to change the implementation date of the 2010 Florida Building Code to **March 15, 2012.**

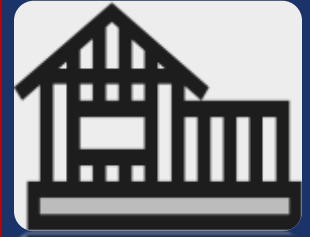
# Significant Changes



You need to be aware...

- 2012 Edition of the Florida Accessibility Code - effective date of **March 15, 2012**
- New wind design standard per ASCE 7
- Removed the fire sprinkler requirements for one and two family dwellings as required in the base code.

# Significant Changes



- Adopted the flood provisions of the IBC, (FBC Section 1612) which FEMA participated in developing.
- Removed the energy provisions from Ch. 13 of the FBC and Ch. 11 of the FBC-R and placed them in a new volume of the code: the Florida Building Code, Energy Conservation.

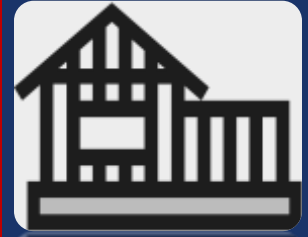


# FBC Update - 2010



## Ch. 1 Administration

# 102.7 Relocation of Manufactured Buildings



- No changes to items (1) and (2)
- New item (3) added:

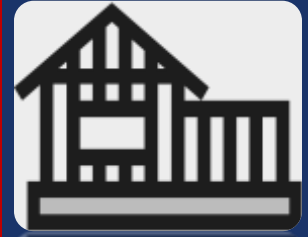
(3) A relocated building shall comply with the flood hazard area requirements of the new location, if applicable

# 105.1 Required



- Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any **required** impact resistant coverings, electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

# 107.3 Examination of Documents



Exception 1 was revised to read as follows:

- 1. Building plans approved pursuant to Section 553.77(5), *Florida Statutes*, and state-approved manufactured buildings are exempt from local codes enforcing agency plan reviews except for provisions of the code relating to erection, assembly or construction at the site.

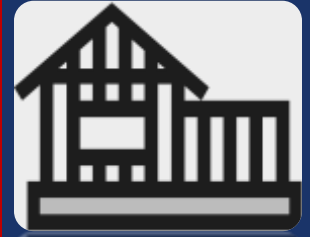
## 107.3 Examination of Documents... continued



Erection, assembly and construction at the site are subject to local permitting and inspections.

Photocopies of plans approved according to FAC 9B-1.009, F.A.C., shall be sufficient for local permit application documents of record for the modular building portion of the permitted project.

# 2010 Florida Building Code



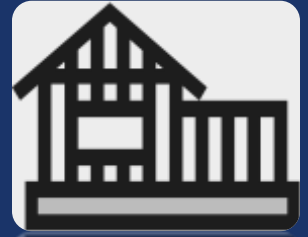
## Ch. 2 Definitions

# New Definition



- **HIGH-RISE BUILDING.** A building with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access.

# New Definition



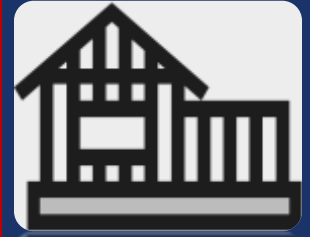
- VALLEY. The internal angle formed by the intersection of two (2) sloping roof planes.



# Valley Defined



# New Definition



- **TUBULAR DAYLIGHTING DEVICE (TDD)**. A non-operable fenestration unit primarily designed to transmit daylight from a roof surface to an interior ceiling via a tubular conduit. The basic unit consists of an exterior glazed weathering surface, a light-transmitting tube with a reflective interior surface, and an interior-sealing device such as a translucent panel. The unit may be factory assembled, or field assembled from a manufactured kit.



# 2010 Florida Building Code



## Ch. 3 Use and Occupancy Classification

# 310.1 Residential Group R



- Several Group R residential uses have been revised through the inclusion of specific allowances for small transient uses, live/work units, and small residential care facilities.



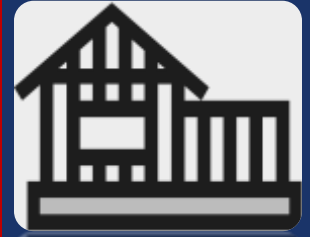
Image: John Denham House

# 310.1 Residential Group R



- R-1 includes Congregate living facilities (transient) with 10 or fewer occupants.
- R-2 includes live/work units.
- R-4 are allowed to be constructed in accordance with the FBC-Residential Code when protected by an automatic sprinkler system in accordance with FBC Section 903.3.1.4.

# 2010 Florida Building Code



## Ch. 4 Special Detailed Requirements Based on Use and Occupancy

# 402 Covered Mall Buildings



- A new definition has been added to make it clear that an “OPEN MALL”, one that does not have a roof over the pedestrian walkway, receives the same considerations and allowances as a covered mall in both design and protection.

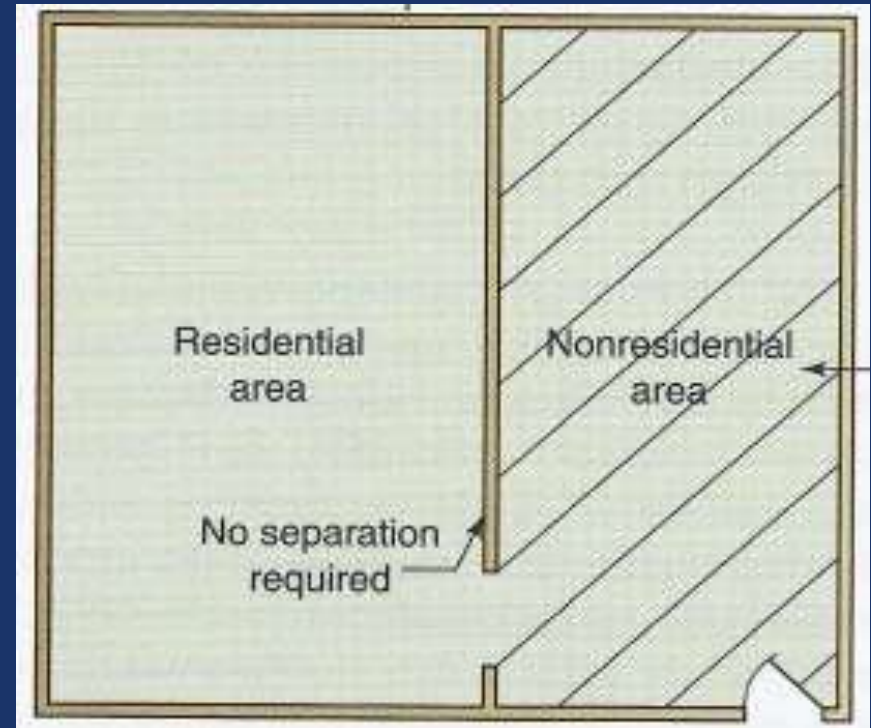




# 438 Live/Work Units



- 3,000 sq. ft. maximum.
- Limit to 50% of the unit's floor area.
- Located on the first or main floor of the unit.
- Limit of 5 non-residential workers.
- High hazard and storage uses not permitted (some limited storage is acceptable).



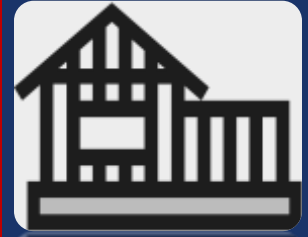


# 2010 Florida Building Code



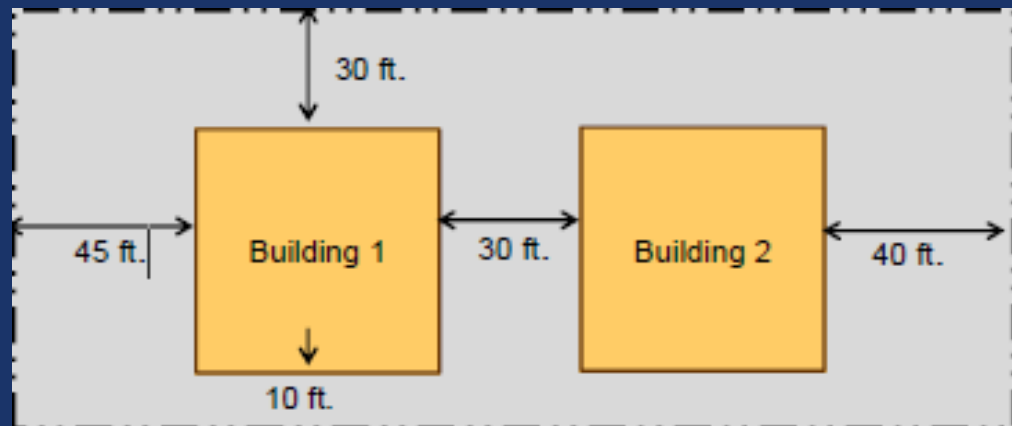
## Ch. 5 General Building Heights and Areas

# 506.2.1 Width limits



## Frontage Increase: Two Buildings on the Same Lot

- When determining the allowable area frontage increase for buildings on the same lot, **the full open space between opposing exterior walls may be considered in the frontage calculation for both buildings.**



## 508.2.5 Separation of Incidental Accessory Occupancies



- Table 508.2 has been revised.
- Parking garages and storage rooms are no longer regulated as incidental accessory occupancies.
- Fire pump rooms were added.

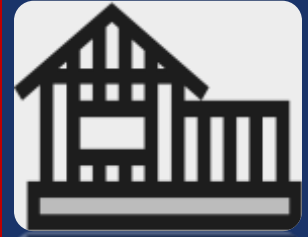
<b>Partial Table 508.2 INCIDENTAL USE AREAS ACCESSORY OCCUPANCIES</b>	
<b>ROOM OR AREA</b>	<b>SEPARATION AND/OR PROTECTION</b>
Parking garages (Sec. 406.2).	<del>2 hours; or 1 hour and provide automatic sprinkler system throughout the building.</del>
Storage Rooms over 100 sq. ft.	<del>1 hour or provide automatic sprinkler system throughout the building.</del>
<u>Rooms containing fire pumps in non high-rise buildings.</u>	<u>2 hours; or 1 hour and provide automatic sprinkler system throughout the building</u>
<u>Rooms containing fire pumps in high-rise buildings.</u>	<u>2 hours</u>

# 2010 Florida Building Code



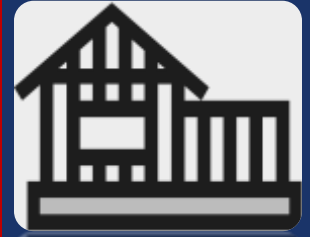
## Ch. 7 Fire Resistance Rated Construction

# 705.5 Fire-Resistance Ratings



- Exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602 and this section. The required fire-resistance rating of exterior walls with a fire separation distance of greater than ~~5 feet~~ 10 feet shall be rated for exposure to fire from the inside. The required fire-resistance rating of exterior walls with a fire separation distance of ~~5 feet~~ or less than or equal to 10 feet shall be rated for exposure to fire from both sides.

# 706.1 Fire Walls



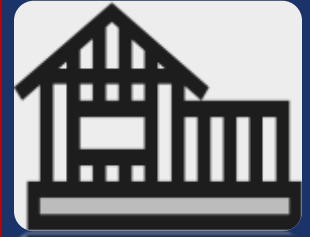
- Each portion of a building separated by one or more fire walls that comply with the provisions of this section shall be considered a separate building. ~~For the purposes of determining height and area in accordance with Table 503, fire walls dividing buildings into separate buildings shall provide a 4-hour fire-resistance rating.~~ The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates groups that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply. ~~Fire walls located on lot lines shall also comply with Section 503.2. Such fire walls (party walls) shall provide a 4-hour fire-resistance rating and shall be constructed without openings.~~

# 2010 Florida Building Code



## Ch. 9 Fire Protection Systems

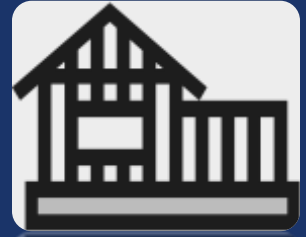
# 902.1 Fire Area



- **FIRE AREA.** The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

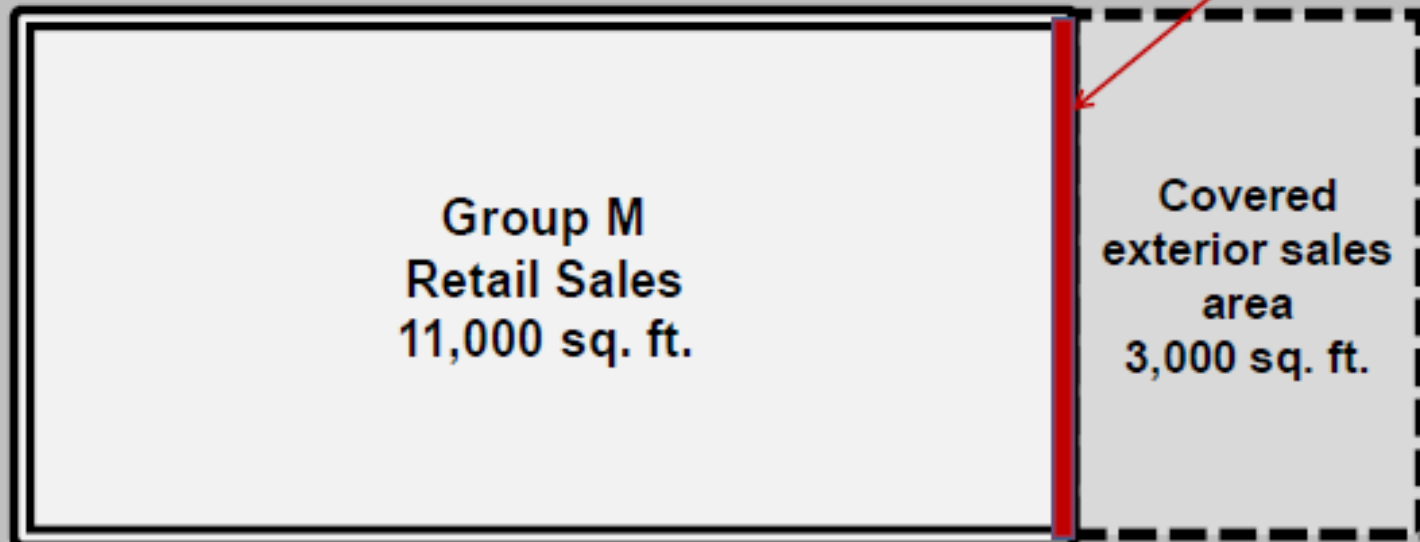


# 902.1 Fire Area



Group M – w/ 3,000 sq. ft. roofed exterior sales area.  
Are fire sprinklers required?

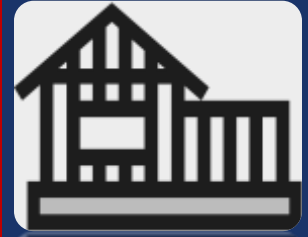
2 hour fire barrier.



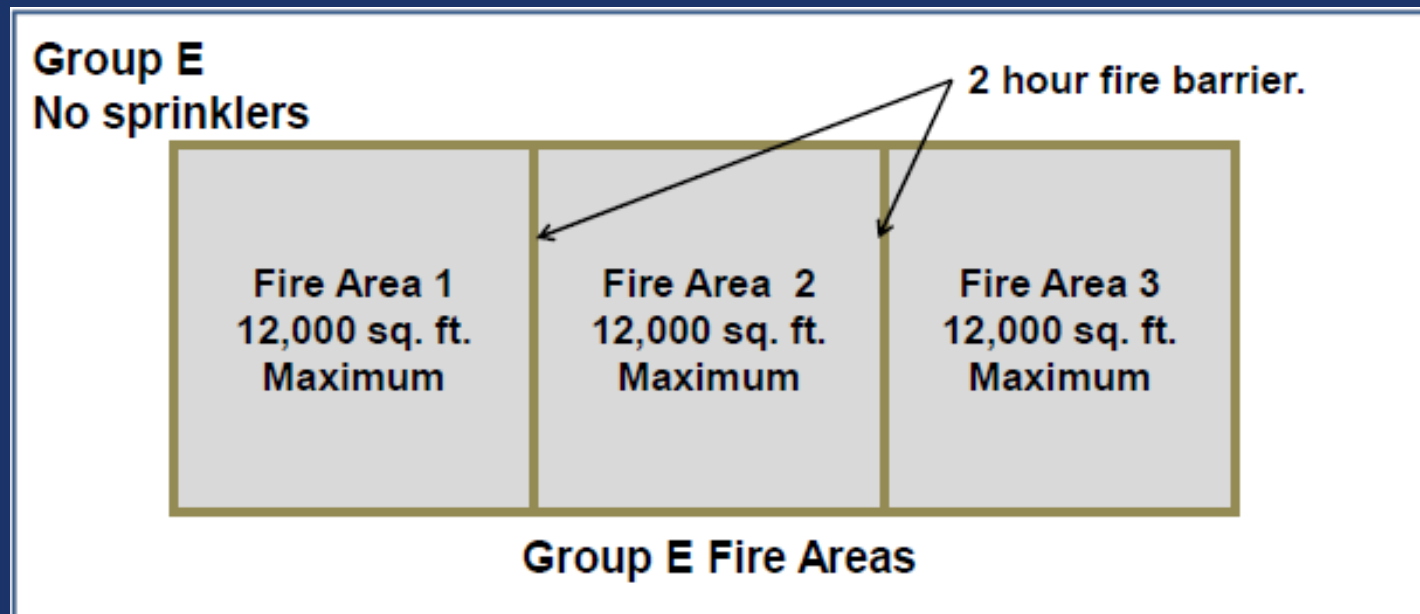
A single group M fire area of 14,000 sq. ft. requires a fire sprinkler system.

No fire sprinklers are required if the wall separating the interior from the exterior is a complying 2-hour fire barrier (707.3.9).

# 903.2.3 Group E



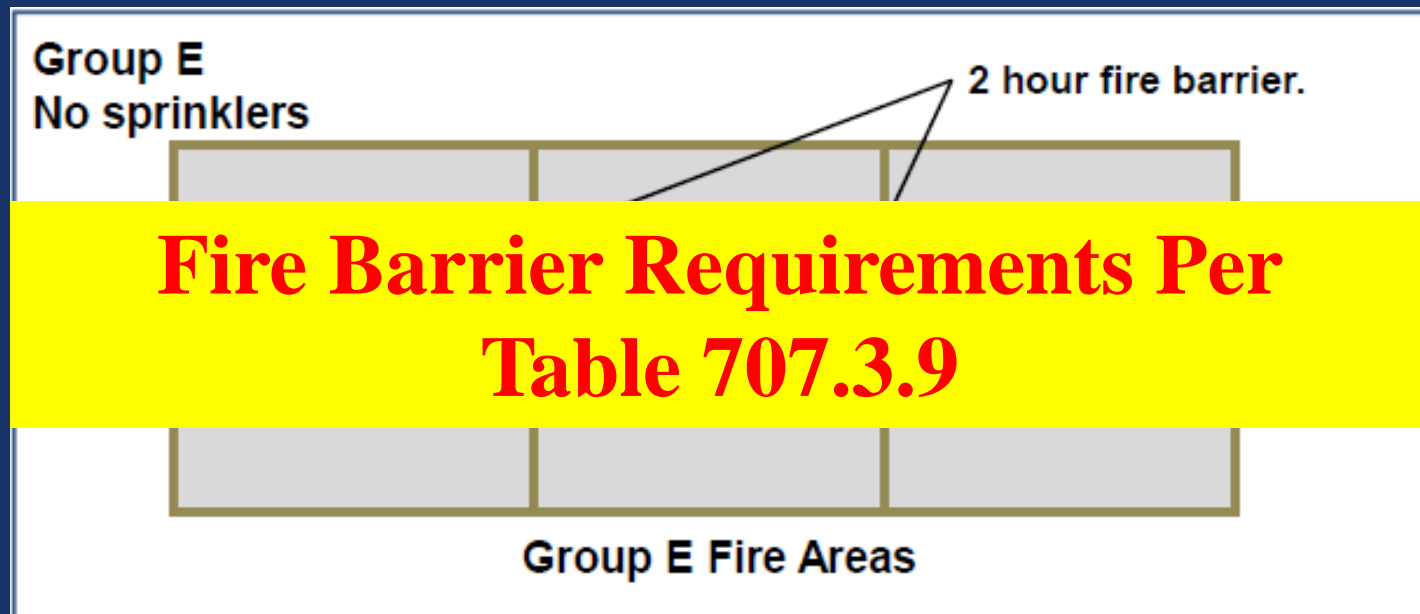
- The threshold for requiring fire sprinklers in Group E occupancies has been **reduced** from 20,000 sq. ft. to 12,000 sq. ft.



# 903.2.3 Group E



- The threshold for requiring fire sprinklers in Group E occupancies has been **reduced** from 20,000 sq. ft. to 12,000 sq. ft.



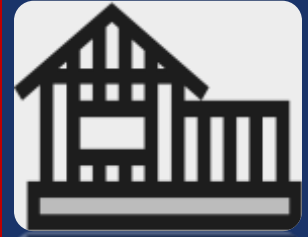
# 903.3.1.3 NFPA 13D Sprinkler Systems



- Where allowed, automatic sprinkler systems installed in one and two-family dwellings and townhouses shall be installed throughout in accordance with NFPA 13D.



# 914 Emergency Responder Safety Features



- New section added taken from the base code:
- Shaftway marking with the word “SHAFTWAY” in 6 inch red letters with a white background.
  - Exterior shaftways: applies to openings for fire department access to the shaft.
  - Interior shaftways.
- Equipment rooms containing controls for air conditioning equipment, sprinkler risers and valves, or other fire detection, suppression or control equipment shall identified for the use of the fire department.

# 916.1 Carbon Monoxide Protection



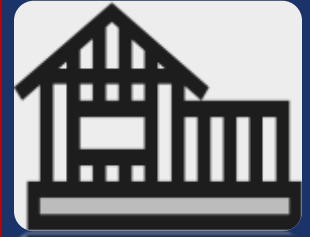
- Every separate building or an addition to an existing building for which a permit for new construction is issued and having a fossil-fuel-burning heater or appliance, a fireplace, ~~or~~ an attached garage, or other feature, fixture, or element that emits carbon monoxide as a byproduct of combustion shall have an operational carbon monoxide alarm installed within 10 feet of each room used for sleeping purposes in the new building or addition, or at such other locations as required by this Code.

# 916.1.1 Carbon Monoxide Alarm



- The requirements of Section 916.1 shall be satisfied by providing for one of the following alarm installation:
  - (1) A hard-wired carbon monoxide alarm.
  - (2) A battery-powered carbon monoxide alarm.
  - (3) A hard-wired combination carbon monoxide and smoke alarm.
  - (4) A battery-powered combination carbon monoxide and smoke alarm.

# 2010 Florida Building Code



## Ch. 10 Means of Egress

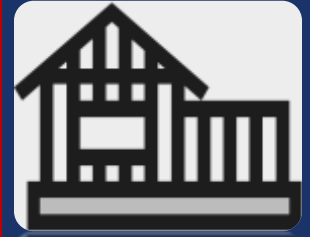


# New Definitions



- **EXIT ACCESS DOORWAY.** Exit access doorway has been clarified to mean a door or access point.
- **LEVEL OF EXIT DISCHARGE.** The lowest level having at least 50% of the number of exits and capacity of exits discharging to the exterior at grade or story with the least change in elevation to grade, provided no other story has 50% of its exits or egress capacity discharging to the exterior at the grade.

# New Definitions



- FLIGHT. A flight as used in stairs is the run of treads and risers between landings.
- SUITE. A group of patient treatment rooms where staff are in attendance within the suite.

**NOTE:** although the definition of “Suite” is new, provisions relating to suites in I-2 occupancies have been in the code for some time.

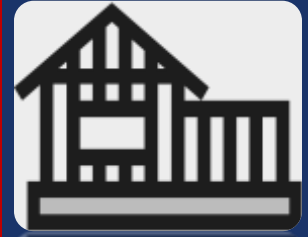
# Table 1005.1 Egress Width Per Occupant Served



**1005.1 Minimum required egress width.** The *means of egress* width shall not be less than required by this section. The total width of *means of egress* in inches (mm) shall not be less than the total *occupant load* served by the *means of egress* multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple *means of egress* shall be sized such that the loss of any one *means of egress* shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any *story* of a building shall be maintained to the termination of the *means of egress*.

**Exception:** *Means of egress* complying with Section 1028.

# 1005.2 Door Encroachment

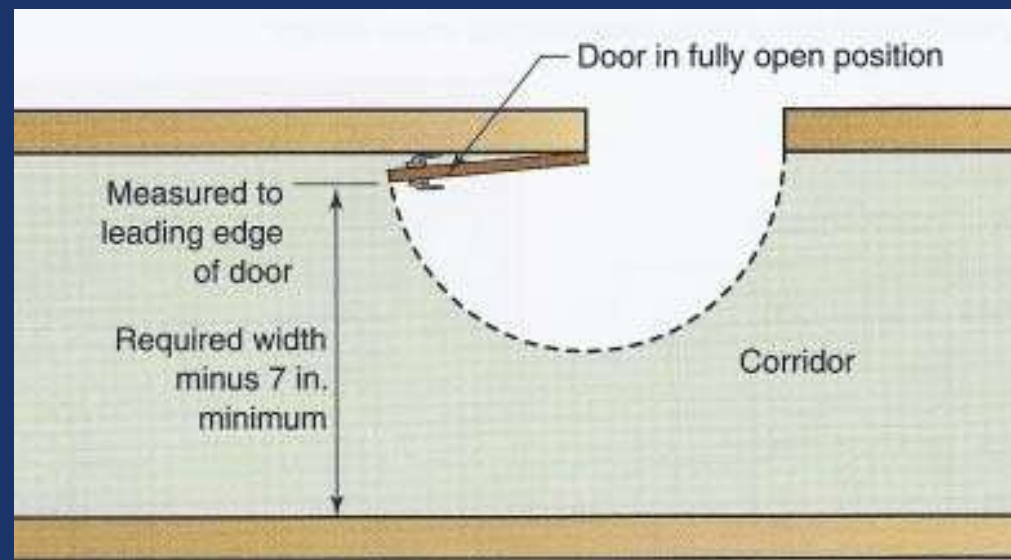


- Doors, when fully opened, and handrails ~~opening into the path of egress travel~~ shall not reduce the required means of egress width by more than 7 inches. Doors in any position shall not reduce the required width by more than one-half ~~during the course of the swing~~. ~~When fully open, the door shall not project more than 7 inches into the required width~~. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width a maximum of 1½ inches on each side.

# 1005.3 Door Hardware Encroachment



- The door hardware is exempt from this requirement when both of the following conditions apply:
  1. The hardware is mounted on the side of the door facing the corridor width when fully opened.
  2. The hardware is mounted between 34" and 48" above the floor.



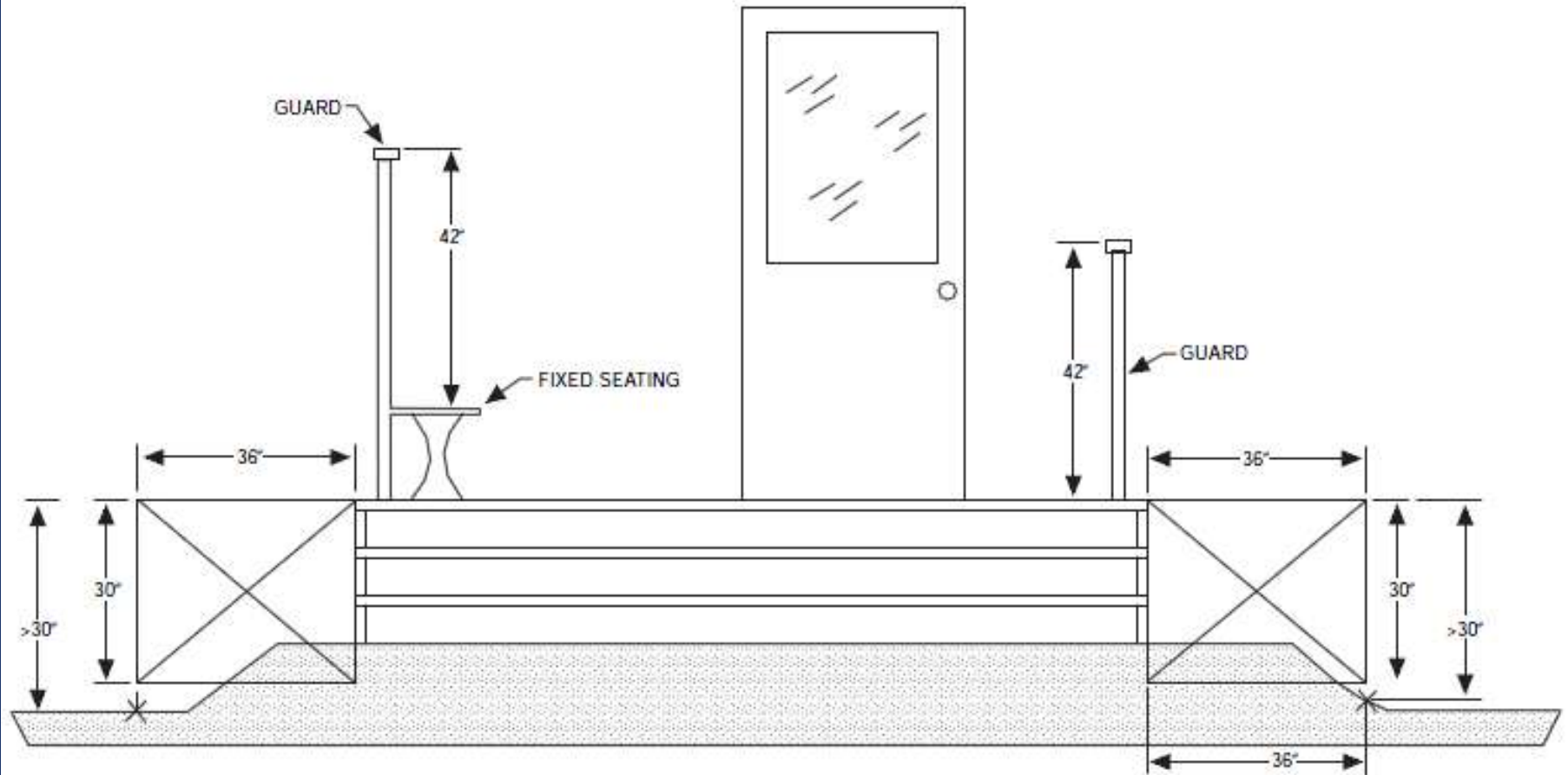
# 1013.2 Height



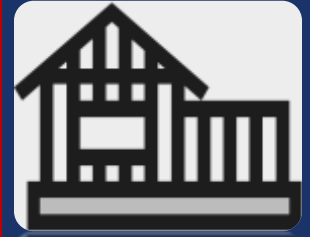
- For fixed seating adjacent to a guard, the seating surface is now considered a walking surface and the minimum height is measured from the seat surface rather than the floor.
- **1013.2 Height.** Required guards shall ~~form a protective barrier~~ be not less than 42 inches high, measured vertically above the ~~leading edge of the tread~~ adjacent walking surfaces, adjacent fixed seating or the line connecting the leading edges of the treads ~~or adjacent seatboard~~.



# Drop Off and Guard Height Measurements



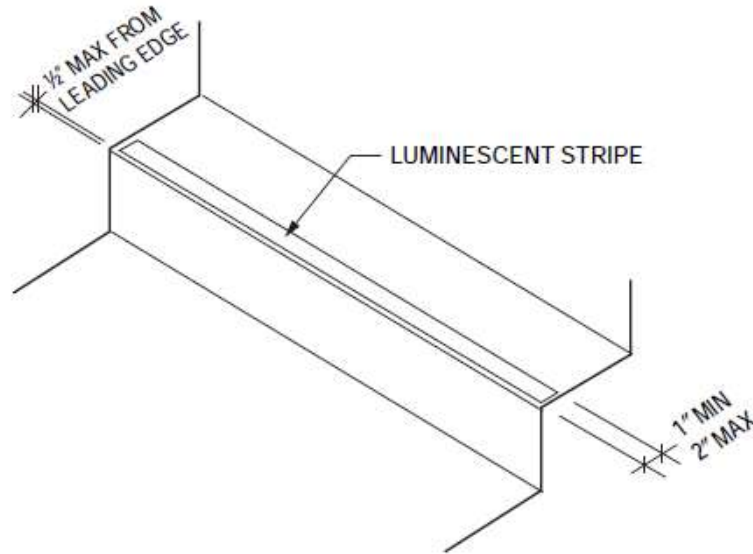
# 1024 Luminous Egress Path Markings



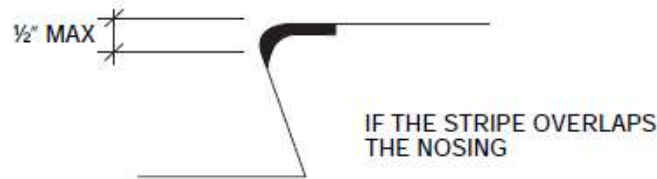
- The use of photoluminescent or self-illuminating materials to mark the exit path is now required in Group A, B, E, I, M and R-1 occupancies having occupied floors more than 75 feet above the lowest level of fire department vehicle access.



# Leading Edge Of Step And Landing

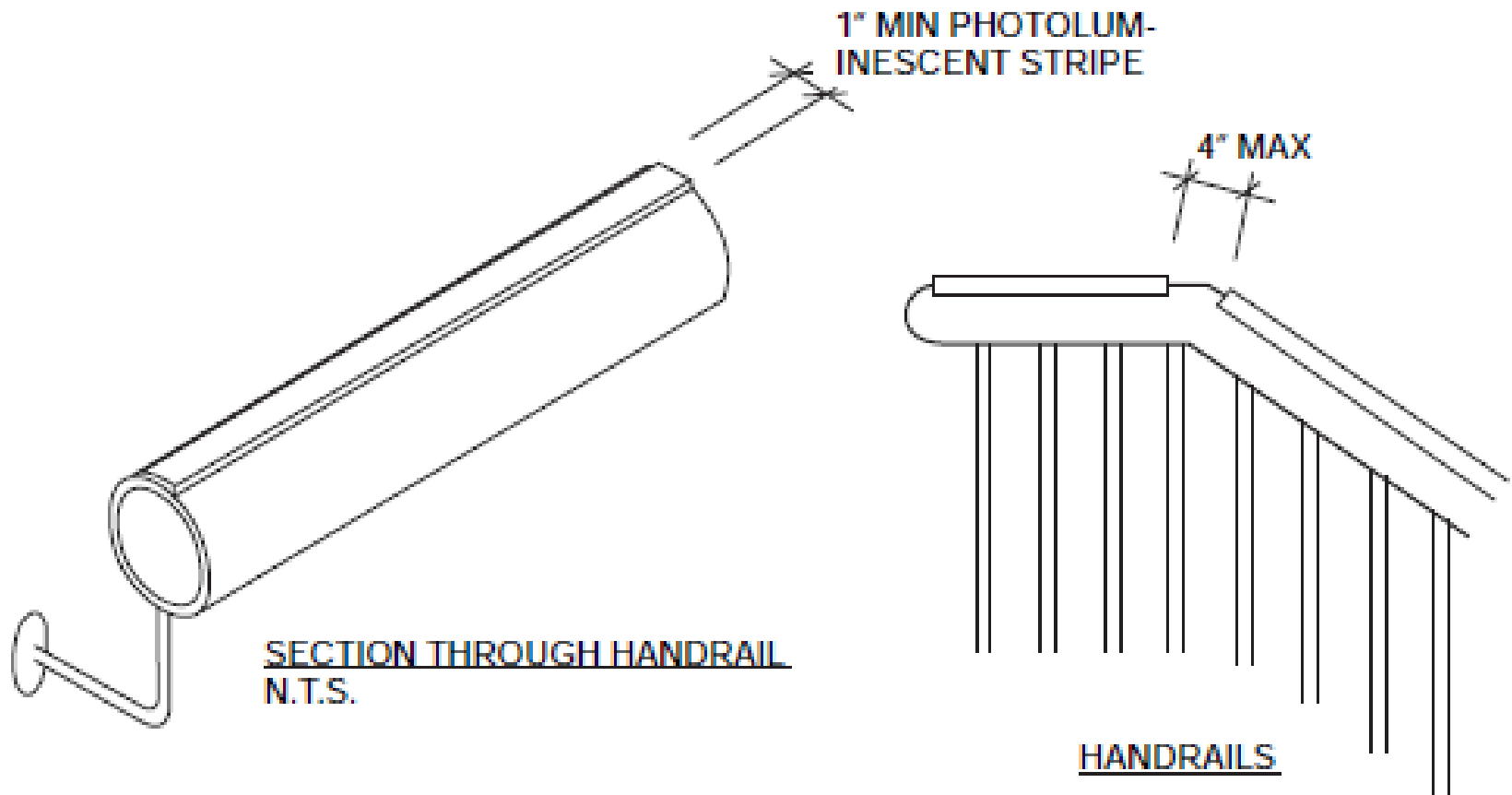


a) TREAD MARKING



b) ALTERNATE LOCATION

# Handrail Markings

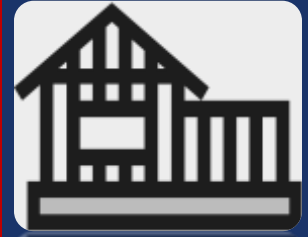


# 2010 Florida Building Code



## Ch. 15 Roof Assemblies and Rooftop Structures

# 1502 Definitions



- A new definition was added to address the use photovoltaic roofing materials:

**Building Integrated Photovoltaic Roofing:** A roofing product consisting of electricity generating photovoltaic components integrated into a roof covering.



# 1507 Requirements For Roof Coverings

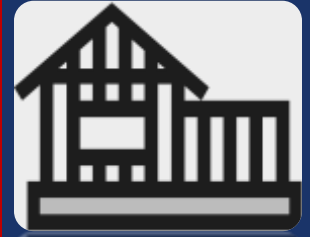


- Roof gardens and rooftop gardens are now regulated for roof construction and structural integrity in the same manner as other roof systems.

## **1507.16 Roof gardens and landscaped roofs.**

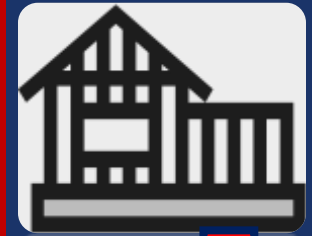
Roof gardens and landscaped roofs shall comply with the requirements of this chapter and Sections 1607.11.2.2 and 1607.11.3.

# 2010 Florida Building Code

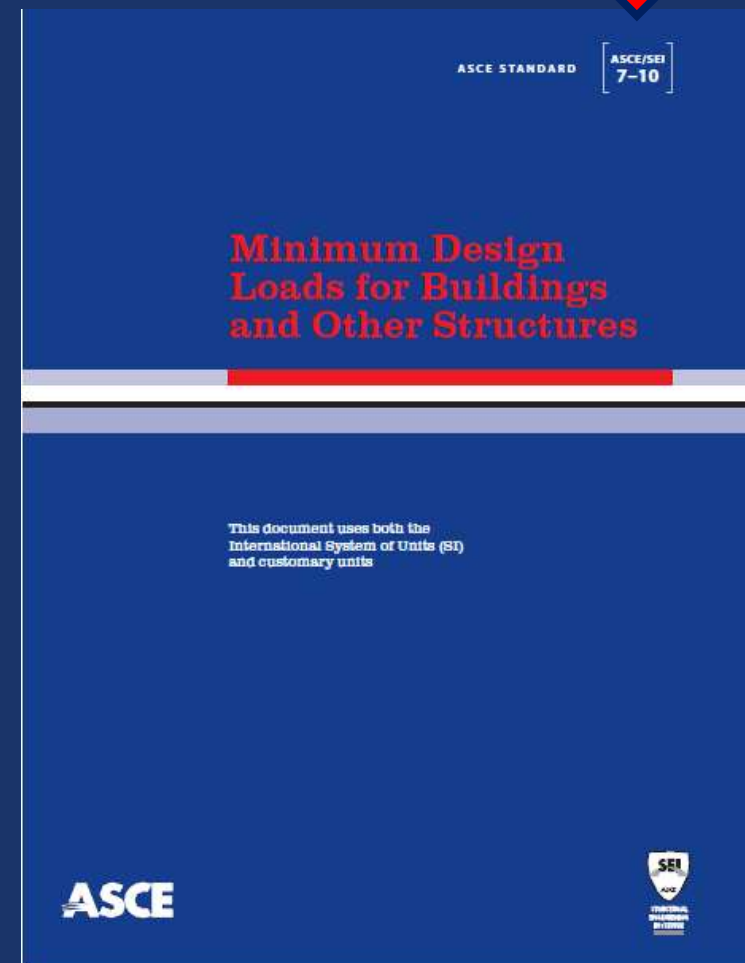


## Ch. 16 Structural Design

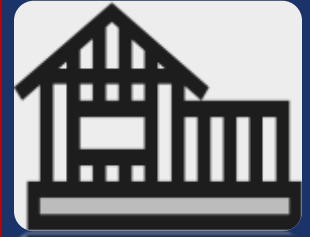
# News Flash!



- The 2010 Edition of the Florida Building Code will reference the 2010 Edition of ASCE 7.



# 1602 Revised Definition



- **RISK OCCUPANCY CATEGORY.** A categorization category of buildings and other structures for determination used to determine structural requirements based on occupancy of flood and wind loads based on the risk associated with unacceptable performance.



# 1604.5 Risk ~~Occupancy~~ Category



- Each building and structure shall be assigned a risk ~~occupancy~~ category in accordance with Table 1604.5.

**TABLE 1604.5  
OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES**

OCCUPANCY CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> <li>• Agricultural facilities.</li> <li>• Certain temporary facilities.</li> <li>• Minor storage facilities.</li> </ul>
II	Buildings and other structures except those listed in Occupancy Categories I, III and IV
	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:

**NOTE: Screen Enclosures were added to Category I**

	treatment facilities. <ul style="list-style-type: none"> <li>• Group I-3 occupancies.</li> <li>• Any other occupancy with an occupant load greater than 5,000<sup>2</sup>.</li> <li>• Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Occupancy Category IV.</li> <li>• 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.</li> </ul>
IV	Buildings and other structures designated as essential facilities, including but not limited to: <ul style="list-style-type: none"> <li>• Group I-2 occupancies having surgery or emergency treatment facilities.</li> <li>• Fire, rescue, ambulance and police stations and emergency vehicle garages.</li> <li>• Designated earthquake, hurricane or other emergency shelters.</li> <li>• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.</li> <li>• Power-generating stations and other public utility facilities required as emergency backup facilities for Occupancy Category IV structures.</li> <li>• 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).</li> <li>• Aviation control towers, air traffic control centers and emergency aircraft hangars.</li> <li>• Buildings and other structures having critical national defense functions.</li> <li>• Water storage facilities and pump structures required to maintain water pressure for fire suppression.</li> </ul>

a. For purposes of occupant load calculation, occupancies required by Table 1004.1.1 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.

# 1607.7.1.3 Stress Increase



- The allowable one-third stress increase for stress design of handrails and guards has been **deleted**.



# 1609.1.1 Determination of Wind Loads

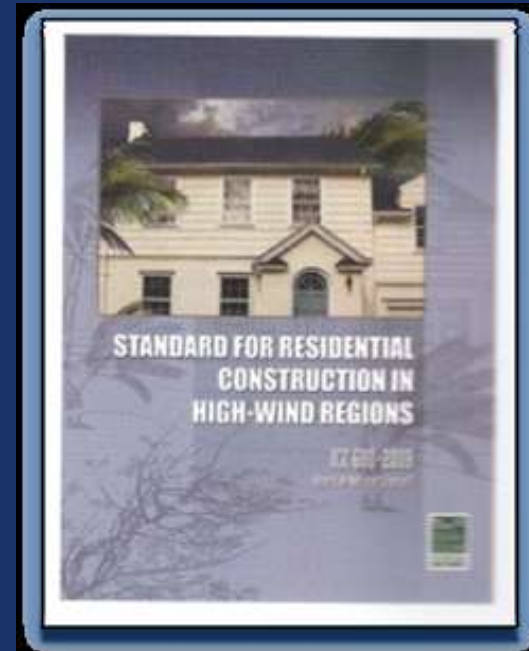


- Wind loads on every building or structure shall be determined in accordance with Chapters 26 through 30 of ASCE 7 or the provisions of the alternate all-heights method in Section 1609.6. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to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

# 1609.1.1 Determination of Wind Loads



- Revision to Exception 1 of Section 1609.1.1 to replace the *IBHS Guideline for Hurricane Resistant Residential Construction* (legacy standard SBCCI SSTD 10) with the new ICC 600 *Standard for Residential Construction in High-Wind Regions*.



# 1609.1.1 Determination of Wind Loads



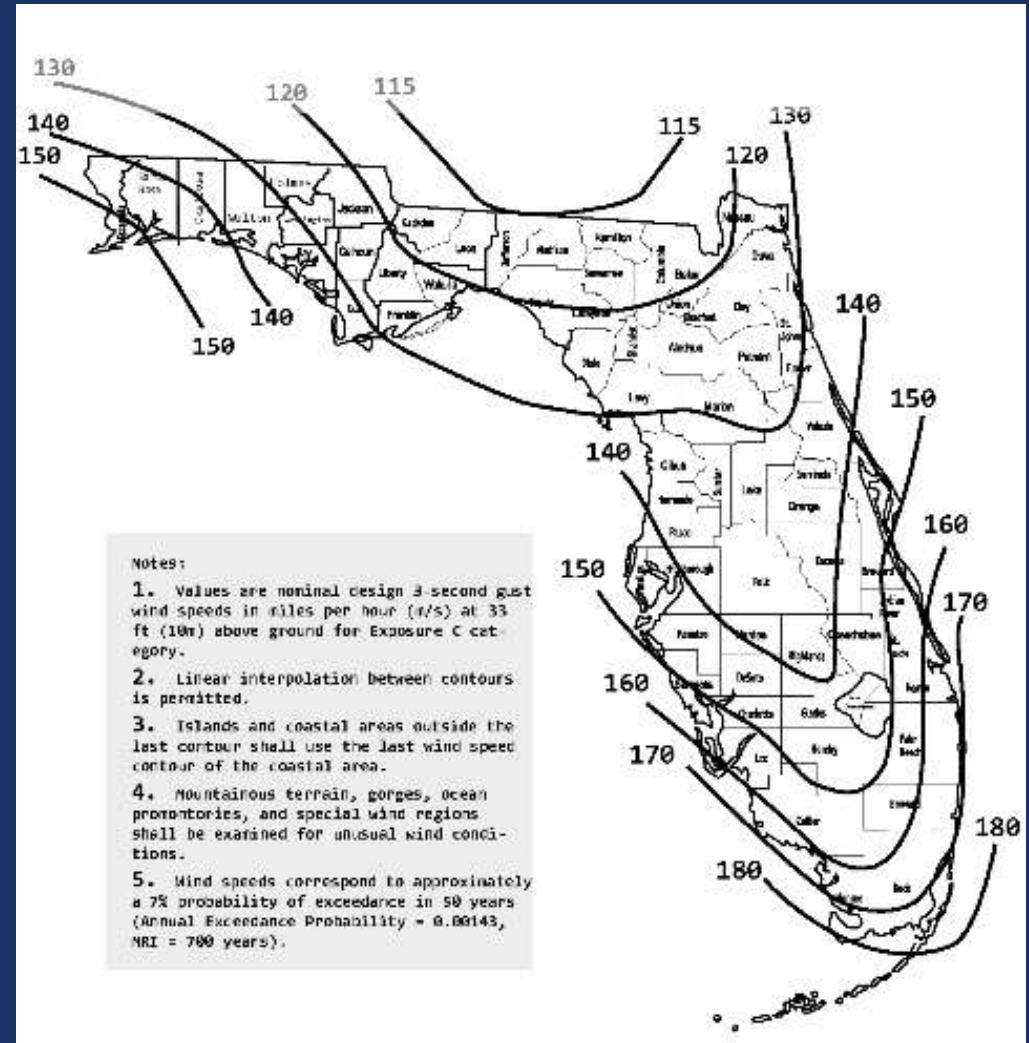
- The wind speeds in Figure 1609A, 1609B and 1609C shall be converted to nominal wind speeds,  $V_{asd}$ , in accordance with Section 1609.3.1 when the provisions of the standards referenced in Exceptions 1 through 5 and 7 are used unless the wind provisions in the standards are based on Ultimate Wind Speeds as specified in ~~accordance with~~ Figures 1609A, 1609B, or 1609C or Chapter 26 of ASCE 7.



# Figure 1609A



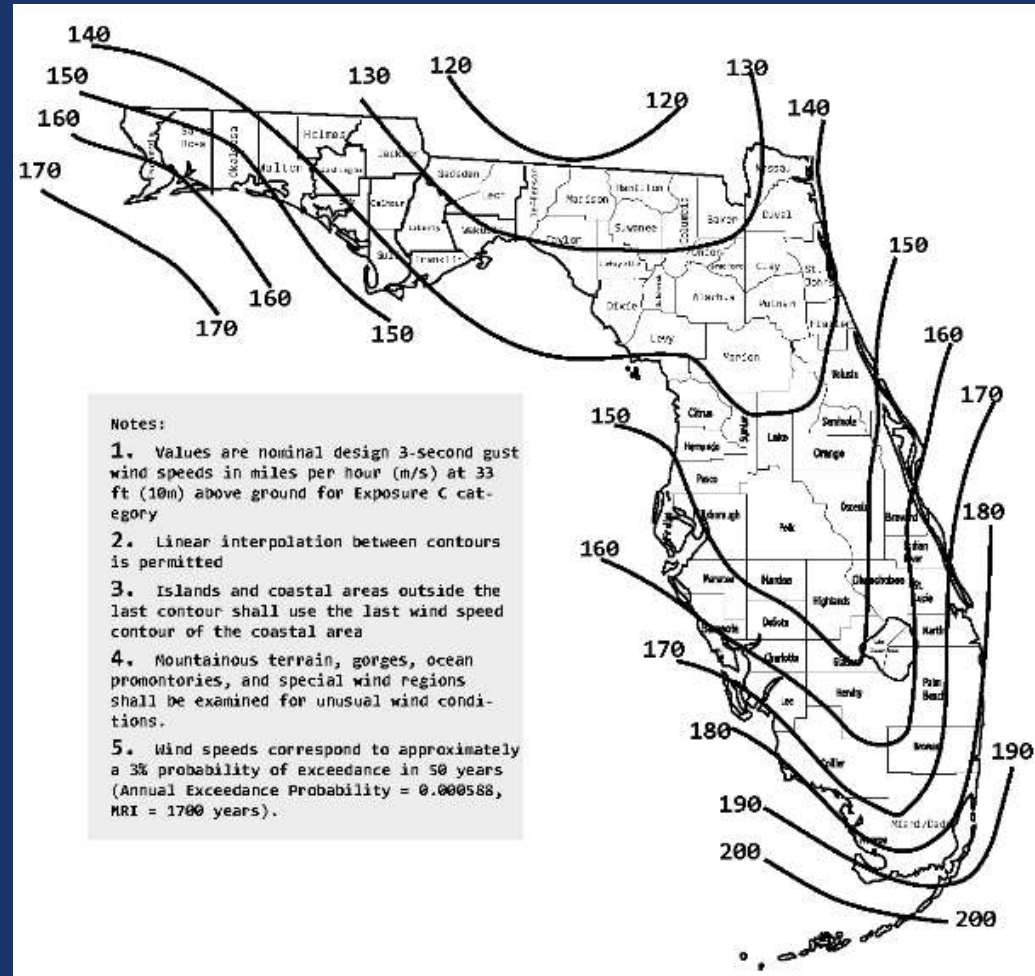
## Ultimate Design Winds Speeds, Vult, Risk Category II Buildings & Other Structures



# Figure 1609B



## Ultimate Design Winds Speeds, Vult, Risk Category III & IV Buildings & Other Structures

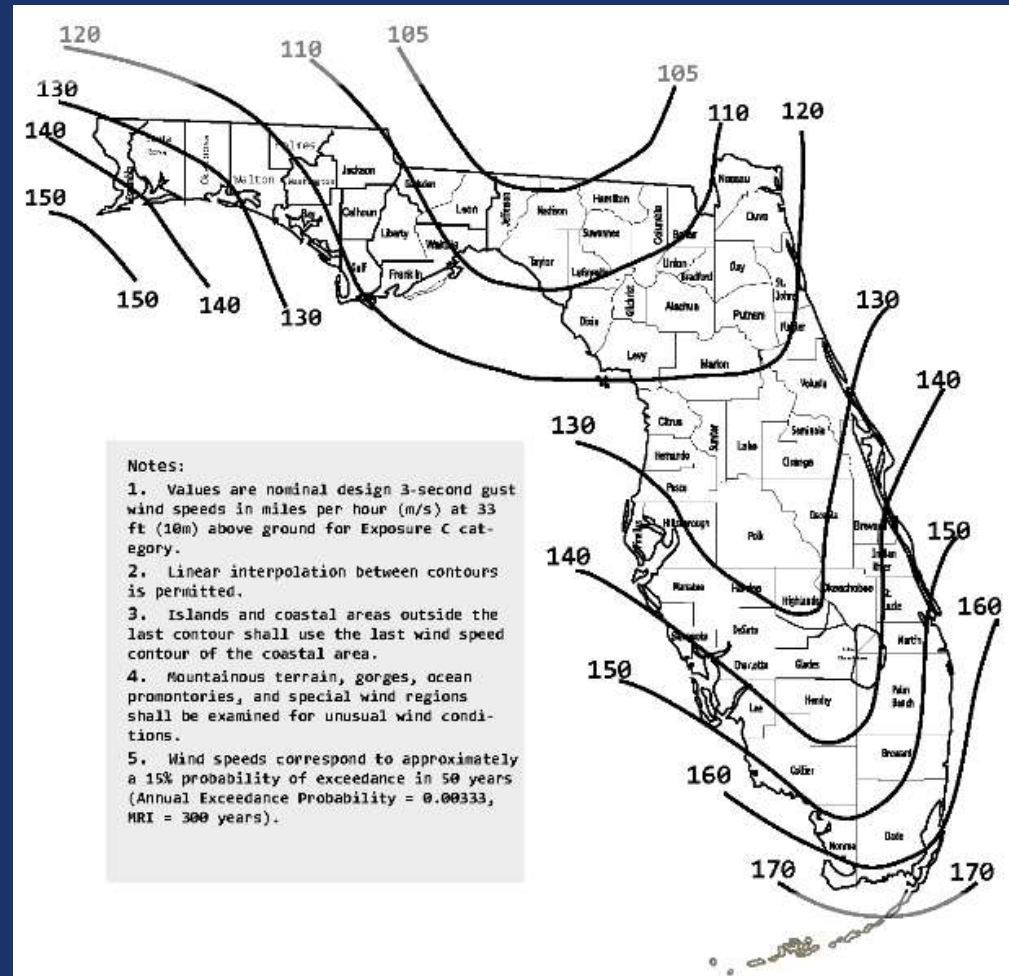




# Figure 1609C



## Ultimate Design Winds Speeds, Vult, Risk Category I Buildings & Other Structures



# Design Wind Speed FBC 2007 to FBC 2010 (Risk Category II)



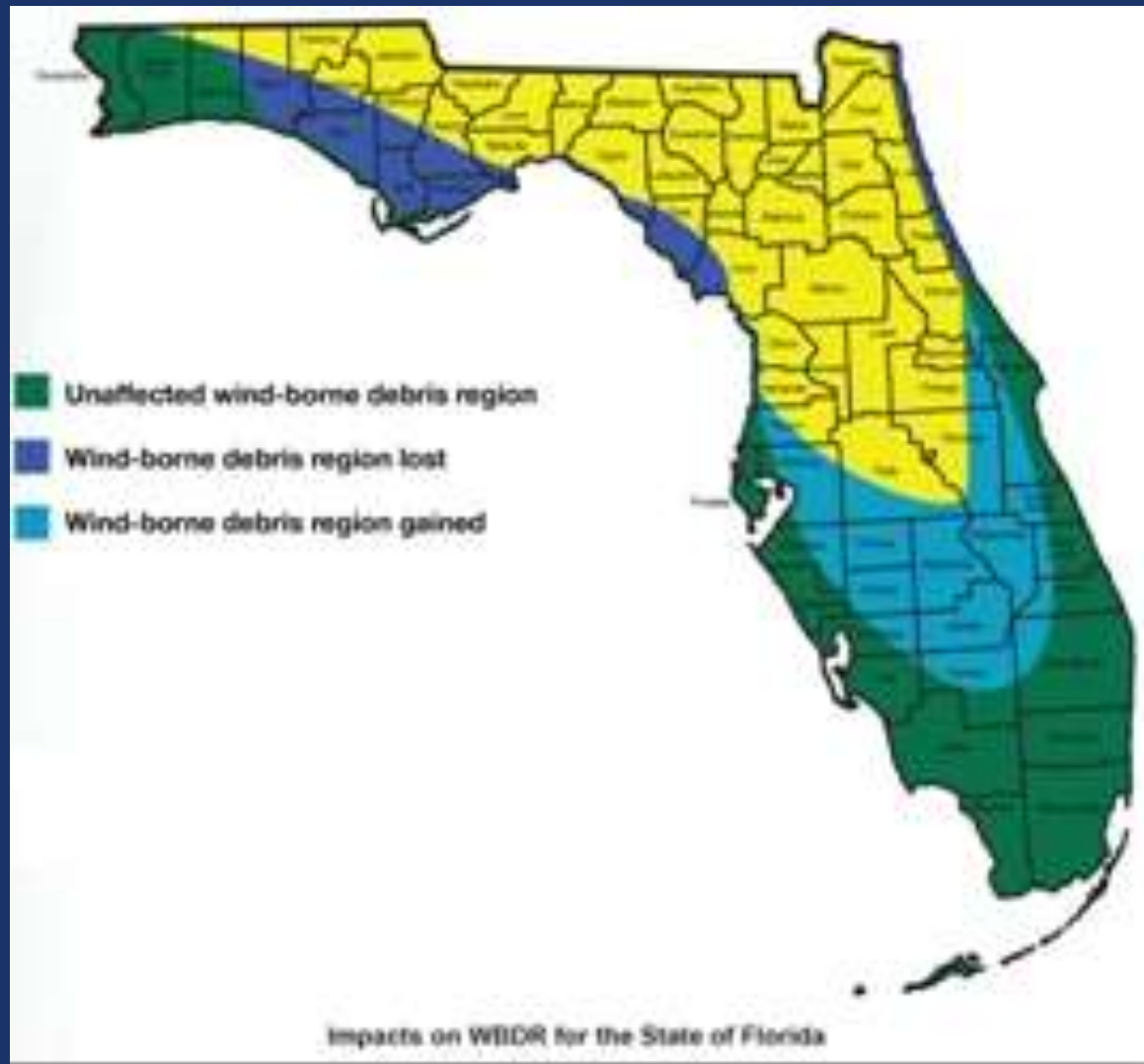
City	V ASCE 7-05 2007 FBC	V ASCE 7-10 2007 FBC (est.)	Percent Difference	
			Exposure B Inland	Exposure D <sup>2,3</sup> Coastal
Pensacola	140	155	-27%	-12%
Tampa	123	145	17%	0%
Orlando	110	135	-10%	N/A
Miami-Dade <sup>1</sup>	146	185	0% <sup>1</sup>	0%
Broward <sup>1</sup>	140	170	0% <sup>1</sup>	0%
Tallahassee	110	118	-31%	N/A
Gainesville	100	125	-35%	N/A
Jacksonville	120	125	-35%	-22%

# Design Wind Speed Notes



1. Miami-Dade and Broward Counties require all buildings to be considered to be in Exposure Category “C”, unless Exposure Category “D” applies per ASCE 7 Section 26.7 and the wind speed was increased to maintain current design pressures.
2. ASCE 7-10 and proposed 2010 FBC requires all water surfaces, including hurricane prone regions to be considered Surface Roughness “D”.
3. FBC (2007) 1609.4.3 required roof to wall and roof sheathing connections to be increased by 20% for buildings located within 600 ft. of inland bodies of water with a fetch or width of one mile or more to compensate for the lack of an Exposure “D” Category, which is now unnecessary due to reinstatement of Exposure Category “D”.

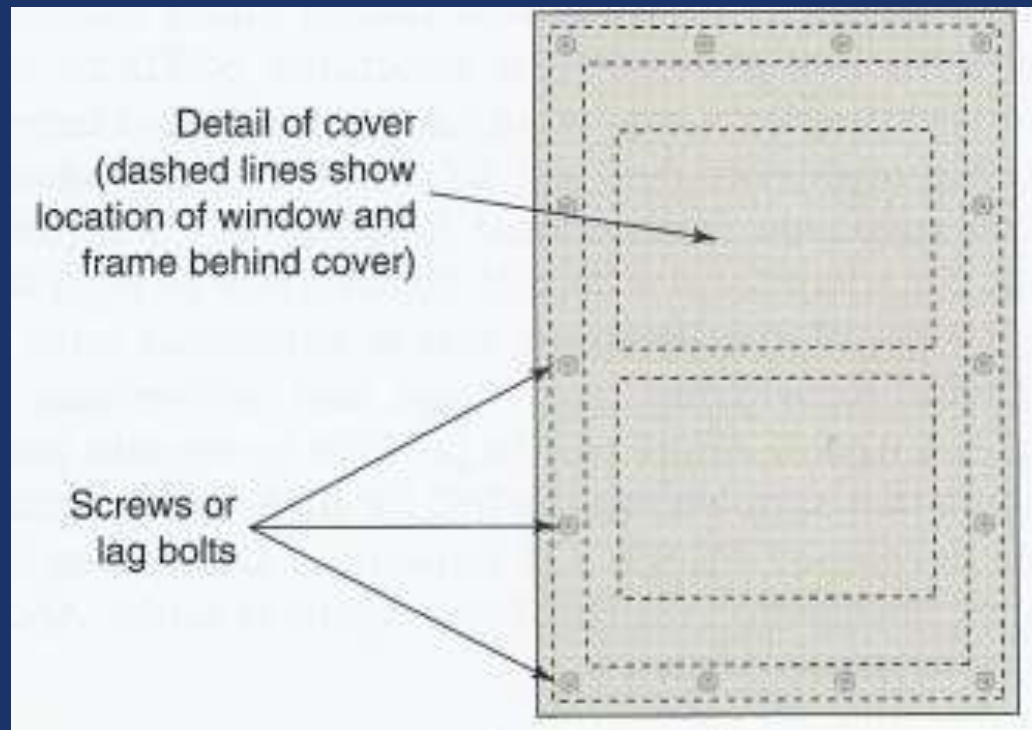
# 2010 Wind Borne Debris Region



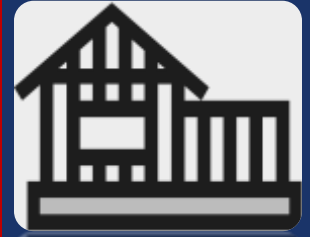
# 1609.1.2 Protection of Openings



- The use of wood structural panels in lieu of impact resistant cover or impact resistant glazing is now limited to Group R-3 and R-4 buildings.



# HVHZ 1620.2 Wind Velocity



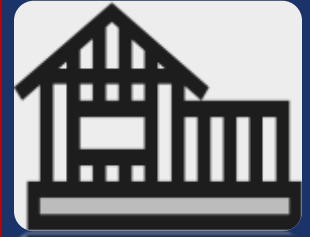
- Wind velocity (3-second gust) used in structural calculations shall be as follows: ~~140 miles per hour (63 m/s) in Broward County and 146 miles per hour (65 m/s) in Miami-Dade County.~~

# HVHZ 1620.2 Wind Velocity



- Miami-Dade County:
  - Risk Category I Buildings and Structures: ~~175~~ 165 mph
  - Risk Category II Buildings and Structures: ~~185~~ 175 mph
  - Risk Category III and IV Buildings and Structures: ~~95~~ 186 mph
- Broward County:
  - Risk Category I Buildings and Structures: ~~160~~ 156 mph
  - Risk Category II Buildings and Structures: 170 mph
  - Risk Category III and IV Buildings and Structures: 180 mph

**THE END!**



**THANK YOU FOR YOUR  
PARTICIPATION...  
ANY QUESTIONS???**