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RECENT BUILDING CODE CHANGES

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GLASS+METAL SYMPOSIUM

OVERVIEW

- Focusing on 6th Edition Changes to Florida Building Code, *Building*
- Went into effect December 31, 2017
- FBC 5th Edition was based on the 2012 International Building Code
- FBC 6th Edition is based on of the 2015 International Building Code
- Highlighted changes in sequential order

SECTION 450.4.2.5 (NURSING HOMES) DEBRIS IMPACT STANDARDS

- Revised to permit impact protection from wind-borne debris to be in accordance with ASTM E 1996.
- New language permits facilities located where V_{ult} is 130 mph and less, to meet the requirements for Wind Zone 1 in ASTM E 1996.
- New section requires critical systems and utilities to protected from debris impact by a housing or enclosure complying with the impact protection standards of Chapter 16 when located at or below 30 feet above finished grade.
- Requires roof mounted equipment to be fastened to meet the wind load requirements of Section 1609.

SECTIONS 504: BUILDING HEIGHT AND NUMBER OF STORIES; AND 506: BUILDING AREA

- Provide limiting values based upon
  - Occupancy classification
  - Type of construction, and;
  - Whether or not the building is sprinklered
- Changes are largely editorial and reorganization
- 2014 Table 503 split into 3 new tables
  - Table 504.3, "Allowable Building Height in Feet Above Grade Plane"
  - Table 504.4, "Allowable Number of Stories Above Grade Plane"
  - 506.2, "Allowable Area Factor"

SECTION 706.2 (FIRE AND SMOKE PROTECTION) STRUCTURAL STABILITY

- *Fire walls* shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.
- Duration of time indicated by the *fire-resistance rating* requirement was eliminated

SECTION [F] 903.2.1.6 (FIRE PROTECTION SYSTEMS) ASSEMBLY OCCUPANCIES ON ROOFS

- New section added
- Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for Group A-2 and 300 for other Group A occupancies, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- Exception: Open parking garages of Type I or Type II construction

SECTION [F]903.3.8 (FIRE PROTECTION SYSTEMS) LIMITED AREA SPRINKLER SYSTEMS

- To limit demands on building's plumbing system in an event
- 903.3.8.1 Number of Sprinklers
  - Limited area sprinkler systems shall not exceed six sprinklers in any single fire area.
- 903.3.8.2 Occupancy hazard classification
  - Only areas classified by NFPA 13 as Light Hazard or Ordinary Hazard Group 1
  - For coordination with NFPA 101, Life Safety Code, Section 9.7.1.2

SECTION [F] 904.11 (FIRE PROTECTION SYSTEMS) AUTOMATIC WATER MIST SYSTEMS

- New addition
- For use based on listings and approvals in areas similar to Light Hazard and Ordinary Hazard Group I
- Not treated as equivalent to sprinklers

SECTION 1011.16 (MEANS OF EGRESS) LADDERS

- New addition on use of permanent ladders for egress
- Limits their use to areas such as catwalks above ceilings, mechanical equipment areas, service pits etc. that are occasionally accessed by able bodied trained personnel

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SECTION 1504.2 (ROOF) WIND RESISTANCE OF CLAY AND CONCRETE TILE

- Concrete and clay roof tiles overturning and wind tunnel resistance testing moved from Chapter 17

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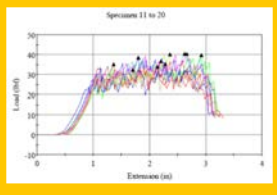
SECTION 1507.1.1 (ROOF) UNDERLAYMENT

- Consolidates requirements for all roof covering types into (TABLE 1507.1.1)
- Adds a new exception regarding the use of synthetic underlayments
  - Requires them to be an approved alternate to ASTM D 226 Type II
  - Requires a minimum tear strength of 20 lbs
  - Metal cap nails are required where V_{ult} equals or exceeds 150 mph.



FLOOD DESIGN

- The referenced version of ASCE 24, Flood Resistant Design and Construction, changed from 2005 to 2014
- §1603.1.7, *Flood design data*, added requirement to show flood design class assigned according to ASCE 24
- Chapter 31, Special Construction revised to more closely follow ASCE 24
- Substantial changes to Residential Code

SECTION 1603.1.8.1 (STRUCTURAL DESIGN) PHOTOVOLTAIC PANEL SYSTEMS

- New section requiring the dead load of rooftop-mounted PV systems to be indicated on the construction documents

TABLE 1604.3 (STRUCTURAL DESIGN) DEFLECTION LIMITS

- Note b revised to require that the provisions of this table do not apply to all flexible, folding and portable partitions.
- A new row has been added specifying deflection limits for interior partitions.
- Note f has been revised to clarify the wind load to be used for deflection calculations for members that support glass.
  - The wind load is permitted to be taken as 0.42 times the "component and cladding" loads for the purpose of determining deflection limits. Where members support glass in accordance with Section 2403 using the deflection limit therein, the wind load shall be no less than 0.6 times the "component and cladding" loads for the purpose of determining deflection.

SECTION 1607.12.3 (STRUCTURAL DESIGN) OCCUPIABLE ROOFS

- Revised to include vegetative roofs
- Dead loads for vegetative roofs are required to be determined in accordance ASTM E 2397, Standard Practice for Determination of Dead Loads and Live Loads Associated with Vegetative Roof Systems
  - Weight measurements of various components
  - ASTM E2398 for Water Capture and Media Retention of Geocomposite Drain Layers

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SECTION 1609.1.2 (STRUCTURAL DESIGN) PROTECTION OF OPENINGS

- Allowable span between lines of fasteners for wood structural panels reduced to 44 inches
- Adds prescriptive attachment means for wood, masonry, and concrete
- ASTM E 1886-13A and ASTM E 1996-14 referenced
- §1609.1.2.2.1 Modifications to ASTM E 1886 and ASTM E 1996 were removed

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SECTION 1609.1.3 (STRUCTURAL DESIGN) TESTING TO ALLOWABLE OR NOMINAL LOADS

Section permitting the design wind loads determined in accordance with ASCE 7 or Section 1609 to be multiplied by 0.6 where wind load resistance testing is based on allowable or nominal wind loads. This was inadvertently left out of the 5th Edition.

SECTION 1620.6 (STRUCTURAL DESIGN) ROOFTOP EQUIPMENT AND STRUCTURES

- Reorganized for clarity
- Revised to be more in line with ASCE 7-10 and consistent with ASCE 7-16
  - Adopts use of gust-effect factor
- Adds 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.

SECTION 1709 PRECONSTRUCTION LOAD TESTS

§1709.5 Exterior window and door assemblies

- Section revised to refer to the ASD load combinations for required design wind pressures. ASD load combinations include a 0.6 factor on wind load.
- Added to Exception 3 – lineal components may vary in length compared to the tested system. Clarified the 'shall not exceed area of the tested approved unit' requirement.

SECTION 1709 PRECONSTRUCTION LOAD TESTS

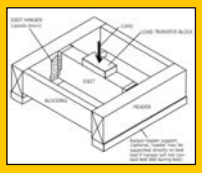
- Updated references for testing labeling of Exterior windows and doors to AAMA/WDMA/CSA101/I.S.2/A440. Exterior side-hinged doors are also permitted to comply Section 1709.5.2.
- The exception for custom doors formerly in § 1710.5.2 has been relocated to §1709.5. New language requires signed and sealed copies of the rational analysis and calculations to be provided to the building official upon permit application for custom doors.

§1709.5.2 Deflection (mullions)

- Deflection limits have been strengthened by limiting spans up to 13 foot 6 inches to L/175 and spans over 13 foot 6 inches to L/240.

SECTIONS 2303.5 & 2304.9.3 JOIST HANGERS

- Joist hangers are now required to conform to the requirements of ASTM D7147
- Moved from Chapter 17



CHANGES TO REFERENCED TEST STANDARDS FOR THE HVHZ

TAS 100(A)-95, TEST PROCEDURE FOR WIND AND WIND DRIVEN RAIN RESISTANCE AND/OR INCREASED WINDSPEED RESISTANCE OF SOFFIT VENTILATION STRIP AND CONTINUOUS OR INTERMITTENT VENTILATION SYSTEM INSTALLED AT THE RIDGE AREA

New section 9.6 permits additional fastener installation during testing to ensure roof covering performance does not interfere with the evaluation of ventilation materials. Additional fasteners are not permitted to contribute to the wind load resistance of the ventilation materials.

CHANGES TO REFERENCED TEST STANDARDS FOR THE HVHZ

TAS 103: Test Procedure for Self-Adhered Underlayments for Use in Discontinuous Roof Systems

- Conditions for failure have been revised from any deflection or significant blistering as any test specimen that exhibits any significant separation between the membrane and tested substrate.

REFERENCES

Analysis of Changes for the 6th Edition (2017) Florida Codes; http://www.floridabuilding.org/fbc/thecode/2017-6edition/Analysis_of_Changes_6th_Ed_FBCB.pdf

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