

## Roof Assemblies and Wind Mitigation

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### Course Information

Roof Assemblies and Wind Mitigation

1 Hour Wind Mitigation Credit  
 Training Provider:  
 Florida Home Builders Association  
 1319 Thomaswood Dr. Tallahassee, FL 32308  
 Phone: (850)402-1849  
 FHBA.com  
 CILB & BCAIB Provider # 0000916  
 FBPE Provider # 0008653

CILB Approval # 0615148  
 BCAIB Approval # Reciprocal  
 Instructor: Shane Gerwig, [southeastcode@gmail.com](mailto:southeastcode@gmail.com)



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### Outline

- Introduction, scope, and application
- Roof covering materials and installation
- Underlayment, flashing, and moisture protection
- Wind mitigation, fastening schedules, and uplift
- Discussion



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**Florida Statutes 553.844 Wind Loss Mitigation**

- (1) The Legislature finds that:
  - (a) The effects of recent hurricanes on the state have demonstrated the effectiveness of the Florida Building Code in reducing property damage to buildings constructed in accordance with its requirements, and have also exposed a vulnerability of some construction undertaken prior to implementation of the Florida Building Code.



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**Florida Statutes 553.844 Wind Loss Mitigation**

- (b) Hurricanes represent a continuing threat to the health, safety, and welfare of the residents of this state due to the direct destructive effects of hurricanes as well as their effects on windstorm insurance rates.
- (c) The mitigation of property damage constitutes a valid and recognized objective of the Florida Building Code.
- (d) Cost-effective techniques for integrating proven methods of the Florida Building Code into buildings built prior to its implementation benefit all residents of the state as a whole.



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**Florida Statutes 553.844 Wind Loss Mitigation**

- (2) The Florida Building Commission shall:
  - (a) Analyze the extent to which a proposed Florida Building Code provision will mitigate property damage to buildings and their contents in evaluating that proposal. If the nature of the proposed Florida Building Code provision relates only to mitigation of property damage and not to a lifesafety concern, the proposal shall be reviewed based on its measurable benefits in relation to the costs imposed.



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### Florida Statutes 553.844 Wind Loss Mitigation

- (2) The Florida Building Commission shall:
- (b) Develop and adopt within the Florida Building Code a means to incorporate recognized mitigation techniques for site-built, single-family residential structures constructed before the implementation of the Florida Building Code



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### Florida Statutes 553.844 Wind Loss Mitigation

Topics adopted by October 1, 2007:

- Gable end bracing
- Roof secondary water barrier
- Roof to wall connectors
- Strengthening roof-decking attachments
- Adding or strengthening opening protections



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Florida Building Code Effective Dates

Effective Date	Code Edition	2001 FBC	2004 FBC	2007 FBC	2010 FBC	5th Edition (2014)	6th Edition (2017)	7th Edition (2020)	8th Edition (2023)
March 1, 2002	Original								
June 30, 2003	2003 Supplement								
Oct 1, 2005	Original								
Dec 16, 2005	2005 Supplement								
Dec 8, 2006	2006 Supplement								
July 1, 2007	2007 Supplement								
March 1, 2009	Original								
March 1, 2009	1st 2009 Supplement								
Oct 1, 2009	2009 Supplement								
March 15, 2012	Original								
April 15, 2012	2012 Supplement								
June 30, 2015	Original								
July 1, 2016	Supplement 1								
October 8, 2016	Supplement 2								
December 31, 2017									
December 31, 2020									
December 31, 2023									Current Version



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### Florida Statutes Section 553.73

(1)(a) The (building) commission shall adopt, by rule pursuant to ss. 120.536(1) and 120.54, the Florida Building Code which shall contain or incorporate by reference all laws and rules which pertain to and govern the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities and enforcement of such laws and rules, except as otherwise provided in this section.

- (b) Florida Accessibility Code
- (c) Florida Fire Prevention Code



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### Scope and Application

**Florida Administrative Code: 61G20-1.001 Florida Building Code Adopted.**

The 6th Edition Florida Building Code, (2023), as updated by the Florida Building Commission on June 20, 2023 incorporated herein by reference is hereby adopted as the building code for the State of Florida.



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### Scope and Application

**Building Section 101.2**

The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.



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### Scope and Application

#### Building Section 101.2 Exception 1

Detached one- and two-family *dwellings* and multiple single-family *dwellings* (*townhouses*) not more than *three stories above grade plane* in height with a separate *means of egress*, and their accessory structures not more than *three stories above grade plane* in height, shall comply with the *Florida Building Code, Residential*.



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### Scope and Application

#### Residential Section R101.2 Exception 3

Existing buildings undergoing repair, alteration, additions or changes of occupancy shall comply with the *Florida Building Code, Existing Building*.



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### Scope and Application

#### Existing Building R101.2 Scope

The provisions of the *Florida Building Code, Residential* shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, *equipment*, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and *townhouses* not more than *three stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than *three stories above grade plane* in height.



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Existing Roofing Provisions of Florida Building Code-Residential

R908.7 Wind Mitigation for Roofing - When a roof covering on an existing structure is removed and replaced, the following procedures shall be permitted to be performed by the roofing contractor:

- (a) Roof-decking attachment shall be as required by Section R908.7.1.
  - 8D Nails
  - 0.113" in diameter
  - Minimum 2 1/4" long
  - Two fasteners in each framing member for plank
  - 6" on center for panel sheathing

(b) A secondary water barrier shall be provided as required by Section R908.7.2. (Refers back to R905.1.1)



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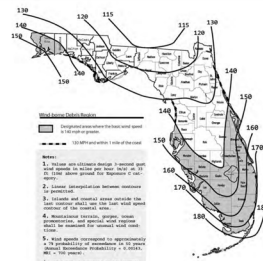
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Existing Roofing Provisions of Florida Building Code-Residential



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R905 Requirements for Roof Coverings

Underlayment Requirements are Now Consistent with the IBHS Fortified Sealed Roof Deck Provisions

- Does not apply to HVHZ
  - HVHZ
    - 4"-6" Modified bitumen tape
    - 30# Felt or synthetic attached with tin tabs
- Does not apply to structural metal panels



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### R905 Requirements for Roof Coverings

#### R905.1.1 Underlayment Options

- Self-adhering polymer-modified bitumen underlayment installed per manufacturer's instructions
- 3 3/4" strips of self-adhering polymer-modified bitumen underlayment or 3 3/4" flashing tape installed at joints in the roof deck and underlayment installed in accordance with Table R905.1.1.1 or manufacturer's instructions



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### R905 Requirements for Roof Coverings

#### R905.1.1 Underlayment Options

- Two layers of Type II, III, IV, or synthetic underlayment
  - 19" Starter (half of the width for synthetic)
  - Overlapping joints by 6" offset by 6'
  - Fastened 6" on edge and 12" in the field
  - Specific corrosion-resistant tabbed fasteners with minimum 3/4" embedment



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### Existing Roofing Provisions of Florida Building Code-Residential

**R908.8** - When a roof covering on an existing site-built single family residential structure is removed and replaced on a building that is located in the **wind-borne debris region** as defined in the Florida Building Code, Building and that has an insured value of **\$300,000** or more or, if the building is uninsured or for which documentation of insured value is not presented, has a just valuation for the structure for purposes of ad valorem taxation of \$300,000 or more:(a) Roof to wall connections shall be improved as required by Section R908.8.1(b) Mandated retrofits of the roof-to-wall connection shall not be required beyond a 15 percent increase in the cost of re-roofing.



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Existing Roofing Provisions of Florida Building Code-Residential

FBC, Existing Building 706.8 Prescriptive requirement for wind-borne debris region

- Additional connectors may be necessary
- Connections calculated using Table 706.8.1 or engineered design
- Not required if roof to foundation continuous load path was required at time of construction
- Gables and corners take priority
- If panels are removed for access, they shall not be reused
- Specific patch requirements
- Gable end attachment
  - Wood framed wall
  - Masonry wall
- Hip roof attachment
  - Wood framed wall
  - Masonry wall



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Existing Roofing Provisions of Florida Building Code-Residential

R908.3 Recovering versus replacement - New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:

1. Water-soaked or deteriorated
2. Where the existing roof covering is wood shingle or shake, slate, clay, cement or asbestos-cement tile.
3. Two or more applications
4. Blisters that are not repaired or removed
5. Where the existing roof is to be used for attachment for a new roof system and compliance with the securement provisions of Section R905 cannot be met.



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Existing Roofing Provisions of Florida Building Code-Residential

R908.5 Reinstallation of Materials - Existing slate, clay or cement tile shall be permitted for re installation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Any existing flashings, edgings, outlets, vents or similar devices that are a part of the assembly shall be replaced where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.



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**Existing Roofing Provisions of Florida Building Code-Residential**

**R908.6 Flashings** - Flashings shall be reconstructed in accordance with approved manufacturer's installation instructions or in compliance with RAS 111. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.



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**Common Building Code Roofing Violations**

- Failure to Replace Damaged Sheathing or Structural Members
  - **R908.2 Structural and construction loads.** The structural roof components shall be capable of supporting the roof covering system and the material and equipment loads that will be encountered during installation of the roof covering system.



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**Common Building Code Roofing Violations**

- Installing a New Roof Over an Existing One Where Not Permitted
  - **R908.3 Recovering versus replacement.** New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:
    - Water soaked or deteriorated
    - Not the correct roofing materials type
    - Two or more applications of roof material
    - Blisters exist
    - R905 securement provisions can not be met



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**Common Building Code Roofing Violations**

- Improper or missing Flashing
  - **R908.6 Flashings.** Flashings shall be reconstructed in accordance with approved manufacturer’s installation instructions or in compliance with RAS 111. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.



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**Common Building Code Roofing Violations**

- Non-compliant fasteners or nailing patterns
  - **R905.2.5 Fasteners.** Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (3 mm)] shank with a minimum 3/8-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and not less than 3/4 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing.



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**Common Building Code Roofing Violations**

- Incorrect underlayment installation
  - **R905.1.1.1**



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**Common Building Code Roofing Violations**

- Failure to provide product approval documentation
  - **R905.1 Roof covering application.** Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.



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**Common Building Code Roofing Violations**

- Improper attic ventilation after reroofing
  - **R806.1 Ventilation required.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings
  - **401.3 Conformance.** The work shall not make the building less conforming than it was before the *repair* was undertaken. (Florida Building Code, Existing Building)



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**Common Building Code Roofing Violations**

- Failure to retrofit roof-to-wall connections
  - **R908.8** - When a roof covering on an existing site-built single family residential structure is removed and replaced on a building that is located in the **wind-borne debris region** as defined in the Florida Building Code, Building **and** that has an insured value of **\$300,000** or more or, if the building is uninsured or for which documentation of insured value is not presented, has a just valuation for the structure for purposes of ad valorem taxation of \$300,000 or more:(a) Roof to wall connections shall be improved as required by Section R908.8.1(b) Mandated retrofits of the roof-to-wall connection shall not be required beyond a 15 percent increase in the cost of re-roofing.



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