Roof Ceiling Construction

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Course Information

Advanced Florida Building Code 2023: Roof Ceiling Construction

1 Hour Advanced Building Code 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 # 0615377 | 1335.0 FBC
BCAIB Approval # Reciprocal
Instructor: Shane Gerwig, southeastcode@gmail.com

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Overview

- Based on Chapter 8, FBC Residential
- Roof ceiling system design and compliance
- Framing, bracing, materials, finishes, and resistance requirements
- Prescriptive and engineered design methods

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Eighth Edition Changes

- Snow and seismic references removed
- Clarified sheathing thickness and fasteners
- Clarified that coatings do not make wood products fire treated

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R601 General

- Chapter 6 governs roof-ceiling construction
- Applies to one- and two-family dwellings & townhouses
- High Velocity Hurricane Zone use Florida Building Code, Building

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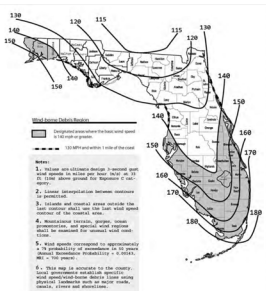
Existing Roofing Provisions of Florida Building Code-Residential



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R801 Requirements

- Design
  - Capable of accommodating all loads imposed per R301
    - Wind
    - Gravity
    - Flood (R322)
- Ability for the roof to drain

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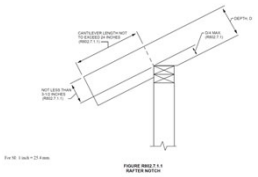
R802 Wood Roof Framing

- Rafter cutting and notching
  - Cantilevered portion may be reduced to 3 ½" up to 24"



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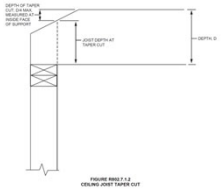
R802 Wood Roof Framing

- Rafter cutting and notching
  - Ceiling joist taper cuts according to Figure R802.7.1.2.



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R802 Wood Roof Framing

- Rafter cutting and notching
  - Engineered wood products
    - Registered design professional
    - Manufacturer instructions

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R802 Wood Roof Framing

- Truss drawings
  - Prepared by registered design professional
  - Be braced to prevent rotation and provide lateral stability
  - No cutting, drilling, notching without design professional approval
  - Equipment weight shall be considered

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R802 Wood Roof Framing

- Truss drawings
  - Prepared by registered design professional
  - Be braced to prevent rotation and provide lateral stability
  - No cutting, drilling, notching without design professional approval
  - Equipment weight shall be considered

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R802 Wood Roof Framing

- Truss design drawings are provided to the building official and approved prior to installation.
  - Slope or depth, span and spacing
  - Location of all joints
  - Required bearing widths
  - Design loads
  - Adjustments to lumber and joint connector design values
  - Joint connector type and description
  - Lumber size, species, and grade

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R802 Wood Roof Framing

- Truss design drawings are provided to the building official and approved prior to installation.
  - Connection requirements
    - Truss to girder
    - Truss ply to ply
    - Field splices
  - Required permanent truss member bracing location

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R803 Roof Sheathing

- Allowable spans
  - Engineered design or Table R803.2.2

TABLE R803.2.2
MINIMUM ROOF SHEATHING THICKNESS

Rafter/Truss Spacing 24 in. o.c.	WIND SPEED							
	115 mph	120 mph	130 mph	140 mph	150 mph	160 mph	170 mph	180 mph
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure B	7/16 (24/16)	7/16 (24/16)	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure C	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure D	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)	23/32 (48/24)

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R803 Roof Sheathing

- Sheathing fasteners
  - Ring shank that meets ASTM F1667
  - 2 ½” x 0.131 x0.281 head diameter
  - 15/32” sheathing or less
    - 2 3/8” x 0.113”
    - 3” x 0.120” x 0.281 head diameter

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R803 Roof Sheathing

- Sheathing fastening pattern per T-R803.2.3.1

TABLE R803.2.3.1
ROOF SHEATHING ATTACHMENT[a, b]

Rafter/Truss Spacing 24 in. o.c.	WIND SPEED															
	115 mph		120 mph		130 mph		140 mph		150 mph		160 mph		170 mph		180 mph	
	E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
Exposure B																
Rafter/Truss SG = 0.42	6	6	6	6	6	6	6	6	6	6	4	4	4	4	4	4
Rafter/Truss SG = 0.49	6	12	6	12	6	6	6	6	6	6	6	6	6	6	6	6
Exposure C																
Rafter/Truss SG = 0.42	6	6	6	6	6	6	4	4	4	4	4	4	3	3	3	3
Rafter/Truss SG = 0.49	6	6	6	6	6	6	6	6	6	6	6	6	4	4	4	4
Exposure D																
Rafter/Truss SG = 0.42	6	6	6	6	4	4	4	4	4	4	3	3	3	3	3	3
Rafter/Truss SG = 0.49	6	6	6	6	6	6	6	6	4	4	4	4	4	4	4	4

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R806 Roof Ventilation

- Opening requirements
  - 1/16” opening minimum
  - ¼” opening maximum
  - Open directly to outside air
  - Prevent birds rodents and snakes.

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R806 Roof Ventilation

- Vent area
  - 1/150 of the area of the vented space
  - 1/300 of the area if the following are met
    - 40-50 percent of vent area is within 3' of ridge
    - Remainder located at bottom third of space

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R806 Roof Ventilation

- Unvented attic spaces exception
  - Completely within the building thermal envelope
  - Class I vapor retarders are not installed within the roof ceiling framing assembly
  - Air diffuser ports provided and of sufficient size
  - Insulation provided in accordance with this section

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R807 Attic Access

- Required when
  - Attic area is over 30 square feet and has a vertical height of 30"
- 22" x 30" Minimum size
- Access must have 30" above unobstructed
- Located in a hallway or other location with ready access
- See Dec. Statement DS2025-010

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110.3 Required Inspections

- Framing inspection
  - Roof, framing, fireblocking is in place
  - Framing/trusses/bracing/connectors
  - Draftstopping/fireblocking
  - Energy insulation
  - Sheathing inspection including fasteners
  - Soffit coverings

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Contractor Responsibility

- Work must comply with applicable codes
- Willful building code violations
  - Deny
  - Suspend
  - Revoke

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Common Violations

- Improper rafter and ceiling joist spans
- Incorrect or missing collar ties or rafter ties
- Noncompliant truss installation
- Inadequate attic ventilation
- Improper roof sheathing installation
- Lack of uplift resistance
- Improper bearing support

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