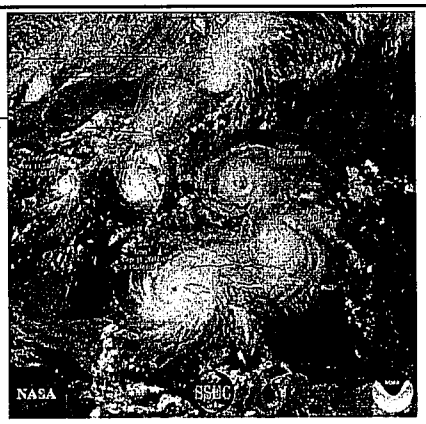


Florida Building Code Advanced Training – updated for ICC

Florida Building Commission
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Fl. 23299-2100
850.487.1824
www.floridabuilding.org

Building Code - Components

- The *Florida Building Code, Building* provisions apply to every building except:
  - Detached one- and two-family dwellings, and townhouses of not more than 3 stories
    - Refer to the *Florida Building Code, Residential*
  - Existing buildings
    - Refer to the *Florida Building Code, Existing Buildings.*

101.3 Purpose and Scope

- 101.3.1 General
- Code is remedial
- Strives to protect public safety, health and general welfare from fire and other building related hazards
- Addresses all aspects of a building's structure

101.3 Scope and Interpretation

- 101.3.2 Quality Control
- Quality control of materials and workmanship is generally **not** addressed
- 101.4.1 Where sections conflict, the more specific and more restrictive governs

Applicability

- 101.4.2 Building
- The provisions of the FBC apply to the construction, erection, alteration, modification, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every public and private building, structure or facility or floating residential structure, or any appurtenances connected or attached to such buildings, structures or facilities.

101.4.2 Alterations/Occupancy

- Any alteration of the original building structure / use / occupancy group is governed by Chapter 34 and the Existing Buildings portion of the code
- Also, 1001.2 Alterations

  No alteration is allowed that makes it more difficult for people to exit a building

  No change of occupancy is allowed unless it conforms with the regulations in this chapter

101.4.2 Exemptions

- Federal Buildings
- Railroads
- Nonresidential farm buildings
- Temporary buildings or sheds used exclusively for construction purposes
- Mobile Homes used as temporary offices
- Electric utilities
- Temporary sets for commercial motion picture production
- Chickees

101.4 Applicability

The code does not apply to :

Zoning requirements

Land use requirements

Owner specifications or programmatic requirements

101.4.2.2 Applicability

- In addition the requirements of

  F.S.553 (Building Construction Standards)

  F.S.395 (Hospitals)

  F.S. 400 (Nursing Homes)

  Shall have their plans reviewed and construction surveyed by appropriate agency

Format of the Residential Code

Building	Chapters 1–10
Energy	Chapter 11 (Chapter 13 of FBC)
Mechanical	Chapters 12–23 Mechanical
Fuel Gas	Chapter 24
Plumbing	Chapter 25–32
Electrical	Chapter 33 (Reference NFPA 70A)
Swimming Pool	Chapter 41
Referenced Standards	Chapter 43
High Velocity Hurricane Zone	Chapter 44
Appendices	

Residential Code - Administration

- **R101.1 Title.** These provisions shall be known as the *Florida Building Code, Residential.*
- **R101.2 Scope.** The provisions 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 in height with a separate means of egress and their accessory structures. Construction standards or practices which are not covered by this code shall be in accordance with the provisions of the *Florida Building Code, Building.*
  - **Exception:** Existing buildings undergoing repair, alteration or additions, and change of occupancy shall comply with the *Florida Existing Building Code.*

Residential: Building planning

- No more construction types
- No area limitations - Table 500 is gone
- Height is limited to 3 stories
  - Buildings taller than 3 stories must use the *Florida Building Code, Building*

Section R301: Design Criteria

- **R301.1 Design**
  - **Exception:** Buildings and structures located within the High Velocity Hurricane Zone shall comply only with Sections R302 to R324, inclusive and the provisions of Chapter R44.

Section R301: Design Criteria

- **R301.1.2 Construction systems.** The requirements of this code are based on platform and balloon-frame construction for light-frame buildings. The requirements for concrete and masonry buildings are based on a balloon framing system. Other framing systems must have equivalent detailing to ensure force transfer, continuity and compatible deformations.

Section R301: Design Criteria

- **R301.1.3 Engineered design.**
  - Structural elements exceeding the limits of Section R301 or otherwise, not conforming to this code, shall be designed in accordance with accepted engineering practice.
  - The extent of such design need only demonstrate compliance of non-conventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system.
  - Engineered design in accordance with the Florida Building Code is permitted for all buildings and structures, and parts thereof.

Section R301: Design Criteria

- **R301.2.1 Wind limitations.**
  - Buildings and portions thereof shall be limited by wind speed, as defined in Table R301.2(1).
  - Basic wind speeds shall be determined from Figure R301.2(4).
  - Where loads for windows, skylights and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure per Table R301.2(3)

101.4.2.3 Moved Residential Structures

- Residential structures moved into/within a county or municipality are not required to comply with the FBC regulations in force at the time, provided they are:
  - Structurally sound
  - No change in occupancy
  - Not substantially remodeled
  - Meet current fire code requirements for entrances and exits

Moved residential structures…

- Their electrical, gas, and plumbing systems:
  - Met the code in force at the time of construction
  - Are operational and safe for reconnection

Their foundation plans are sealed by an engineer or architect licensed to practice in Florida, if required

101.4.2.3.1 Moved Buildings

- Building Official will apply same standard used for remodeling of other residential structures
- Exempts cost of foundations from calculation

102.2 Building

....The following buildings, structures, and facilities are exempt from the *Florida Building Code* as provided by law, and any further exemptions shall be as determined by the Legislature and provided by law:

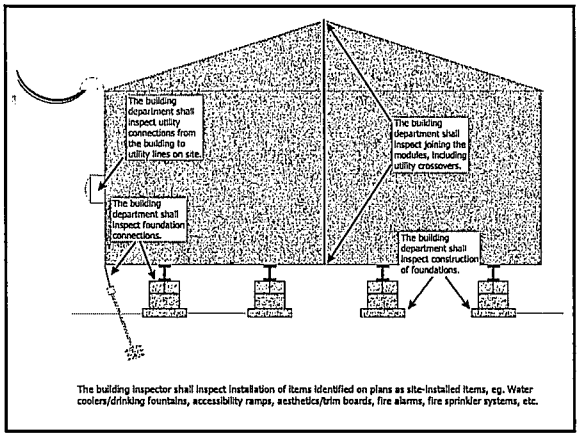
...(e)Mobile or modular structures used as temporary offices, except that the provisions of Accessibility

New sections added

- **102.7 Relocation of manufactured buildings.** (1) Relocation of an existing manufactured building does not constitute an alteration.
- (2) A relocated building shall comply with wind speed requirements of the new location, using the appropriate wind speed map. If the existing building was manufactured in compliance with the Standard Building Code (prior to March 1, 2002), the wind speed map of the Standard Building Code shall be applicable.

102.7 Relocation of Manufactured Buildings

- Relocation of an existing manufactured building does not constitute an alteration.
- A relocated building shall comply with wind speed requirements of the new location, using the appropriate wind speed map. If the existing building was manufactured in compliance with the Standard Building Code (prior to March 1, 2002), the wind speed map of the Standard Building Code shall be applicable.



Existing Buildings Table of Contents

- Table of Contents
- . Chapter 12 Compliance Alternatives
- • Chapter 13 Safeguards During Construction.
- • Chapter 14 Referenced Standards
- • Appendix A Reserved
- • Appendix B Guidelines for Rehabilitating Historic Buildings
- • Appendix C – NFPA 914 Fire Protection for Historic Structures
- Appendix C – Survey criteria for a Historic Structures
- Appendix I – Guideline on Fire Ratings of Archaic Materials and Assemblies.
- • Appendix D Type of Construction
- • Chapter 1 Administration
- • Chapter 2 Definitions
- • Chapter 3 Classification of work
- • Chapter 4 Repairs
- • Chapter 5 Alteration Level 1
- • Chapter 6 Alteration Level 2
- • Chapter 7 Alteration Level 3
- • Chapter 8 Change of Occupancy
- • Chapter 9 Addition
- • Chapter 10 Historic Buildings
- . Chapter 11 Relocated or Moved Buildings

Existing Buildings, Administration

- **Scope:** repair, alteration, change of occupancy, addition, and relocation of existing buildings.
- **Exception - Public educational facilities and state licensed facilities** must comply with Chapter 4, Special Occupancy.
- **Chapter 1, Florida Building Code, Building** must govern the administration and enforcement of this Code.

Important Definition

- **Substantial Structural Damage:**
  In any story, the vertical elements of the lateral force-resisting system has suffered damage such that the lateral load-carrying capacity has been reduced by more than 20%.
- The vertical load-carrying components supporting more than 30 percent of the structure's roof or roof area have suffered a reduction in vertical load-carrying capacity to below 75%.

How work is classified

- **Repair**
- **Alteration - Level 1, Level 2, Level 3**
- **Change of Occupancy**
- **Addition**
- **Relocated Buildings**
- **Historic Building**

Repairs

- **General (s.407.1):**
  - Non structural repairs the cost of which is less than or equal 25% of the replacement value of
- existing building may be made of the same materials.
- - Wind design as per codes in effect when the building was permitted.
- - Reduction in the structural strength is allowed, provided the capacity is not reduced below FBC, Buildings levels.

Repairs

- Categories of Work
- **Repair (sec. 302.1):**
- Patching or restoration of materials, elements,
  equipment or fixtures for the purpose of maintaining such materials, elements, equipment, or fixtures in good or sound condition.
- **Note:** Repair does not include reconfiguration of space

Repairs Continued

- **Permitted materials, s. 401.2:**
  like materials are allowed as long as no hazard to life and heath.
- **Conformance, s. 401.3:**
  repair must not reduce level of safety existed before the repair was undertaken.
- **Flood hazard areas, s. 401.4:**
  - Structure seaward of a coastal construction line (see 3109 of the FBC, Building).
  - Flood plain construction. Defers to the local as per Title 44 CFR, Section 59 and 60.

Level 1 Alteration

- **Non structural alteration (s. 507.2):**
  - Non-structural alteration the cost of which is less than or equal 25% of the replacement value of existing building may be made of the same materials.
- **• Replacement of roofing or equipment (507.2.1):**
  - when results in additional dead load must comply with the vertical load of the FBC, Building.

Level One Alteration

- **Alteration - Level 1 (s. 303.1):**
  - Removal and replacement, or covering of existing materials, equipment, fixtures using new materials that serve the same purpose.
- - Alteration –Level 1 does not include `reconfiguration of space.

Level 2 Alterations

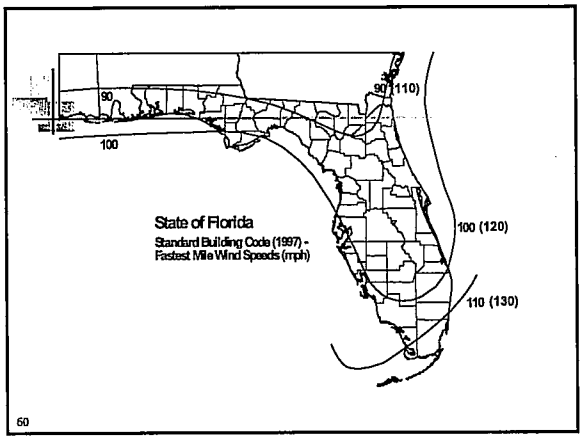
- ***Apply where the work area exceeds 50% of the floor area on any floor. Ch. 6 provisions apply to the entire floor for the following:***
- - Shafts and floor openings.
- - Interior finish.
- - Fire suppression and detection.
- - Corridor openings.
- - Means of egress lighting and exit signs.

Level 3 Alterations

- Chapter 7 Alterations-Level 3
- General
- Level 3 Alteration is level 2 alterations where the work area exceeds 50% of the aggregate area of the building (total floors area).
- Work area is defined as that portion or portions of a building consisting of all reconfigured spaces, as indicated in the construction documents.

ICC Exposure classifications

- The ICC, designed to cover a wide geography, introduces a number of physical condition exposure characteristics in much the same way that the Florida Building Code approached wind speeds. These include seismic zones and high probability termite zones. The FBC incorporates these and adds the High Velocity Hurricane Zone



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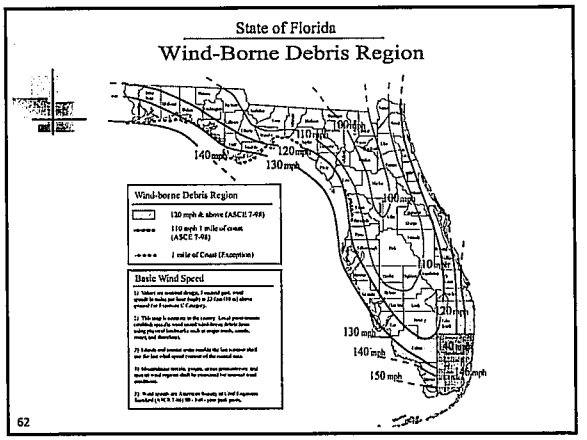

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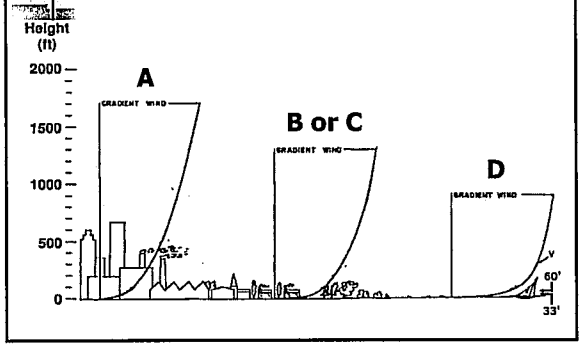
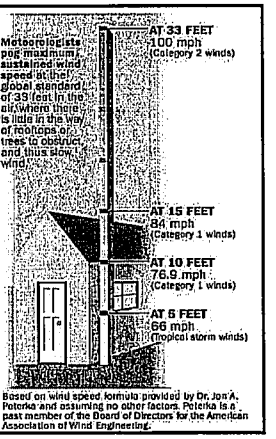
Wind characteristics:

Variation of Wind Speed with Exposure

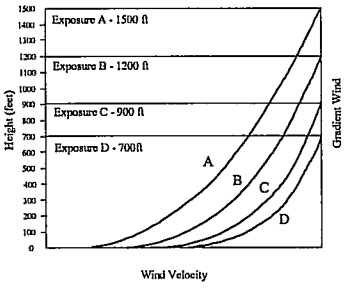


Wind speeds are clocked above most buildings

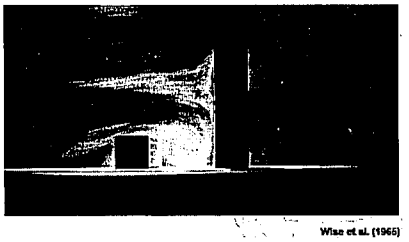
What's felt on the ground usually is not as strong as the maximum sustained winds measured by the National Hurricane Center. Here are projected sustained wind speeds at various heights in a suburban area during a Category 2 hurricane.



Wind characteristics



Wind characteristics

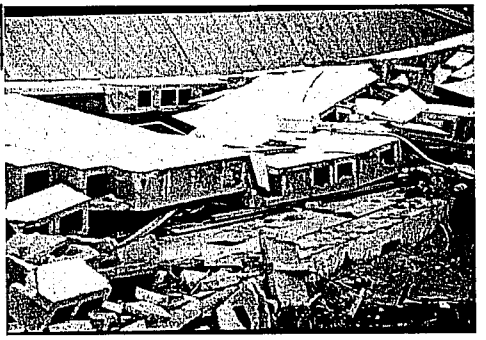


Wise et al. (1966)

Wind-Borne Debris Regions (FBC)

- Areas within one mile of the coastal mean high water line where the basic wind speed is 110 mph or greater.
- Areas where the basic wind speed is 120 mph or greater except from the eastern border of Franklin County to the Florida-Alabama line where the region includes areas only within one mile of the coast.

Failure Due to Wind Pressure



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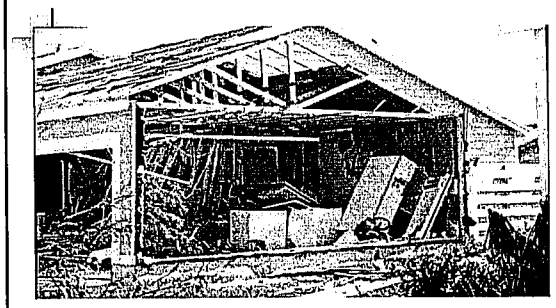
Failure Due to Wind Pressure



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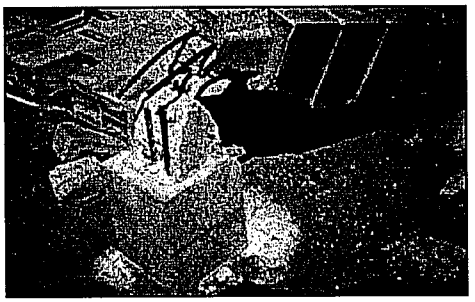
Debris Damage to Envelope

Failure Due to Wind Pressure



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101.4.2.4 Other Agencies

- Dept. of Agriculture and Consumer Services is responsible for inspection of amusement rides
- Department of Insurance is responsible for inspection of state owned buildings and boilers

101.4.2.5 Local Boards

- Enforcement districts governed by a board
- Board composition determined by affected localities
- May adopt rules granting owner of a single family home (limited) exemptions from FBC

101.4 Federal Authority

- 101.4.7 Federal and State Authority
- Feds preempt the States
- The State may have additional, or more stringent, regulations for its buildings, but still must enforce the FBC

101.4.8 Appendices

- Appendices – Must be adopted for use by the local jurisdiction

A – Weights of Building Materials

B – Passive radon resistant new construction

C – Mitigation of radon in existing buildings

101.4.8 Appendices

- Appendices – Must be adopted for use by the local jurisdiction

D – Standards for Rehabilitation

E – Radon – Resistant New Commercial Building construction

101.4.8 Radon

Radon is a naturally occurring radioactive particle. It is an "alpha" (weak) particle and can be found in soil gas and building materials

Exposure to radon over time has an adverse affect to the respiratory system

101.4.8 Radon

Whether radon is in a particular house depends upon 2 things:

1. Is it present
2. Is the air pressure character of the house negative (draws air i)

101.4.8 Radon

Initial radon test is done via placement of canisters throughout building with charcoal inside.

One canister for every 400 sq. ft.

Placed at eye level, away from doors and windows

Remain for 24 – 48 hours and sent to lab

101.4.8 Radon

Removing radon consists of "action levels", the first is to seal the slab and ventilate the property. Next is to change air pressure character of property so that soil gas cannot be drawn in. This later activity may require vent piping under the slab.

101.4.8 Radon

Radon resistant techniques consist of

1. Increased attention to moisture barriers in slabs to prevent air infiltration
2. Slab cracking control and reduction
3. Installing under slab systems for possible future use

101.4.9 Referenced Standards

- Standards are integral
- If specific parts of a standard are stated in code text, only those portions enforced
- Where code conflicts with standards, code will be enforced
- Permissive and advisory provisions in standard not necessary

104.11 Accessibility

- Chapter 11 has provisions

Accessibility Code – essentially a commercial code

Fair Housing – applies technical requirements to multi family housing

Energy

- Chapter 13 – Applies Florida Energy Code, both commercial and residential applications

The 2001 Energy Code

- On March 1, 2002 the Florida 2001 energy code provisions took effect.
- The new energy code provisions are more stringent than the previous energy code provisions. (Stringency increase depend on climate.)
- The Code now reflects 2 code amendment cycles.

Energy Code Forms and Software

- Performance method emphasis
- Energy code forms
- Baseline changes

Updated Energy Code Forms

- Numerous updated multipliers have been incorporated into the Energy Code forms
- Forms are separated into three geographical categories: North, Central and South Florida
- Updated forms can be found at: http://www.dca.state.fl.us/fhcd/fbc/committees/energy/energy_forms/1_energy_forms.htm

103 Powers and Duties of Building Official

- 103.7.1 Codes not intended to prevent use of alternate methods and materials, as long as they are reviewed by building official
- Alternate life safety systems designed, the SFPE Engineering Guide to Performance-Based Fire Protection Analysis and Design of Buildings or other methods approved by the building official may be used.

103 Powers and Duties of Building Official

- The Building Official is also responsible for determining the "zone" or "zones" applicable to his or her jurisdiction.
- These include the "High Velocity Hurricane Zone" and "High Wind borne debris Zone"

104 Permits

- 104.1.1 When required

Anyone desiring to construct, enlarge, alter, repair , etc. a building or structure, or any outside area being used as a part of the building's designated occupancy, or any system that is regulated by the technical codes, must obtain the required permit.

104.1.1 Permit Exceptions

- Any portable heating, cooling, or ventilation equipment
- Any steam, hot or chilled water piping within any heating or cooling equipment regulated by this code
- Replacement of any part which does not alter its approval or make it unsafe

104.1.1 Permit Exceptions

Any self contained refrigeration system:

- Containing 10 lb or less of refrigerant
- With a motor of 1 hp or less

The installation, replacement, removal, or metering of any load management control device

104.1.2 Temporary Structures Permit Application

- Special, limited time building permits are required for erection of temporary structures used in construction work (I.E. sheds, fences) or for temporary purposes (I.E. reviewing Stands)
- Must be completely removed by expiration of permit

104.1.3 Permit Work Authorized

- A building, electrical, gas, mechanical or plumbing permit shall carry with it the right to construct or install the work, provided:
  - The same is shown on the drawings and
  - Set forth in the specifications filed with the application for the permit

Where conditions not met, separate permits required

104.1.4 Minor Repairs

- The building official may approve ordinary, minor repairs without a permit as long as the repairs do not violate any technical codes.

104.1.5 Permit Information Required

- General work description
- Owner or agents signature
- Proposed occupancy of building and site
- Date of application and code in effect at the time

104.1.6 Time Limitations

- Permit not issued within 6 months is considered abandoned
- One or more extensions of 90 days or less each may be allowed if:
  - Requested in writing
  - Justifiable cause demonstrated

104.1.7 Annual Facility Permit

- Group F occupancies
- Allows for service upkeep, equipment installation and relocation
- Includes existing electrical, gas, mechanical, plumbing or interior no structural office system(s)
- Requires building official notification for major changes

104.1.7 Annual Facility Permit

- Inspections can be made by Building Official
- Annual Fee Required
- Permit valid for one year
- Separate permit for each facility and each trade
- Application contains general work description anticipated

104.1.7.1 Annual Facility Permit - Records

- Must keep detailed records
- Reasonable access
- Form approved by building official
- End of year, copy of log submitted
- Building Official may revoke if code violation pattern exists

104.1.8 Food Permit

- Persons operating a food establishment or retail store must obtain a permit from the Department of Agriculture and Consumer Services

104.1.9 Notice of Commencement (NOC)

- NOC warning on face of each permit card in minimum 18 point, capitalized, bold-faced type
- Stipulates wording to be used

104.1.9 Notice of Commencement (NOC)

"WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RRESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FIANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORING YOUR NOTICE OF COMMENCEMENT"

104.1.10 Asbestos

- Requires enforcing agency to require asbestos statement for each permit for the demolition or renovation of an existing structure. Statement to indicate:
- Owner or operator's responsibility per F.S. 469
- Owner or operator to notify Department of Environmental Protection of intent to remove asbestos in accordance with state and federal law

104.2.1 Drawings And Specs

- Two or More copies with application
- References minimum plan review criteria
- Information about quality of materials where applicable
- Designer's signature

104.2.1.1 Drawings And Specs

- Construction documents required for roof assemblies must include
  - Type of system
  - Materials
  - Fastening Requirements
  - Flashing Requirements
  - Wind resistance rating

104.2.1.1 Drawings And Specs

- Construction documents required for roof assemblies must include
  - Type of system
  - Materials
  - Fastening Requirements
  - Flashing Requirements
  - Wind resistance rating

104.2.1.1 Drawings And Specs

- Requires Product evaluation and installation to indicate
  - Compliance with the wind criteria required for the specific site, or
  - A statement by an architect or engineer for the specific site, which must be submitted with the construction documents

104.2.2 Drawings And Specs

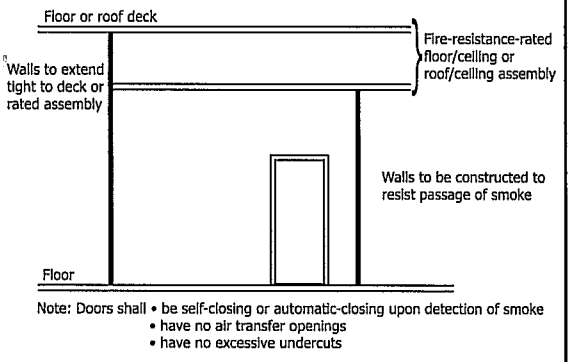
- Design Professional
  - Florida registered architects or engineers can affix their official seal to said drawings, specifications and accompanying data, as required by Florida Statute.

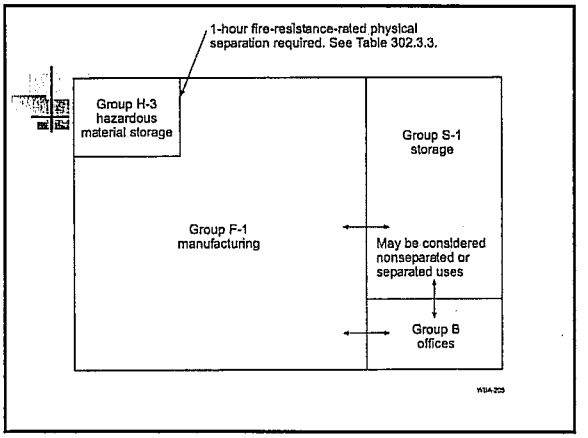
104.2.2.1 Drawings And Specs

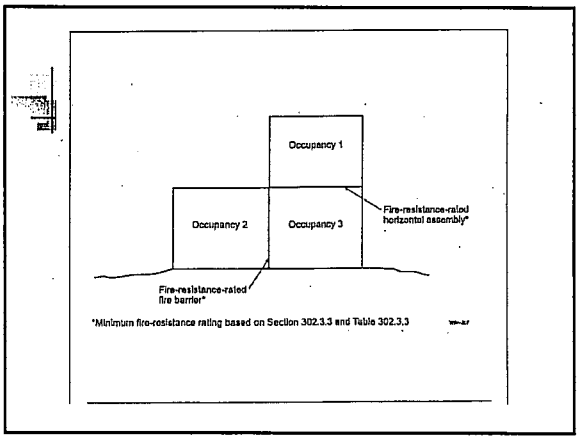
- Incorporates statutory provisions requiring contractors certifying plans for one and two family dwellings to show the plans comply with wind resistance provisions of the code or alternate methodologies approved by the Florida Building Commission
- If good cause is shown, local government may accept plans sealed by persons licensed under F.S. 471, 481 or 489.

104.2.3 Drawings And Specs

- Structural and fire resistance integrity
  - Building plans shall indicate how integrity is to be maintained at penetrations of fire resistant walls, floors, or partitions
  - Plans shall indicate how fire integrity will be maintained where fire resistant floors intersect the exterior walls, and at joints







104.2.4 Drawings And Specs

- Site Drawings must show the location of both proposed and existing structure on the site

104.2.6 Certificate of Protective Treatment for Prevention of Termites

- Certificate of Protective Treatment for Prevention of Termites
  - Requires weather-resistant posting board for posting of duplicate Treatment Certificates
    - A certificate is posted as each required protective treatment is completed
    - One copy each is required for the permittee and for the building permit files

104.2.6 Certificate of Protective Treatment for Prevention of Termites (Cont'd)

- Contents of Treatment Certificate include:
  1. Product Used
  2. Identity of applicator
  3. Time and Date
  4. Site location
  5. Area Treated
  6. Chemical Used
  7. % Concentration
  8. Gallons used

104.2.6 Certificate of Protective Treatment for Prevention of Termites (Cont'd)

- If a soil chemical barrier is used, the final exterior treatment must be completed prior to final building approval

104.2.7 Notice of Termite Protection

- Permanent sign is required. Including:
  - Treatment provider
  - The need for re-inspection and treatment contract renewal

The sign must be posted near the water heater or electric panel.

Additional provisions found in Chapters 14, 15, 18, 19, 21, 23, & 26

18.16.1.7 Additionally, Termite Protection requires

- All building have pre-construction treatment against subterranean termites
- Regulations of Florida Department of Agriculture and Consumer Services are applicable and
- A Certificate of Compliance, containing specific language, must be provided to the building department by the pest control company

104.3 Examination of Documents

- 104.3.1 Plan Review
  - Building Official is responsible for examining or causing to be examined each permit application and documentation

104.3.1 Examination of Documents - Exceptions

- Building Plans approved under F.S. 553.77(6) – manufactured buildings, except for erection, assembly or construction at the site, which are subject to local permitting and inspections

104.3.1 Examination of Documents - Exceptions

- Industrial construction on sites
  - Where approved by local government
  - Where design, construction and fire safety are supervised by appropriate design and inspection professionals and
  - Which contain adequate in house fire departments and rescue squads, providing:
  - Owners certify that applicable codes and standards have been met and provide approved drawings to building and fire safety inspectors

104.3.1.1 Minimum plan review criteria for buildings

- The building official will examine at minimum:
  - Floor plan
  - Site plan
  - Foundation Plan
  - Floor/roof framing plan or truss layout
  - All exterior elevations

  (Specific items listed in Code, Additional requirements at 1606.1.7)

104.3.1.2 Exemptions

- Replacing existing equipment such as mechanical units, water heaters, etc.
- Re-roofs
- Minor electrical, plumbing and mechanical repairs
- Annual maintenance permits
- Prototype plans, except for local site adaptations, or structures requiring a waiver

104.3.2 Affidavits

- Building official may accept sworn affidavit from registered architect or engineer
- Must agree to submit copies of inspection reports as inspections are performed and upon completion
- Any person conducting plans review or inspections must be qualified per appropriate Statute

104.4 Issuing Permits

- 104.4.1.1 Without unreasonable or unnecessary delay
- First priority to schools
- 104.4.1.2 Fees for Universities or public schools limited to actual labor and administrative costs

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- Electrical Documents
  - Aggregate service capacity is 600 or more amperes (residential) or 800 amperes or more (commercial or industrial) and costs more than $50,000

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- Plumbing Documents
  - New building or addition requiring system with more than 250 fixture units, or costs more than $50,000

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- Fire Sprinkler documents
  - New building or additional requiring system with 50 or more sprinkler heads
  - Contains provisions for design by Contractor I, II, or IV (these are designations of Fire Contractors) for new systems or alterations involving 49 or fewer sprinkler heads

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- HVAC Documents
  - New building or addition with occupancy of 100 or greater, requiring system of more than a 15 ton per system capacity designed or, system costs more than $50,000
  - Does not include replacement or repair of existing system where work does not alter structural part of the building, residential (one , two and three unit buildings)

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- HVAC Documents (Continued)
  - Certified A/C contractor can design system:
    - Is designed for fewer than 100 persons
    - Less than $50,000 value
    - When a 15 ton per system or less is designed for a singular space of a building
    - Each 15 ton system or less has an independent duct system

What do you think ? Can the A/C contractor design ?

- A space has To 10 tons systems. Each System has an independent duct system.
- Can the A/C contractor design these two systems ?

What do you think ?

- A space has To 10 tons systems. Each System has an independent duct system.
- Can the A/C contractor design these two systems ?

YES

What do you think ? Can the A/C Contractor Design ?

- A small single story office building has
  - 6 individual offices
  - Each office has a single 3 ton package a/c heat pump
  - All 6 heat pumps connected to a single water cooling tower
  - Cost $47,000
  - Entire office building has less than 100 persons

What do you think ? Can the A/C Contractor Design ?

- A small single story office building has
  - 6 individual offices
  - Each office has a single 3 ton package a/c heat pump
  - All 6 heat pumps connected to a single water cooling tower NO
  - Cost $47,000
  - Entire office building has less than 100 persons

104.4.1.3 Issuing Permits

- 104.4.1.3 Professional engineer required:
- Any specialized mechanical, electrical or plumbing document for new buildings or additions (including medical gas, oxygen, steam, vacuum, toxic air filtration, halon, or fire detection and alarm system – which costs more than $5,000

104.4.1.4 Issuing Permits – Mandatory Notice

"NOTICE: in addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies or federal agencies"

104.4.1.5 Single Family Homes – time frame

- A building permit for a single family residential dwelling must be issued within 30 days of application unless:
  - Unusual circumstances warrant
  - The permit application fails to satisfy the Florida Building Code or the enforcing agency's laws or ordinances

104.4.2 Refusal to Issue Permits

- Justified if application does not comply with requirements
- The official will return contract documents to applicant and, if requested, will put refusal and reasons for it in writing.

104.4.3 Workers Comp. Required

- Proof or Workers' compensation is required to receive a permit, except as otherwise provided in Chapter 440
  (Worker's Compensation Law)

104.4.4 Asbestos Removal

- The owner may move, remove or dispose of asbestos-containing materials on a residential building he owns and occupies as long as he does not sell or lease the property for one year after the process is complete. (also applies to farm outbuildings on his property.)
- The owner must personally appear and sign the permit application

104.5.1 Permit Intent

- Issued permits are assumed to be a license to proceed with the work, however the building official may still require a correction of errors in the plans, construction, or violations of the code.
- Every permit becomes invalid:
  - Unless authorized work begins within 6 months of date of issue or
  - If authorized work halts for 6 months after the work began

104.5.1 Permit Intent

- 104.5.1.1 If the initial permit is revoked or expires a new permit must he obtained before proceeding with the work

104.5.1 Permit Intent

- 104.5.1.2
  - Building Official may have work removed when a new permit is not obtained within 180 days from the date the initial permit became null and void
  - Provides ability to issue a new permit if work in place meets all requirements in effect at time of initial permit and any new regulations in interim

104.5.1.3 Permit Intent

- 104.5.1.3
  - Work is considered in active progress when a permit has received an approved inspection within 180 days
  - Provides exception for delays caused by strikes, riots, judicial intervention, etc.

104.5.1.4 Permit Intent

- 104.5.1.4
  - The administrative authority responsible for permits sets the fees for renewal, re-issue or extension of a permit

104.5.2 Permit Intent

- 104.5.2 Permit issued on basis of an affidavit
  - If the building official believes work or covered by a permit is hazardous or complex, the architect or engineer responsible for drawings or calculations the permit is based upon is required to supervise the work.

104.5.2 Permit issued on basis of an affidavit (Continued)

- The supervising architect or engineer is also responsible for ensuring that:
  - Work conforms to permit
  - Copies of inspection reports are filed
  - A written affidavit is filed with the building official that the work conforms to the reviewed plans and to all applicable codes.

104.5.3 Plans

- When building official issues a permit, he endorses both sets of reviewed plans "Reviewed for Code Compliance"
  - One set is kept by the official
  - Other set returned to applicant to be kept on site for inspection

104.5.4 Work Starting Before Permit Issuance

- If the building official approves, work on a project may begin before the permit is issued, but at the applicant's risk.
- The work can't

What do you think ?

- Name one exemption to the need for permits
- A water heater is to be replaced. Is a permit Necessary ?
- A roof is to be replaced. Are plans necessary ?
- Can the Building Official Grant an Accessibility Varience ?

105 Inspections

- 105.5 Posting of permit

  The permit card must be:
  - Posted in a conspicuous place at the work site
  - Posted before work commences
  - Protected from the weather
  - Positioned so the building official can make necessary entries conveniently
  - Maintained under the above conditions until Certificate of Occupancy or Completion is issued.

105 Inspections

- 105.6 Required inspections
  - The building official determines when and what is examined at each inspection
  - Establishes listing for Building Inspections: Foundation, Framing, Sheathing, Roofing, Final, Swimming Pool, Demolition

105.6 Required inspections (cont'd)

1. Foundation inspection
   - Made after trenches are excavated and forms erected
   - Includes the following building components:
     - Stem-wall
     - Monolithic slab-on-grade
     - Piling/pile caps
     - Footers/grade beams

105.6 Required inspections (cont'd)

2. Framing inspection
   - Made after the roof, all framing, fire blocking and bracing is in place; and all concealing wiring, pipes, chimneys, ducts and vents are complete
   - Includes the following building components:

- Window/door framing
- Vertical cells/columns
- Lintel/tie beams
- Framing/trusses/bracing/connectors
- Draft stopping/fire blocking
- Curtain wall framing
- Energy insulation
- Accessibility

105.6 Required inspections (cont'd)

3. Sheathing inspection
   - Made either as part of a dry-in inspection or done separately at the request of the contractor
   - After all roof and wall sheathing and fasteners are complete
   - Includes the following building components:
     - Roof sheathing
     - Wall sheathing
     - Sheathing fasteners
     - Roof/wall dry-in

105.6 Required inspections (cont'd)

4. Roofing inspection
   - Includes the following building components:
     - Dry-in
     - Insulation
     - Roof coverings
     - Flashing
5. Final inspection
   - Made after the building is completed and ready for occupancy

105.6 Required inspections (cont'd)

6. Swimming pool inspection
   - The first inspection is made:
     - After excavation and installation of reinforcing steel, bonding and main drain
     - Before placing of concrete
   - The final inspection is made:
     - When the swimming pool is complete
     - After all enclosure requirements are in place
   - To pass final inspection and receive a certificate of completion, the pool must meet the safety features described in Section 424.2.17

Public Swimming Pool 424.1.3.1.9.

- 424.1.3.1.9.
- All public pools shall be surrounded by a minimum 48 inch in height fence.
- The fence shall be continuous.
- Access through the barrier other than from doored exits of adjacent building(s) shall be through self-closing self- latching lockable gates of 48 inch.
- Safety Covers that comply with ASTM Standard F1346 do not satisfy this requirement.

Private Swimming Pool

- **424.2.17.1.16 Adjacent Waterways.** Permanent natural or permanent man-made features such as bulkheads, canals, lakes, navigable waterways, etc., adjacent to a public or private swimming pool or spa may be permitted as a barrier when approved by the authority having jurisdiction. When evaluating such barrier features, the authority may perform on-site inspections and review evidence such as surveys, aerial photographs, water management agency standards

424.2.17.1.16 – Private Pool

and specifications, and any other similar documentation to verify, at a minimum, the following:

- 1. The barrier feature is not subject to natural changes, deviations, or alterations and is capable of providing an equivalent level of protection as that provided by the code.
- 2. The barrier feature clearly impedes, prohibits or restricts access to the swimming pool or spa.

105.6 Required inspections (cont'd)

7. Demolition inspections:
   - First inspection made after all utility connections have been disconnected and secured so that no unsafe or unsanitary conditions will exist during or after demolition operations
   - Final inspection made after all demolition work is completed

105.6 Required inspections (cont'd)

8. Electrical inspections
   - Underground:
     - After trenches or ditches are excavated, conduit or cable installed
     - Before any backfill is put in place
   - Rough-in:
     - After the roof, framing, fireblocking and bracing is in place
     - Before installation of wall or ceiling membranes
   - Final:
     - After building is complete
     - After all required electrical fixtures are in place and properly connected or protected, and the structure is ready for occupancy

105.6 Required inspections (cont'd)

9. Plumbing inspections
   - Underground:
     - After trenches or ditches are excavated and piping installed
     - Before any backfill is put in place
   - Rough-in:
     - After the roof, framing, fireblocking and bracing is in place and all soil, waste and vent piping is complete
     - Before installation of wall or ceiling membranes
   - Final:
     - After the building is complete, all plumbing fixtures are in place and properly connected, and the structure is ready for occupancy (Note: See Section 312 of the FBC, Plumbing for required tests)

105.6 Required inspections (cont'd)

10. Mechanical inspections
    - Underground
      - After trenches or ditches are excavated, and underground duct and fuel piping installed
      - Before any backfill is put in place
    - Rough-in:
      - After the roof, framing, fire blocking and bracing are in place and all ducting, and other concealed components are complete
      - Before installation of wall or ceiling membranes
    - Final:
      - After the building is complete, the mechanical system is in place and properly connected, and the structure is ready for occupancy

105.6 Required inspections (cont'd)

11. Gas inspections
    - Rough piping:
      - after all new piping authorized by the permit has been installed
      - before any such piping has been covered or concealed, or any fixtures or gas appliances have been connected
    - Final piping:
      - after all piping authorized by the permit has been installed and after all portions which are to be concealed by plastering or otherwise have been so concealed
      - before any fixtures or gas appliances have been connected
      - This inspection includes a pressure test.
    - Final:
      - made on all new gas work authorized by the permit and any portions of existing systems that will be affected by new work or any changes

105 Inspections

- 105.7 Written release
  - No work can be done **beyond** the point indicated in each successive inspection without first obtaining a written release from the building official.
  - Such written release is given only after an inspection has been made of each successive step in the construction or installation as indicated by each of the foregoing three inspections.

105 Inspections

- 105.8 Reinforcing steel and structural frames
  - Reinforcing steel or structural frame work cannot be covered or concealed without first obtaining a release from the building official.

105 Inspections

- 105.9 Plaster fire protection
  - Where plaster is used for fire protection purposes, the permit holder or his agent must notify the building official after all lathing and backing is in place.
  - Plaster cannot be applied until the release from the building official has been received.

105 Inspections

- 105.10 Fire resistant joints and penetrations
  - Joints and penetrations in required fire resistant construction assemblies cannot be covered or concealed without first obtaining a release from the building official.

105 Inspections

- 105.11 Termites
  - Building components and building surroundings that must be protected from termite damage cannot be covered or concealed until the release from the building official has been received.

105 Inspections

- 105.12 Shoring
  - Shoring on threshold buildings must be designed and inspected by a Florida Licensed Professional Engineer prior to any required mandatory inspections by the Threshold Building Inspector.

105.13 Threshold Building

- 105.13.1 A special inspector is required to perform structural inspections on a threshold building based on a structural inspection plan prepared by the engineer or architect of record.
  - The plan must be submitted to the enforcing agency before a building permit will be issued
  - The purpose is to provide specific inspection procedures and schedules so that the building can be adequately inspected for compliance with the permitted documents

105.13 Threshold Building

- 105.13.2 The special inspector must inspect the shoring and reshoring to ensure they conform to the submitted shoring and reshoring plans.
  - A fee simple title owner of a building that does not meet the classification requirements of a threshold building may designate such building as a threshold building, subject to more than the minimum number of inspections required by the Florida Building Code, Building.

105.13 Threshold Building

- 105.13.3 The fee owner of a threshold building can select and pay all costs of employing a special inspector, but the special inspector shall be responsible to the enforcement agency.
  - The inspector must be certified, licensed or registered under:
    - Chapter 471 Florida Statutes as an engineer, or
    - Chapter 481 Florida Statutes as an architect.

105.13 Threshold Building

- 105.13.4 Each enforcement agency requires that on every threshold building:
  - The special inspector, upon completion of the building and prior to issuing a Certificate of Occupancy, file a signed and sealed statement. (105.13.4.1)
  - Any proposal to install an alternate structural product or system, to which building codes apply, be submitted to the enforcement agency for review for code compliance and added to the set of permit documents. (105.13.4.2)

105.13.4 (cont'd)

- All shoring and reshoring procedures, plans and details must be submitted to the enforcement agency for recordkeeping. Each installation must be supervised, inspected and certified to be in compliance with the shoring documents by the contractor. (105.13.4.4)
- Signed and sealed documents must contain a statement that, to the best of the architect's or engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and fire-safety standards (105.13.4.4)

105.13 Threshold Building

- 105.13.5
  - Enforcing agencies can only issue building permits for construction of threshold buildings to a licensed general contractor (defined in s. 489.105(3)(a) FS) or building contractor (defined in s.489.105(3)(b) FS).
  - The named contractor is responsible for all construction activities on the project.

105.13 Threshold Building

- 105.13.6
  - The building department may allow a special inspector to conduct the minimum structural inspection of threshold buildings.
  - The building official is responsible for ensuring that any person conducting inspections is qualified as a building inspector or certified as a special inspector.
  - Inspections of threshold buildings are **in addition** to the minimum inspections required by the FBC.

What do you think ?

- When is fire blocking inspected ?
- What is needed for shoring operations ?
- Does a final gas inspection occur before or after fixtures are installed ?
- Does the roof sheathing inspection occur before or after the dry in is complete ?

106 CERTIFICATES

- 106.1 Certificate of Occupancy
  - 106.1.1 Building occupancy
    - A new building cannot be occupied, nor can a change be made in the occupancy or use of a building until the building official has issued a Certificate of Occupancy.
    - The certificate will not be issued until all required electrical, gas, mechanical, plumbing and fire protection systems have been inspected for compliance with all regulations and are released by the building official.

106.1 Certificate of Occupancy

- 106.1.2 Issuing Certificate of Occupancy
  - Upon final completion and inspection of the building, the building official issues a certificate of occupancy stating:
    - The nature of the occupancy permitted
    - The number of persons for each floor when limited by law
    - The allowable load per square foot for each floor
- 106.1.3 Temporary/Partial occupancy
  - A temporary/partial certificate of occupancy may be issued prior to final completion of the building for those parts of a building which may be safely occupied.

106 Certificates

- 106.2 Certificate of Completion
  - A Certificate of Completion is proof that a structure or system is complete and, for certain types of permits, is released for use and may be connected to a utility system.
  - This certificate does **not** grant authority to occupy or connect a building—such as a shell building—prior to the issuance of a Certificate of Occupancy.

106.3 Service utilities

- 106.3.1 Connection of service utilities
  - No one can make connections from a utility source of power to any permit-regulated building or system until:
    - released by the building official and
    - a Certificate of Occupancy or Completion is issued.

106.3 Service utilities

- 106.3.2 Temporary connection
  - The building official may authorize a temporary connection of the building or system to the utility source of power for testing purposes, or for temporary occupancy.

106.3 Service utilities

- 106.3.3 Authority to disconnect service utilities
  - The building official has the authority to authorize disconnection of utility service to the building in case of emergency to eliminate an immediate hazard.
  - The building official will notify the serving utility, and, whenever possible, the owner and occupant of the building prior to the disconnection.
  - If not otherwise informed, notification will be in writing as soon as possible thereafter.

106.4 Posting floor loads

- 106.4.1 Occupancy
  - No one can occupy a building (existing or new) to the point where the floors are loaded beyond their safe capacity.

106.4 Posting floor loads

- 106.4.2 Storage and Factory-Industrial Occupancies
  - A competent architect or engineer must compute, and state in an affidavit, the safe load capacity* of Group S and Group F occupancies—or any occupancy where excessive floor loading is likely to occur.
  - Both the computations and the affidavit must be filed as part of the permanent record of the building department.

* *The safe allowable floor load on each floor, in pounds per square foot uniformly distributed*

106.4 Posting floor loads

- 106.4.3 Signs required
  - It is the responsibility of the building owner to have the safe floor load of each story
    - marked on approved plates
    - permanently mounted in a conspicuous place on that story
  - The plates must not be removed or defaced; if they are, the owner must replace them.