Setting New Standards for Safety

# The Florida Building Code

Florida Building Commission
Florida Department of Community Affairs

# The Florida Building Code System

- The Florida Building Commission
- Florida Building Code
- Product Evaluation Approval Program
- Education Program
- Building Code Information System

# Florida Building Commission

**Formed from the Florida Board of Building Codes and Standards, plus five new positions.**

**FBC has 23 members representing:**

- **Governor's Chair**
- **Code Officials (4)**
- **Architect**
- **Structural Engineer**
- **Mechanical Engineer**

# Florida Building Commission

- Persons with Disabilities
- Public Education
- Municipalities/Charter Counties
- Fire Protection Engineer or Technologist
- Department of Insurance

# Florida Building Commission

- **Insurance Industry**
- **Building Management Industry**
- **Building Product Manufacturer**
- **Manufactured Buildings**
- **General Contractor**

# Florida Building Commission

- Residential Contractor
- Mechanical & HVAC Contractor
- Plumbing Contractor
- Electrical Contractor
- Roofing & Sheet Metal Contractor

# Commission Powers & Responsibilities

- Adopt and update the FBC (every 3 years).
- Amend annually to incorporate interpretations and clarifications
- Hear appeals of local boards of appeal regarding interpretation of decisions of local building officials.
- Issue declaratory statements interpreting to the intent of the Code's provisions.

# Local Amendments

- Administrative
- Technical

# Adjustments and Appeals

- Local building official makes first call
- Appeal to local adjustment and appeals board
- Appeal to Commission
- Appeal to judicial review through s. 120.68

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- Code Books & Materials
- Training
- Local Amendments
- Manufactured

Buildings and more!

# Florida Building Code Training

The Commission is developing three levels of training:

- Transition training:
  a side-by-side comparison.

- Core course:
  covering administrative and technical issues.

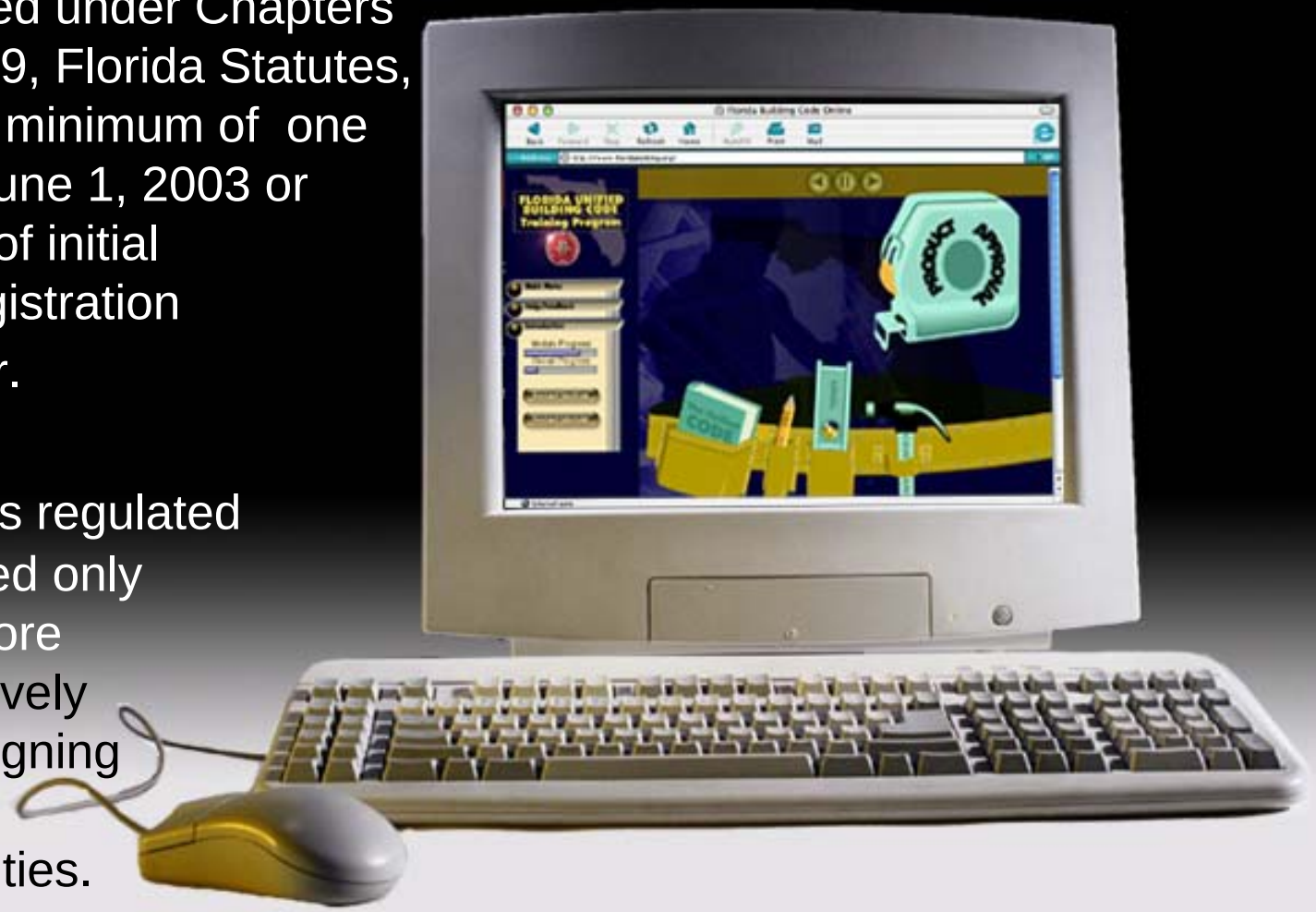
- Advanced technical modules will begin next year and will cover each licensed profession.

# Florida Building Code Training

- Required training on the Code:

licensees regulated under Chapters 468, 471, 481, 489, Florida Statutes, must complete a minimum of one core course by June 1, 2003 or Within two years of initial certification or registration Whichever is later.

**Note:** Licensees regulated under FS 471 need only to complete the core course if they actively participate in designing building structures or facilities.



# Florida Building Code Applicability

**The Florida Building Code applies to:**

"…the construction, erection, alteration, modification, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every public and private building, structure," 101.4.2 FBC

# Florida Building Code Base Codes

- 1997 Standard Building Code
- 1997 International Plumbing Code
- 1998 International Mechanical Code
- 1999 National Electric Code
- 1997 Florida Energy Code
- 1999 National Fire Alarm Code
- 1997 Florida Accessibility Code

# Florida Building Code

## Incorporation of South Florida's Standards

"**High Velocity Hurricane Zone** (Miami-Dade and Broward Counties)" consists of the strong hurricane provisions adopted by South Florida in response to Hurricane Andrew.

# Florida Building Code

## Integration of Fire Prevention and Life Safety Codes

The Florida Building Code adopts by reference the Florida Fire Prevention Code as adopted by the State Fire Marshal:

- NFPA 1 Fire Prevention Code
- NFPA 101 Life Safety Code

# Chapter 16 - Structural Loads

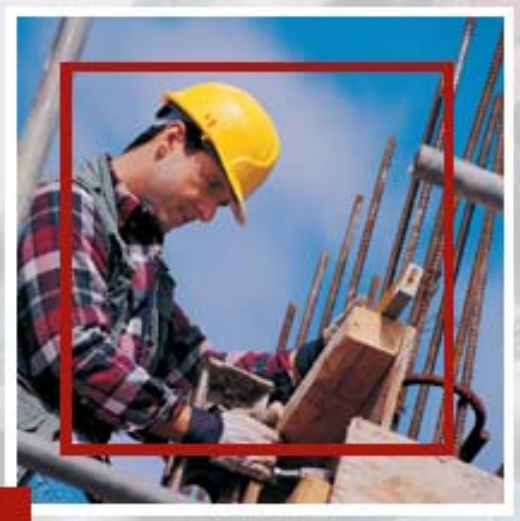
- Regulate minimum design dead loads, live loads, and impact loads for buildings and structures.

- Provide for minimum wind design loads.

# Chapter 16 - Structural Loads

**Design Methods:**

- Performance
  - » ASCE 7-98.
  - » 1606.2 Low-Rise ≤ 60’ simplified method/special provisions. (Enclosed buildings, roof slope ≤30 degree if moment frame, approximately symmetrical cross section, includes tabulated MWFRS and C&C loads)



- Prescriptive Residential
  - » SBCCI SSTD 10
  - » AF&PA Wood Frame Construction manual
  - » FC&PA Guide to Concrete Masonry Residential Construction in high wind areas
  - » WPPC Guide to Wood Construction in high wind areas

# Chapter 16 - Structural Loads

**Design Methods:**

- Metal Flag Poles
  - » Designs using NAAMM FP-1001 specification for design loads of metal flag poles.

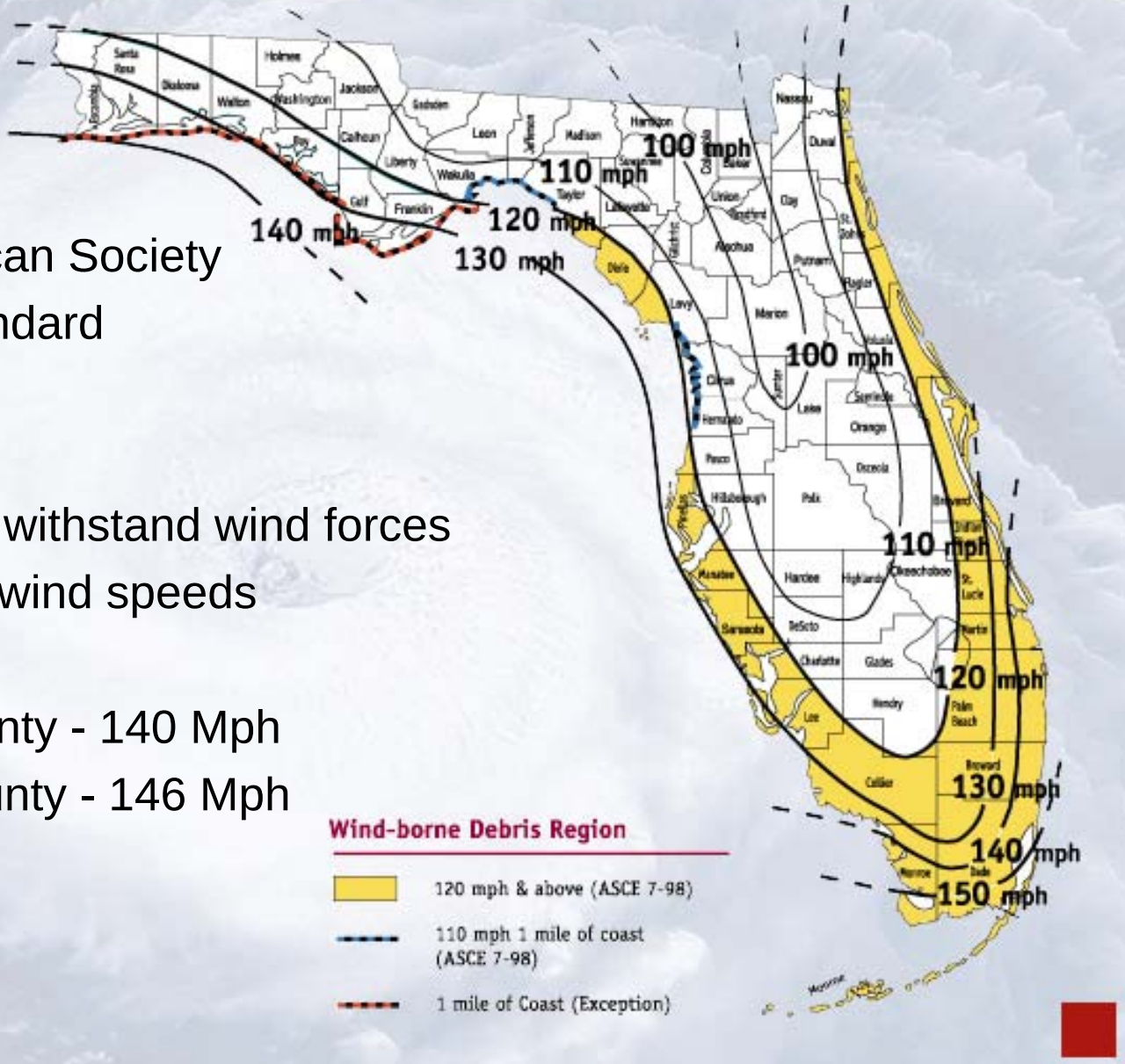
- Tower and Steel Antenna
  - » Designs using ANSI/TIA/EIA 222 specification for design loads of antenna support structures.

# Hurricane Protection

- Based on The American Society of Civil Engineers Standard ASCE 7-98

- Requires buildings to withstand wind forces resulting from design wind speeds

- Except: Broward County - 140 Mph and Miami-Dade County - 146 Mph



# Hurricane Protection

Requires additional protection from wind-borne debris in:

1. “Wind-borne debris region” where design speeds are greater than 120 mph or greater than 110 mph if within 1 mile of the coast. Except the Florida panhandle where the region lies within 1 mile of the coast.

2. “High velocity hurricane zone” of Miami-Dade and Broward counties.

# Equivalent Wind Speeds

| 3 Second Gust Mph | 85 | 90 | 100 | 105 | 110 | 120 | 125 | 130 | 140 | 145 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fastest Mile Mph | 70 | 75 | 80 | 85 | 90 | 100 | 105 | 110 | 120 | 125 | 130 |

**For use with standards that are based on fastest mile design such as SSTD10-99, etc…**

# The Code Provides Two Options

**Wind Borne Debris Region**
**Non High Velocity Hurricane Zone**

1. Design and build as “enclosed” with glazed openings protected by shutters or impact resistant glass.

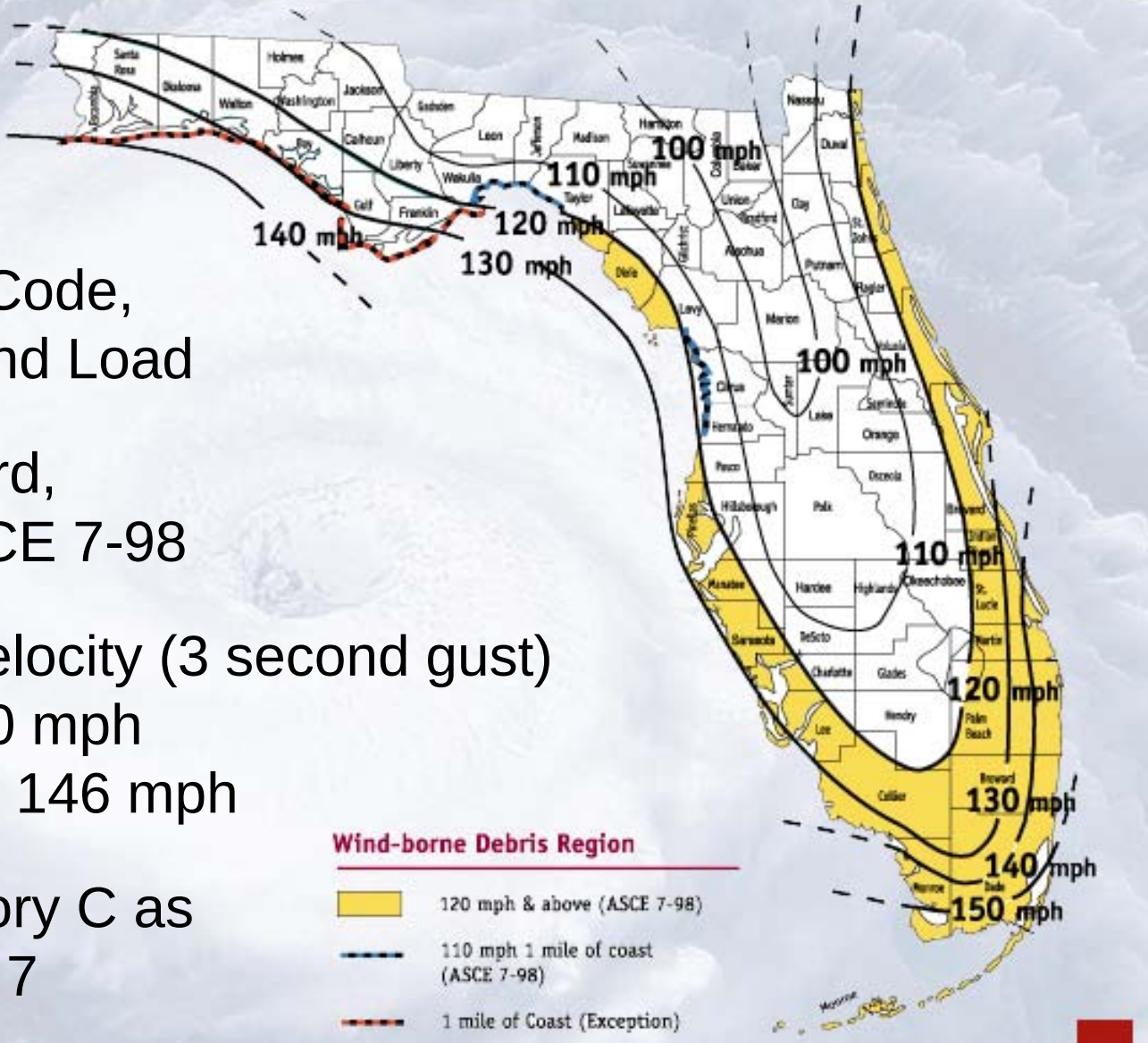
   Exterior glazing that receives positive pressure in the lower 60 feet of a building shall be assumed to be openings unless such glazing is impact resistant or protected with an impact resistant covering meeting the requirements of:
   - SSTD 12
   - ASTM E 1886 and ASTM E 1996 or
   - Miami-Dade PA 201, 202, and 203

2. Design and build as “partially enclosed” making the building capable of withstanding resulting combined external and internal wind pressures if glazed openings fail.

# High Velocity Hurricane Zones

**(Miami-Dade and Broward Counties)**

- Florida Building Code, Section 1619 Wind Load
- Minimum standard, Chapter 6 of ASCE 7-98
- Minimum wind velocity (3 second gust)
  - Broward - 140 mph
  - Miami-Dade - 146 mph
- Exposure Category C as defined in ASCE 7



# Exposure Definitions

- **Exposure B:**

  “Urban and Suburban areas, wooded areas, or othe terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.”

# Exposure Definitions

- **Exposure C:**

  "Except in the high velocity hurricane zone, the area which lies within 1500 feet of the coastal construction control line, or within 1500 feet of the mean high tide line, whichever is less, exposure category C shall be applicable in the coastal building zone set for in the s. 161.55(5), Florida Statutes."

  > Coastal Construction Control Line (CCCL) is established by DEP.
  > Mean high tide line is established by FEMA. The mean high tide line is seaward of the CCCL.
  > Coastal Building Zone is the area starting from the "Seasonal high water line" up to 1,500 ft or the whole barrier island if less than 5,000 ft.

# Roof Assemblies & Rooftop Structures

- Section 1504.1 Wind Resistance of Roofs.
- Roof decks and roof coverings must be designed to Chapter 16.

# Roof Assemblies & Rooftop Structures

## 1507 Roof Coverings with Slopes 2:12 or greater.

- 1507.3 Asphalt Shingles
- 1507.3.6 Fasteners
  - » Requires the use of roofing nails
- 1507.3.7 Attachment
  - » In wind zones up to 110 mph, prescriptive provision of 4 fasteners per shingle. In wind zones greater than 110 mph, fastening is based either on ASTM D 3161 test (modified to 110 mph) or MDC PA 107-95 tests.

# Ch. 17: Structural Tests & Inspections

- Exterior Window and Glass Door Assemblies
- Design pressure for window and door assemblies shall be calculated as per s. 1606.
- Testing - NSI/AAMA/NWWDA 101/IS2 2/97.
- Labeling - bear an AAMA or WDMA or other approved label identifying the manufacturer, performance characteristics and approved product evaluation entity.
- Anchorage requirements for anchorage of window and door assemblies to the main wind force resisting system.

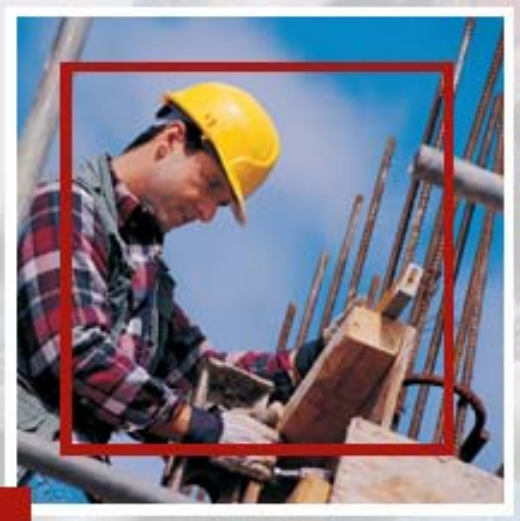
# Existing Buildings

- Alternation, repair or rehabilitation work must conform to the requirements of the technical code for new construction.
- The building official shall determine the extent to which the existing system shall be made to conform to the requirements of the technical code for new construction.

# Repairs and Alterations

Repairs and alterations not increasing the area of the building made within any 12 month period.

- Structural repairs and alterations, the cost of which ≤ 25 percent of the value of existing building or structures shall comply with the requirements of the new building code except that minor structural alterations, with the approval of the building official may be made of the same materials.



- Non-structural repairs and alterations, the cost of which ≤ 25 percent of the value of existing buildings or structures and which do not affect egress or fire resistivity, may be made of the same materials of which the building or structure is constructed.

# Repairs and Alterations

- Repair and alterations > 25 percent but not exceeding 50 percent of the value of the existing building may be made during any 12 month period without making the entire existing building comply, provided such repairs and alterations comply with the requirements of this code for a building of like area, height and occupancy.
- The replacement of garage doors, exterior doors, skylights, operative and inoperative windows shall be designed and constructed in accordance with Chapter 16 of the new code.

- When repairs and alterations amounting to more than 50 percent of the value of the existing building are made during any 12 month period, the building or structure shall be made to conform to the requirements for a new building or structure or be entirely demolished.

# Energy Efficiency Code for Building Const.

- Methods A & B
- Adopts the new Windows-base FLA/COM into the code.

# How the Energy Code Works

The code compares a residentialbuilding's potential annual energy use *as it will be built* to that of a *baseline* building with optimized features. Here is an example:

| | E-Ratio | As-Built |
|---|---|---|
| Windows | North, Central: U-.5, .4 SHGC<br>South: U-.5, .4 SHGC | Single pane clear |
| | 18% window/floor ratio, no OH | 15% wfr, 2' OH |
| Walls | R-11 frame wall | R-3 CBS |
| Ceiling | R-30 flat | R-19 flat |
| Floor | North, Central: SOG R-3.5 | SOG R-0 |
| | South: SOG | R-0 |
| HVAC | Heat pump, 10 SEER/6.8 HSPF | 10 SEER/6.8 HSPF |
| Ducts | R-6 in the attic, leaky | R-6 attic, leaky? |
| Air handler | In the garage | In the garage |
| Hot water | EF .88 | EF .88 |

**As Built/Baseline = E-Ratio (1.0 or less Passes)**

# Requirements for Air Handlers in Attics

- Service panel of an air handler is no greater than 6' from an attic access.
- Attic access opening is adequate to
replace the air handler.
- Device is installed to alert the owner or shut down the unit when the condensation drain is not working properly.
- Notice should be posted to inform the owner that the air handler is located in the attic.

# Ventilation

There are two means of ventilation:

1. Ventilation by natural means by providing a minimum operable opening to the outdoors of 4% of the floor.

2. Ventilation by mechanical means.

# Florida Product Approval System

- Product approval under the new Florida Building Code will not only ensure that safe products and technologies are used in building construction, but will encourage new products and technologies that can increase safety or meet safety requirements through less expensive means.

- The new system will include a web-site for submittal of applications, payment of fees for statewide product approvals and entity approvals. In addition, a database will be made available to search a list of approved entities and products approved for statewide use.

# Florida Product Approval System

- Criteria has been established for approval through the state of public and private entities that test, evaluate and certify products.  Quality assurance programs will be used to monitor product code compliance.

- This two pronged system will allow manufacturers the choice of applying with local jurisdictions for local approvals or to apply with the Florida Building Commission for statewide approval of products, materials, or methods of construction.

# Florida Entity Approval System

The Florida Building Commission will approve public and private entities that test, evaluate and certify products.

## Accreditation Bodies

- Accreditation bodies accredit and monitor the competency and performance of an agency carrying out specific tasks.

## Evaluation Entities

- Evaluation entities conduct product evaluations based on test reports, and/or rational analysis.

## Testing Labs

- Testing labs conduct product tests.

# Florida Entity Approval System

## Certification Agencies

- Certification agencies evaluate products based on tests and/or rational analysis; conduct quality assurance; certify compliance with standards; and list and label products.

## Quality Assurance Agencies

- Quality Assurance agencies monitor product production.

## Validation Entities

- Validation entities certify compliance with standards and certify that product approval applications are correct.

# Local Product Approval System

## Before and After

- Before October 1, 2003, local jurisdictions will continue to approve all products as they have in the past, including accepting products approved for use by Miami-Dade Product Control Division.
- Local jurisdictions may also adopt the Florida Product Approval System before October 1, 2003 for local implementation prior to that date.
- After October 1, 2003, local jurisdictions will approve all products using the procedures of the Florida Product Approval System.

# Local Product Approval System

**Products with Prescriptive Provisions in the Code (Method 1)**

- Approved by the building plan review and inspection process

# Local Product Approval System

**Products with Code Performance Criteria and Standardized Testing, or Comparative or Rational Analysis (Method 2)**

**<u>Products with Certification Mark or Listing</u> (Option A)**

- Product certification mark or listing from an approved certification agency.
- Code compliance certified to standards adopted by the Code.

# Local Product Approval System

**Products with Code Performance Criteria and Standardized Testing, or Comparative or Rational Analysis (Method 2)**

**<u>Products with Test Reports</u> (Option B)**

- Product test report from an approved testing lab.
- Identifies which products are covered by the report.
- Verifiable documentation the product complies with the Code.
- Product is manufactured under an audited quality assurance program.

# Local Product Approval System

**Products with Code Performance Criteria and Standardized Testing, or Comparative or Rational Analysis (Method 2)**

**<u>Products with Evaluation Report from An Approved Evaluation Entity</u> (Option C)**

- Product evaluation report from an approved evaluation entity.
- Based on testing or comparative or rational analysis (or a combination).
- Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.
- Product is manufactured under an audited quality assurance program.

# Local Product Approval System

**Products with Code Performance Criteria and Standardized Testing, or Comparative or Rational Analysis (Method 2)**

**<u>Products with Evaluation Report from Florida Architect or Engineer</u> (Option D)**

- Signed and sealed product evaluation report from a Florida Registered Architect or Florida Professional Engineer.
- Based on testing or comparative or rational analysis (or a combination).
- Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.
- Product is manufactured under an audited quality assurance program.

# Local Product Approval System

**Products for which there are no specific Standardized Testing, or Comparative or Rational Analysis Methods (Method 3)**

**<u>Products with Evaluation Report from An Approved Evaluation Entity</u> (Option A)**

- Product evaluation report from an approved evaluation entity.
- Based on testing or comparative or rational analysis (or a combination).
- Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.
- Product is manufactured under an audited quality assurance program.

# Local Product Approval System

**Products with Code Performance Criteria and Standardized Testing, or Comparative or Rational Analysis (Method 3)**

**<u>Products with Evaluation Report from Florida Architect or Engineer</u> (Option B)**

- Signed and sealed product evaluation report from a Florida Registered Architect or Florida Professional Engineer.
- Based on testing or comparative or rational analysis (or a combination).
- Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.
- Product is manufactured under an audited quality assurance program.

# State Product Approval System

**Products with Code Performance Criteria and Standardized Test, or Comparative or Rational Analysis (Method 1)**

**<u>Product Certification Mark or Listing</u> (Option A)**

- Product certification mark or listing from an approved certification agency.
- Code compliance certified to standards adopted by the Code.

# State Product Approval System

## Products with Code Performance Criteria and Standardized Test, or Comparative or Rational Analysis (Method 1)

## <u>Products with Test Reports</u> (Option B)

- Product test report from an approved testing lab.
- Identifies which products are covered by the report.

- Verifiable documentation the product complies with the Code.
- Product is manufactured under an audited quality assurance program.

# State Product Approval System

## Products with Code Performance Criteria and Standardized Test, or Comparative or Rational Analysis (Method 1)

## Product with Evaluation Report from An Approved Evaluation Entity (Option C)

- Product evaluation report from an approved evaluation entity.

• Based on testing or comparative or rational analysis (or a combination).

• Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.

• Product is manufactured under an audited quality assurance program.

# State Product Approval System

**Products with Code Performance Criteria and Standardized Tests, or Comparative or Rational Analysis (Method 1)**

**<u>Products with Evaluation Report from Florida Architect or Engineer</u> (Option D)**

- Signed and sealed product evaluation report from a Florida Registered Architect or Florida Professional Engineer.
- Based on testing or comparative or rational analysis (or a combination).
- Report indicates the product to be in compliance with the intent of the Code and at least equivalent to that required by the Code.
- Product is manufactured under an audited quality assurance program.

# State Product Approval System

## Products Which Have No Standardized Tests, or Comparative or Rational Analysis (Method 2)

### Evaluation Report from Evaluation Entity (Option A)

- Product evaluation report from an approved product evaluation entity.
- Provides verifiable documentation that the product complies with the Code.
- The product is manufactured under an audited quality assurance program.

# State Product Approval System

## Products Which Have No Standardized Tests, or Comparative or Rational Analysis (Method 2)

## <u>Evaluation Report from Florida Architect or Engineer</u> (Option B)

- Signed and sealed product evaluation report from a Florida Registered Architect or Florida Professional Engineer.
- Based on testing or comparative or rational analysis (or a combination).
- Provides verifiable documentation that the product complies with the Code.
- Product is manufactured under an audited quality assurance program.

# Florida Building Code Change Cycle

- Update to new edition of model codes every 3 years.
- Annually amend to integrate interpretations and update editions of reference standards.

# Building Code Amendment Process

- Amendments proposed by a deadline date.
- Proposed amendments posted on internet for 45 days.
- Technical advisory committees vote on recommended action.
- Proposed amendments and recommended action posted on internet for 45 days.

# Building Code Amendment Process

- Commission takes action on proposed amendments and conducts Chapter 120, F.S., Notice of Change.
- Commission finalizes rule change.
- Changes effective after 3 months for annual amendment and after 6 months for 3 year major updates.

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Visit the Florida

Building Code

Information

System today!