
A GUIDE TO CREATING BUILDING CODE COMPLIANT DOCUMENTS



AIA Florida



**Building Officials
Association of Florida**



Florida Engineering Society

INTRODUCTION

Construction documents are created to provide direction for the builder. At the heart of all construction documents submitted for permitting are the applicable provisions of the current edition of the Building Code. Creativity and constructability must be guided by the principles addressed in the applicable building code volumes that provide for a healthy, safe, accessible, and energy efficient structure or system.

A building permit is required for most construction projects, large or small, to document that the project complies with all applicable building code provisions. The Building Code specifies two levels of verification of compliance: plan review and inspection. The plan review verifies that the plans are code compliant. It is usually cheaper and easier to correct a non-code compliant condition in the design phase, than the construction phase. Once the local building department determines that a set of plans is code compliant, the permit is issued and a stamped set of reviewed plans is returned to the applicant for use during construction. It is these plans that are used by the inspector, at established intervals, to confirm that the construction is code compliant.

Creating code compliant building permit documents requires an understanding of what the plans examiner(s) are required to verify. Code compliant documents help the design professional(s) minimize the time required to complete their part of the project, and minimize the time required for the building department to complete the plan review phase of permitting.

PURPOSE

The challenge for the architect, engineer and contractor is to create a clear and concise set of design documents that demonstrate code compliance. This Guide has been developed by a Joint Task Force comprised of members of the Building Officials Association of Florida (BOAF), AIA- Florida, and the Florida Engineering Society (FES) to help the designer understand the information that needs to be included in a code compliant set of construction documents.

DISCLAIMER

This Guide is intended to provide the user with a basic understanding of the minimum requirements of the building code. The list of building code requirements herein addressed can be found in the administrative section of the building code. The topics that they address are general in nature and each building department has authority to establish the specific level of details for each category of information listed. It is incumbent upon the designer(s) to research and understand the applicable building code, and to consult with the local building department regarding the extent of the details that are required.

Guide to Creating Building Code Compliant Documents – BOAF / AIA-Florida / FES Joint Task Force

There may also be other requirements, in addition to these building code requirements, relating to flood plain regulation or coastal construction, zoning or planning regulations, or local issues.

DOCUMENT ORGANIZATION

While the Building Code requires that specific issues are subject to plan review, there is no mandated format that dictates where the information must be located in the document set. Consequently, there is no right or wrong way to organize the information. The Task Force recognizes that creating one preferred way to organize a set of drawings is not practical. Instead, the Task Force chose to develop a “Government Sheet” that serves as a cross reference index to guide the plans examiner(s) to the location of required information. Additionally, the Government Sheet will serve as a checklist for the designer to ensure that all of the basic required information has been provided. Voluntary use of the “Government Sheet” is expected to significantly reduce or eliminate the number of plan review comments that will need to be resolved at permitting.

ABOUT THE GUIDE

This guideline has four parts:

- Plan review overview
- Government sheet template
- Life Safety Plan example
- Area modification calculator

This guide is applicable to typical construction projects as follows:

- New commercial buildings
- Additions to commercial buildings
- Alterations of commercial buildings
- New systems (Mechanical, Electrical, Plumbing, Gas, Fire Alarm, Fire Sprinkler, Etc.)
- Alterations to systems
- New One and Two Family buildings
- Additions to One and Two Family buildings
- Alterations to One and Two Family buildings

The overview presented in this Guide describes building code concepts, and are intended to be independent of any specific code requirements. As such, this Guide should remain valid through multiple building code cycles. Be sure to reference the applicable building code edition for specific code provisions.

A user of this Guide is expected to have a thorough understanding of applicable building codes. This guide is not intended as a substitute for building code training.

SIGNED AND SEALED DOCUMENTS

Documents created by a Florida registered Architect or licensed Engineer must be appropriately signed and sealed in accordance with state statute and the rules of the respective practice acts.

Refer to the AIA/BOAF/FES “Building Official’s Guide to the Professional Practice of Architects and Engineers in Florida” regarding scopes of practice.

Each set of drawings submitted for permitting should reference the current edition of the applicable building code as the basis for the design.

PROJECTS (New, Additions and Alterations) (Excluding One & Two Family Residences)

BUILDING CODE REQUIREMENTS

The Building Code contains specific requirements in the following categories:

- Structure fire safety based on construction type, separation distances and occupancy(s)
- Life safety for occupants based on construction type and occupancy(s)
- Structural integrity based on expected loads
- Approved materials
- Accessibility features
- Energy efficiency features

Specific building code provisions will vary based on building characteristics that must be declared by the designer(s). Permit documents for new buildings, additions, and alterations all need to include the basic characteristics of the structure as referenced below. A summary of the building characteristics should be located at the front of the document set. Those characteristics include:

- Occupancy classification and use (FBC Chapters 3 & 4)
There may be one or multiple occupancies, or accessory use areas within a building. Label each area or room with the intended use. Provide a visual delineation for multiple occupancy classifications within one building.
- Occupant load (FBC Chapter 10)
Occupant loads for each area must be calculated using square footage calculations and the charts found in FBC Chapter 10. Document the calculations in a matrix, if multiple uses are identified. This information will be used to verify compliance with a variety of issues from life safety to plumbing fixtures
- Type of construction (Chapter 6)
Buildings are assigned specific limitations in area and height based on the building's construction type and separation. The intent is to make the requirements more restrictive as buildings get larger. Each project must be evaluated for compliance with the charts. The designer must specify the construction type.
- Building height and area modifications (Chapter 5) when used
The allowable height and area of buildings may be increased when the building design provides additional separation or fire sprinkler protection. When height and area modifications are used, the calculations must be submitted as a part of the document package. See the height and area calculator for specific calculations.
- Building separation from adjacent buildings (Chapter 5)
Fire resistant construction values for various building components, expressed in hours of resistance, are governed by the relative proximity to other buildings, or the real or assumed property lines. A summary of these values must be noted on the plans along with a schedule of wall types.
- Life Safety
A life safety plan is a summary of the building characteristics that will provide occupants with a safe means of egress in case of emergency. See the example of a well detailed life safety plan. The life safety review is difficult to complete when this information is included on several sheets, therefore, creating a separate life safety sheet is recommended. The plans examiner will need to

verify that the number of exits, travel distances, exit width, corridor width, stair width, and length of dead end corridors comply with the code requirements.

Note 1: This information is fundamental to the project and must be reviewed before other aspects of the review are started; therefore, this information should be located near the beginning of the document set.

Note 2: The Government Sheet Cross Reference page will also make the plan review more efficient by leading the plans examiner to the information necessary for completing the plan review.

PLAN REVIEW CATEGORIES

There may be one or more building plans examiners that review a set of design documents: however, regardless of the number of plans examiners, there are multiple issues that must be reviewed for new buildings, additions and major renovations:

Structural – How building components are assembled to handle the expected loads:

- Provide details as necessary to describe the load path from the ground to the roof
- Identify the design parameters and provide the design loads
- Provide the structural calculations to justify the design (When required)
- Provide details for constructing the structural support and building envelope
- Provide details for the roof structure
- Provide details for stair systems
- Provide window and door rough opening sizes

Non-structural – How the building provides:

1. **Fire safety**- How the building is designed to provide structural stability for a given period of time, while limiting the spread of fire to other buildings:
 - Provide fire protection details for structural elements as necessary. These details may be listed assemblies, prescriptive method, or calculated method.
 - Provide fire resistance rated wall, floor and roof details as necessary. These details may be listed assemblies, prescriptive method, or calculated method.
 - Provide fire-stopping submittals for penetrations of rated assemblies
 - Provide opening protective details as necessary
 - Provide a schedule of doors showing door size, fire resistive rating and hardware
2. **Life safety**- How the spaces in the building are arranged and equipped with features to facilitate safe evacuation of occupants in an emergency
 - Provide the area calculation and occupant load counts for each area
 - Identify the path of egress travel from each area
 - Identify the maximum egress distance for each area
 - Identify the occupant count, required and provided exit width for each exit
 - Identify protected features such as rated corridors and areas of rescue assistance
 - Provide smoke control system details, when provided
 - Provide stair pressurization details, when provided
3. **Interior environment**- How the building provides a safe environment that is appropriately illuminated and ventilated
 - Provide a lighting plan for both normal and loss of power conditions
 - Identify how the spaces will be ventilated

- Identify interior finishes and a submittal documenting compliance with the appropriate interior finish category
4. **Accessibility**- How the building facilitates people with disabilities
 - Provide relative floor elevations with appropriate transitions as needed
 - Provide vertical accessibility details
 - Provide accessible path details from the public way to all areas of the building
 - Provide scaled elevations for restrooms, detailing installation requirements for accessible features
 5. **Energy efficiency** – How the building conserves energy
 - Provide Energy Calculations
 - Data values entered into Fla/Com program will need to be verified with the corresponding information on the plans
 6. **Weatherproofing** – How the building withstands wind driven rain
 - Identify weather barriers
 - Provide window and door flashing details
 7. **Materials** – Identification of materials used in the project
 - Provide submittals as required by the jurisdiction for wood, steel, aluminum, concrete, plastic, glass, masonry, gypsum, roofing and insulation
 - Provide installation details at inspection

MECHANICAL CODE REQUIREMENTS

PLAN REVIEW CATEGORIES

There are multiple issues that must be reviewed for new buildings, additions and major renovations:

1. **Energy Calculations**
 - Provide the appropriate completed forms
 - Energy calculations must be signed by the design professional
 - Provide input data print-out
2. **Exhaust systems**
 - Provide equipment and duct installation details (Location and sizing)
 - Provide equipment and duct specifications
 - Provide air velocity
 - Detail location of cleanouts and access to cleanouts
3. **Equipment**
 - Provide equipment location and specifications
4. **Make-up air**
 - Provide calculations for outdoor ventilation air intake
 - Provide calculations for dryer ventilation make-up air when applicable
5. **Roof mounted equipment**
 - Provide anchorage design to provide resistance to wind pressures, for roof mounted equipment

6. Duct systems

- Provide duct layouts and sizing

7. Ventilation

- Provide ventilation details

8. Combustion Air

- Provide combustion air calculations and source

9. Chimneys, fireplaces and vents

- Provide specifications for chimneys and fireplace vents

10. Appliances

- Provide specifications and installation details for specific appliance

11. Boilers

- Provide specifications and installation details for boilers and water heaters

12. Refrigeration

- Provide specifications and installation details for refrigeration equipment

13. Bathroom ventilation

- Provide bathroom ventilation location and air flow rate

14. Laboratory

- Provide exhaust system details per code for a laboratory where hazardous materials are handled

ELECTRICAL CODE REQUIREMENTS

PLAN REVIEW CATEGORIES

There are multiple issues that must be reviewed for new buildings, additions and major renovations:

1. Wiring

- Provide wire size designations for design loads

2. Services

- Provide service location and size

3. Feeders and branch circuits

- Provide circuit diagrams

4. Over-current protection

- Provide over-current designations for each circuit/panel

5. Grounding

- Provide location and sizing of ground system

6. Wiring methods and materials

7. GFCI's

- Provide locations of GFCI devices

8. Equipment/Panels

- Provide location and specifications for equipment /panels

9. Special occupancies

- Provide specifications for features required by special occupancies

10. Emergency systems

- Provide details for emergency power systems

11. Communication systems

- Provide location and specifications for communication/data system

12. Low voltage

- Provide location and specifications for low voltage systems

13. Load calculations

- Provide load calculations

PLUMBING CODE REQUIREMENTS

PLAN REVIEW CATEGORIES

There are multiple issues that must be reviewed for new buildings, additions and major renovations:

1. Minimum plumbing facilities

- Provide matrix demonstrating minimum plumbing facility requirements and actual fixtures provided

2. Fixture requirements

- Same requirement as above

3. Water supply piping

- Provide water supply piping location, size and material

4. Sanitary drainage

- Provide sanitary drainage location and sizing

5. Water heaters

- Provide location, size and specifications for water heater(s) and associated features

6. Vents

- Provide sizing and location of vents

7. Roof drainage

- Provide roof drainage calculations, roof slopes, roof primary and secondary drain locations

8. Back flow prevention

- Provide specification and location of back flow devices

9. Irrigation

- Provide details for backflow prevention, rain sensor, and sprinkler head locations adjacent to the foundation

10. Location of water supply line

- Provide location of water supply line relative to sanitary drain lines

11. Grease traps

- Provide calculations for grease trap sizing
- Provide grease trap specifications and location
- Provide identification of fixtures draining through the grease trap

12. Environmental requirements

13. Plumbing riser

- Provide plumbing risers

FUEL GAS CODE REQUIREMENTS

PLAN REVIEW CATEGORIES

There are multiple issues that must be reviewed for new buildings, additions and major renovations:

1. Gas piping

- Provide location, sizing and specifications for gas piping

2. Venting

- Provide venting requirement calculations

3. Combustion air

- Provide calculations, location and source for combustion air

4. Chimneys and vents

- Provide location, size and specifications for chimneys and vents

5. Appliances

- Provide specifications and locations for special appliances listed in FMC 602.1

6. Fireplaces

- Provide specifications and locations of fireplaces

7. LP tank location

- Provide size and location of LP tank

8. Riser diagram/shutoffs

- Provide gas riser diagram