

# **PALM BEACH COUNTY AMENDMENTS TO THE FLORIDA BUILDING CODE 2007**



## **Florida Building Code Chapter 1 Administration**

### **Florida Building Code, Building Section 1609.1 and Figure 1609.1.1 Basic Wind Speed Map of Palm Beach County**

### **Florida Building Code, Plumbing Appendix F Construction Building Codes for Turf and Landscape Irrigation Systems**

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**CHAPTER 1  
ADMINISTRATION**

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## SECTION 101 GENERAL

**101.1** Title. These regulations shall be known as the *Florida Building Code* hereinafter referred to as “this code.”

**101.2** Scope. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures as herein amended by *Palm Beach County*.

### Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the *Florida Building Code, Residential*.
2. Existing buildings undergoing repair, alterations or additions and change of occupancy shall comply with the *Florida Building Code, Existing Building*.

**101.2.1** Appendices. Provisions in the appendices shall not apply unless specifically adopted.

**101.3** Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters, *code officials*, and emergency responders during emergency operations.

**101.3.1** Quality Control. Quality control of materials and workmanship is not within the purview of this code except as it relates to the purposes stated herein.

**101.3.2** Permitting and Inspections. The permitting and inspection of any building, system, or plan by this jurisdiction, under the requirements of this code, shall not be construed in any court as a warranty of the physical condition of such building, system, or plan, or their adequacy. The jurisdiction shall not be liable in tort for damages or hazardous or illegal condition or inadequacy in such building, system, or plan, nor for any failure of any component of such, which may occur subsequent to such inspection or permitting. Further, no Building Department employee shall be liable in tort for damage from such conditions, in accordance with Section 768.28(9)(a) *Florida Statutes*, as may be amended or replaced.

**101.4** Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.9 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

**101.4.1** Electrical. The provisions of Chapter 27 of the *Florida Building Code, Building* shall apply to the installation of electrical systems, including alterations,

repairs, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

**101.4.2 Gas.** The provisions of the *Florida Building Code, Fuel Gas* shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

**101.4.3 Mechanical.** The provisions of the *Florida Building Code, Mechanical* shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

**101.4.4 Plumbing.** The provisions of the *Florida Building Code, Plumbing* shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system.

**101.4.5 Reserved.**

**101.4.6 Fire prevention.** For provisions related to fire prevention, refer to the *Florida Fire Prevention Code*. The *Florida Fire Prevention Code* shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

**101.4.7 Energy.** The provisions of Chapter 13 of the *Florida Building Code, Building* shall apply to all matters governing the design and construction of buildings for energy efficiency.

**101.4.8 Accessibility.** For provisions related to accessibility, refer to Chapter 11 of the *Florida Building Code, Building*.

**101.4.9 Manufactured buildings.** For additional administrative and special code requirements, see section 428, *Florida Building Code, Building*, and Rule 9B-1 *Florida Administrative Code*.

## SECTION 102 APPLICABILITY

**102.1** General. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. 102.1.1 The *Florida Building Code* does not apply to, and no code enforcement action shall be brought with respect to, zoning requirements, land use requirements and owner specifications or programmatic requirements which do not pertain to and govern the design, construction, erection, alteration, modification, repair or demolition of public or private buildings, structures or facilities or to programmatic requirements that do not pertain to enforcement of the *Florida Building Code*. Additionally, a local code enforcement agency may not administer or enforce the *Florida Building Code, Building* to prevent the siting of any publicly owned facility, including, but not limited to, correctional facilities, juvenile justice facilities, or state universities, community colleges, or public education facilities, as provided by law.

**102.2** Building. The provisions of the *Florida Building Code* shall 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. Additions, alterations, repairs and changes of use or occupancy group in all buildings and structures shall comply with the provisions provided in Chapter 34 of this code and the *Florida Building Code, Existing 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:

- (a) Building and structures specifically regulated and preempted by the federal government.
- (b) Railroads and ancillary facilities associated with the railroad.
- (c) Nonresidential farm buildings on farms.
- (d) Temporary buildings or sheds used exclusively for construction purposes.
- (e) Mobile or modular structures used as temporary offices, except that the provisions of Part V (Section 553.501-553.513, *Florida Statutes*) relating to accessibility by persons with disabilities, and permits shall be required for structural support and tie down, electrical supply, and all utility connections shall apply to such mobile or modular structures.
- (f) Those structures or facilities of electric utilities, as defined in Section 366.02, *Florida Statutes*, as may be amended or replaced, which are directly involved in the generation, transmission or distribution of electricity.
- (g) Temporary sets, assemblies or structures used in commercial motion picture or television production, or any sound-recording equipment used in such production, on or off the premises.
- (h) Chickees constructed by the Miccosukee Tribe of Indians of Florida or the Seminole Tribe of Florida. As used in this paragraph, the term "chickee" means an open-sided wooden hut that has a thatched roof of palm or palmetto or other traditional materials, and that does not incorporate any electrical, plumbing or other nonwood features.

(i) Service providers of water, sewer, storm, gas, cable, telephone, or other similar utility systems are exempt to the point of service connection for the building or structure.

**102.2.1** In addition to the requirements of Section 553.79 and 553.80 *Florida Statutes*, facilities subject to the provisions of Chapter 395 *Florida Statutes* (Hospital Licensing and Regulation), and Part II of Chapter 400, *Florida Statutes* (Nursing Homes), shall have facility plans reviewed and construction surveyed by the state agency authorized to do so under the requirements of Chapter 395 *Florida Statutes*, and Part II of Chapter 400, *Florida Statutes*, and the certification requirements of the federal government.

**102.2.2** Buildings or structures for residential uses moved into or within a county or municipality shall not be required to be brought into compliance with the state minimum building code in force at the time the building or structure is moved, provided:

1. The building or structure is structurally sound and in occupiable condition for its intended use;
2. The occupancy use classification for the building or structure is not changed as a result of the move;
3. The building is not substantially remodeled;
4. Current fire code requirements for ingress and egress are met;
5. Electrical, gas and plumbing systems meet the codes in force at the time of original construction and are operational and safe for reconnection; and
6. Foundation plans are sealed by a professional engineer or architect licensed to practice in this state, if required by the applicable *Florida Statutes* for all buildings or structures of the same residential occupancy class.
7. The requirements of *Florida Building Code, Existing Building* are also satisfied.

**102.2.3** The building official shall apply the same standard to a moved residential building or structure as that applied to the remodeling of any comparable residential building or structure to determine whether the moved structure is substantially remodeled. The cost of the foundation on which the moved building or structure is placed shall not be included in the cost of remodeling for purposes of determining whether a moved building or structure has been substantially remodeled.

**102.2.4** This section does not apply to the jurisdiction and authority of the Department of Agriculture and Consumer Services to inspect amusement rides or the Department of Financial Services to inspect state-owned buildings and boilers.

**102.2.5** At its own option, each enforcement district or local enforcement agency may promulgate rules granting to the owner of a single-family residence one or more exemptions from the *Florida Building Code* relating to replacing nonstructural components of building systems in the residence. A licensed contractor performing such work for the resident shall also be exempt from individual permits and inspections if either the owner or the licensed contractor obtain a valid Annual Permit per Section 105.1.1 of this Code and all

such work is reported as required in Section 105.1.2 of this Code for compliance evaluation. No added capacity, system expansion or new building work of any type shall be excluded from individual permit and inspection by this provision.

**102.2.6** This Code does not apply to swings and other playground equipment accessory to a one- or two-family dwelling.

**Exception:** Electrical connection to such playground equipment.

**102.3** Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**102.4** Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

**102.5** Reserved.

**102.6** Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, or the *Florida Fire Prevention Code*, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

**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. If the existing building was manufactured in compliance with the *Florida Building Code* (after March 1, 2002), the wind speed map of the *Florida Building Code* shall be applicable.

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## **SECTION 103 DEPARTMENT OF BUILDING SAFETY**

**103.1** Establishment. There is hereby established a department to be called the Department of Building Safety, and the person in charge shall be known as the Building Official. All code officials employed by the department shall be certified in accordance with Chapter 468, Part XII, *Florida Statutes*.

**103.2** Reserved.

**103.3** Restrictions on employees. An officer or employee connected with the department, except one whose only connection is as a member of the board established by this code, shall not be financially interested in the furnishing of labor, material, or appliances for the construction, alteration, or maintenance of a building, structure, service, system, or in the making of plans or of specifications thereof, unless he/she is the owner of such. This officer or employee shall not engage in any other work which is inconsistent with their duties or conflict with the interests of the department or which utilizes the technical knowledge used in their employment except as instructors.

**103.4** Liability. Any current or former officer or employee, or member of the Construction Board of Adjustment and Appeals, charged with the enforcement of this code and acting for the applicable governing authority in the discharge of its duties, shall not thereby render himself/herself personally liable, and is hereby relieved from all personal liability for any damage that may accrue to persons or property as a result of any act required or permitted in the discharge of their duties. Any suit brought against any current or former officer or employee or member because of such act performed in the enforcement of any provision of this code shall be defended by the agency or applicable governing authority until the first termination of the proceedings.

## **SECTION 104 DUTIES AND POWERS OF THE BUILDING OFFICIAL**

**104.1** General. The building official is hereby authorized and directed to enforce the provisions of this code. The building official is further authorized to render interpretations of this code, which are consistent with its spirit and purpose.

**104.2** Reserved.

**104.3** Reserved.

**104.4** Reserved.

**104.5** Reserved.

**104.6** Right of entry.

**104.6.1** Whenever necessary to make an inspection to enforce any of the provisions of this code, or whenever the building official has reasonable cause to believe that there exists in any building or upon any premises any condition or code violation which makes such building, structure, premises, electrical, gas, mechanical or plumbing systems unsafe, dangerous or hazardous, the building official may enter such building, structure or premises at all reasonable times to inspect the same or to perform any duty imposed upon the building official by this code. If such building or premises are occupied, he/she shall first present proper credentials and request entry. If such building, structure, or premises are unoccupied, he shall first make a reasonable effort to locate the owner or other persons having charge or control of such and request entry. If entry is refused, the building official shall have recourse to every remedy provided by law to secure entry.

**104.6.2** When the building official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner or occupant or any other persons having charge, care or control of any building, structure, or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the building official for the purpose of inspection and examination pursuant to this code.

**104.7** Requirements not covered by code. Any requirements necessary for the strength, stability or proper operation of an existing or proposed building, structure, electrical, gas, mechanical or plumbing system, or for the public safety, health and general welfare, not specifically covered by this or the other technical codes, shall be determined by the building official. The building official may set in writing processes and procedures to accomplish the intent of the code.

**104.8** Reserved.

**104.9** Approved materials and equipment. Materials, equipment and devices approved by the building official shall be constructed and installed in accordance with such approval.

**104.9.1** Used materials and equipment. The use of used, recycled, or reclaimed materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless approved by the building official.

**104.10** Reserved.

**104.11** Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength,

effectiveness, fire resistance, durability and safety. When alternate life safety systems are 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. The building official shall require that sufficient evidence or proof be submitted to substantiate any claim made regarding the alternative.

**104.11.1** Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

**104.11.2** Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

**104.11.3** Accessibility. Alternative designs and technologies for providing access to and usability of a facility for persons with disabilities shall be in accordance with Section 11-2.2.

## **SECTION 105 PERMITS**

**105.1** Required. Any contractor, owner, or agent authorized in accordance with *Florida Statute 489* who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any required impact-resistant coverings, electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

**105.1.1** Annual facility permit. In lieu of an individual permit for each alteration to an existing electrical, gas, mechanical, plumbing or interior nonstructural system(s), the building official is authorized to issue an annual permit for any occupancy to facilitate routine or emergency service, repair, refurbishing, component replacement of service systems or manufacturing equipment installations/relocations. The building official shall be notified of major changes and shall retain the right to make inspections at the work sites as deemed necessary. An annual facility permit shall be assessed an annual fee and shall be valid for one year from date of issuance. A separate permit shall be obtained for each facility and for each construction trade, as applicable. The permit application shall contain a general description of the parameters of work intended to be performed during the year.

**105.1.2** Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under such annual permit. The building official shall have reasonable access to such records upon request. The building official is authorized to revoke, or withhold the issuance of future annual permits, if code violations are found to exist.

**105.1.3** Food permit. As per Section 500.12, *Florida Statutes*, a food permit from the Department of Agriculture and Consumer Services is required of any person who operates a food establishment or retail store.

**105.2** Work exempt from permit. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code. Permits shall not be required for the following:

**Building:**

1. Building permits are not required for replacement or repair work having a value of less than \$1,000.00, providing, however, that such work will not adversely affect the structural integrity, fire rating, exit access or egress requirements.

**Gas:**

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

**Mechanical:**

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part which does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.
8. The installation, replacement, removal or metering of any load management control device.

**Plumbing:**

1. The stopping of leaks in drains, water, soil, waste or vent pipe provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.
3. The replacement of common household plumbing fixtures to existing supply lines and outlets. This does not include water heaters.

**Electrical:**

1. Repair or replacement of like common household electrical fixtures, switches, and outlets on the load side of the electrical source.

**105.2.1 Emergency repairs.** Where equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the building official. Notification shall be given to the building official, including the work address, nature of emergency, and scope of work immediately, or by next business day.

**105.2.2 Minor repairs.** Ordinary minor repairs or installation of replacement parts may be made without a permit, provided the repairs do not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; additionally, ordinary minor repairs shall not include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring systems or mechanical equipment or other work affecting public health or general safety, and such repairs shall not violate any of the provisions of the technical codes.

**105.2.3 Reserved.**

**105.3 Application for permit.** To obtain a permit, the applicant shall first file an application therefore in writing on a form furnished by the building department for that purpose. Permit application forms shall be in the format prescribed by a local administrative board, if applicable, and must comply with the requirements of Section 713.135(5) and (6), *Florida Statutes*. Each application shall be inscribed with the date of application, and the code in effect as of that date. For a building permit for which an application is submitted prior to the effective date of the *Florida Building Code*, the state minimum building code in effect in the permitting jurisdiction on the date of the application governs the permitted work for the life of the permit and any extension granted to the permit.

**105.3.1 Action on application.** The building official shall examine or cause to be examined applications for permits and amendments thereto within a reasonable time after filing. If the application or the construction documents do not conform to the requirements of pertinent laws, the building official shall reject such application in writing, stating the reasons therefore. If the building official is satisfied that the proposed work conforms to the requirements of this code and laws and ordinances applicable thereto, the building official shall issue a permit therefore as soon as practicable. When authorized through contractual agreement with a school board, in acting on applications for permits, the building official shall give first priority to any applications for the construction of, or addition or renovation to, any school or educational facility.

**105.3.1.1** If a state university, state community college or public school district elects to use a local government's code enforcement offices, fees charged by counties and municipalities for enforcement of the *Florida*

*Building Code* on buildings, structures, and facilities of state universities, state colleges and public school districts shall not be more than the actual labor and administrative costs incurred for plans review and inspections to ensure compliance with the code.

**105.3.1.2** No permit may be issued for any building construction, erection, alteration, modification, repair or addition unless the applicant for such permit provides to the enforcing agency which issues the permit any of the following documents which apply to the construction for which the permit is to be issued and which shall be prepared by or under the direction of an engineer registered under Chapter 471, *Florida Statutes*:

1. Electrical documents for any new building or addition which:
  - a. requires an aggregate service capacity of 600 amperes (240 volts) or more on a residential electrical system or 800 amperes (240 volts) or more on a commercial or industrial electrical system and
  - b. which costs more than \$50,000.
2. Plumbing documents for any new building or addition which requires a plumbing system with more than 250 fixture units or which costs more than \$50,000.
3. Fire sprinkler documents for any new building or addition which includes a fire sprinkler system which contains 50 or more sprinkler heads. A Contractor I, Contractor II or Contractor IV, certified under Section 633.521, *Florida Statutes*, may design a fire sprinkler system of 49 or fewer heads and may design the alteration of an existing fire sprinkler system if the alteration consists of the relocation, addition or deletion of not more than 49 heads, notwithstanding the size of the existing fire sprinkler system.
4. Heating, ventilation and air-conditioning documents for any new building or addition which requires more than a 15-ton-per-system capacity which is designed to accommodate 100 or more persons or for which the system costs more than \$50,000. This paragraph does not include any document for the replacement or repair of an existing system in which the work does not require altering a structural part of the building or for work on a residential one, two, three or four-family structure.

An air-conditioning system may be designed by an installing air-conditioning contractor certified under Chapter 489, *Florida Statutes*, to serve any building or addition which is designed to accommodate fewer than 100 persons and requires an air-conditioning system with a value of \$50,000 or less; and when a 15-ton-per system or less is designed for a singular space of a building and each 15-ton system or less has an independent duct system. Systems not complying with the above require design documents that are to be sealed by a professional engineer.

**Example 1:** When a space has two 10-ton systems with each having an independent duct system, the contractor may design these two systems since each unit (system) is less than 15 tons.

**Example 2:** Consider a small single-story office building which consists of six individual offices where each office has a single 3-ton package air

conditioning heat pump. The six heat pumps are connected to a single water cooling tower. The cost of the entire heating, ventilation and air-conditioning work is \$47,000 and the office building accommodates fewer than 100 persons. Because the six mechanical units are connected to a common water tower this is considered to be an 18-ton system. It therefore could not be designed by a mechanical or air conditioning contractor.

**NOTE:** It was further clarified by the Commission that the limiting criteria of 100 persons and \$50,000 apply to the building occupancy load and the cost for the total air-conditioning system of the building.

5. Any specialized mechanical, electrical, or plumbing document for any new building or addition which includes a medical gas, oxygen, steam, vacuum, toxic air filtration, halon, or fire detection and alarm system which costs more than \$5,000.

Documents requiring an engineer seal by this part shall not be valid unless a professional engineer who possesses a valid certificate of registration has signed, dated, and sealed such document as provided in Section 471.025, *Florida Statutes*.

**105.3.2** Time limitation of application. An application for a permit for any proposed work shall be deemed expired six months after the date of filing, or for any six month period of abandonment or suspension during the application process, unless such application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing prior to the abandonment date and justifiable cause demonstrated. Abandoned applications shall be subject to destruction in accordance with state law. The fee for renewal, re-issuance, and extension of a permit application shall be set forth by the administrative authority. There may be fees or requirements from other government agencies for permit application extensions and renewals.

**105.3.3** An enforcing authority may not issue a building permit for any building construction, erection, alteration, modification, repair or addition unless the permit either includes on its face or there is attached to the permit the following statement: "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."

**105.3.4** A building permit for a single-family residential dwelling must be issued within 30 working days of application therefore unless unusual circumstances require a longer time for processing the application or unless the permit application fails to satisfy the *Florida Building Code* or the enforcing agency's laws or ordinances.

**105.3.5** Identification of minimum premium policy.

Except as otherwise provided in Chapter 440, *Florida Statutes*, Workers' Compensation, every employer shall, as a condition to receiving a building permit, show proof that it has secured compensation for its employees as provided in Section 440.10 and 440.38, *Florida Statutes*.

**105.3.6** Asbestos removal. Moving, removal or disposal of asbestos-containing materials on a residential building where the owner occupies the building, the building is not for sale or lease, and the work is performed according to the owner-builder limitations provided in this paragraph. To qualify for exemption under this paragraph, an owner must personally appear and sign the building permit application. The permitting agency shall provide the person with a disclosure statement in substantially the following form:

Disclosure Statement: State law requires asbestos abatement to be done by licensed contractors. You have applied for a permit under an exemption to that law. The exemption allows you, as the owner of your property, to act as your own asbestos abatement contractor even though you do not have a license. You must supervise the construction yourself. You may move, remove or dispose of asbestos-containing materials on a residential building where you occupy the building and the building is not for sale or lease, or the building is a farm outbuilding on your property. If you sell or lease such building within 1 year after the asbestos abatement is complete, the law will presume that you intended to sell or lease the property at the time the work was done, which is a violation of this exemption. You may not hire an unlicensed person as your contractor. Your work must be done according to all local, state and federal laws and regulations which apply to asbestos abatement projects. It is your responsibility to make sure that people employed by you have licenses required by state law and by county or municipal licensing ordinances.

**105.4** Conditions of the permit.

**105.4.1** Permit intent. A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall expire unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

**105.4.1.1** If work has commenced and the permit is revoked, becomes null and void or expires because of lack of progress or abandonment, a new permit covering the proposed construction shall be obtained before proceeding with the work.

**105.4.1.2** If a new permit is not obtained within six months from the date the initial permit became null and void, the building official is authorized to require that any work which has been commenced or completed be removed from the

building site. Alternately, a new permit may be issued on application, providing the work in place and required to complete the structure meets all applicable regulations in effect at the time the initial permit became null and void and any regulations which may have become effective between the date of expiration and the date of issuance of the new permit.

**105.4.1.3** Work shall be considered to be in active progress when the permit has received an approved inspection within six months. This provision shall not be applicable in case of civil commotion or strike or when the building work is halted due directly to judicial injunction, order or similar process. The building official is authorized to grant, in writing, one or more extensions of time, for periods not more than 90 days each. The extension shall be requested in writing and justifiable cause demonstrated, prior to expiration.

**105.4.1.4** The fee for renewal, reissuance, and extension of a permit shall be set forth by the administrative authority. There may be fees or requirements from other government agencies for permit extensions and renewals.

## **105.5** Revocation of permits

**105.5.1** Misrepresentation of application. The building official may revoke a permit or approval, issued under the provisions of this code, in case there has been any false statement or misrepresentation as to the material fact in the application or plans on which the permit or approval was based.

**105.5.2** Violation of code provisions. The building official may revoke a permit upon determination by the building official that the construction, erection, alteration, repair, moving, demolition, installation, or replacement of the building, structure, electrical, gas, mechanical or plumbing systems for which the permit was issued is in violation of, or not in conformity with, the provisions of this code.

## **105.6** Reserved.

**105.7** Placement of permit. The building permit or copy shall be kept on the site of the work until the completion of the project.

**105.8** Notice of commencement. As per Section 713.135, *Florida Statutes*, when any person applies for a building permit, the authority issuing such permit shall print on the face of each permit card in no less than 18-point, capitalized, boldfaced type: "WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT."

**105.9** Asbestos. The enforcing agency shall require each building permit for the demolition or renovation of an existing structure to contain an asbestos notification statement which indicates the owner's or operator's responsibility to comply with the provisions of Section 469.003, *Florida Statutes*, and to notify the Department of Environmental Protection of his or her intentions to remove asbestos, when applicable, in

accordance with state and federal law. Refer to Section 105.3.6 "Asbestos Removal" for additional requirements.

**105.10** Certificate of protective treatment for prevention of termites. Duplicate treatment certificates shall be provided as each required protective treatment is completed, supplying one a copy for the person the permit is issued to and another copy for the building permit files. The treatment certificate shall provide the product used, identity of the applicator, time and date of the treatment, site location, area treated, chemical used, percent concentration and number of gallons used, to establish a verifiable record of protective treatment. If the soil chemical barrier method for termite prevention is used, final exterior treatment shall be completed prior to final building approval. For a bait system, see Section 1816.1.7 of the *Florida Building Code* for contract document requirements.

**105.11** Notice of termite protection. A permanent sign which identifies the termite treatment provider and need for reinspection and treatment contract renewal shall be provided. The sign shall be posted near the water heater or electric panel.

**105.12** Work starting before permit issuance. Upon written request and approval of the building official, the scope of work delineated in the building permit application and plan may be started prior to the final approval and issuance of the permit, provided any work completed is entirely at risk of the permit applicant and the work does not proceed past the first required inspection. This provision is only for the *Florida Building Code*, all other Agency approvals necessary for construction must be secured prior to this provision being applied.

**105.13** Phased permit approval. After submittal of the appropriate construction documents, the building official is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted. Corrections may be required to meet the requirements of the technical codes. This provision is only for the *Florida Building Code*, all other Agency approvals necessary for construction must be secured prior to this provision being applied.

**105.14** Permit issued on basis of an affidavit. The building official may accept a sworn affidavit from a registered architect or engineer stating that the plans submitted conform to the technical codes. For buildings and structures, the affidavit shall state that the plans conform to the laws as to egress, type of construction and general arrangement and, if accompanied by drawings, show the structural design and that the plans and design conform to the requirements of the technical codes as to strength, stresses, strains, loads and stability. Whenever a permit is issued in reliance upon an affidavit or whenever the work to be covered by a permit involves installation under conditions which, in the opinion of the building official, are hazardous or complex, the building official shall require that the architect or engineer who signed the affidavit or prepared the drawings or computations shall inspect such work. The building official may without any examination or inspection accept such affidavit, provided the architect

or engineer who made such affidavit agrees to submit to the building official copies of inspection reports as inspections are performed. In addition, they shall certify conformity to the permit, *and* upon completion of the structure, electrical, gas, mechanical or plumbing systems make and file with the building official written affidavit that the work has been done in conformity to the reviewed plans and that the structure, electrical, gas, mechanical or plumbing system has been erected in accordance with the requirements of the technical codes. Where the building official relies upon such affidavit, the architect or engineer shall assume full responsibility for compliance with all provisions of the technical codes and other pertinent laws or ordinances. In the event such architect or engineer is not available, the owner shall employ in his stead a competent person or agency whose qualifications are reviewed by the building official. The building official shall ensure that any person conducting plans review is qualified as a plans examiner under Part XII of Chapter 468, *Florida Statutes*, and that any person conducting inspections is qualified as a building inspector under Part III of Chapter 468, *Florida Statutes*. Nothing aforesaid shall preclude plan review or inspections by the building official.

## **SECTION 106 CONSTRUCTION DOCUMENTS**

**106.1** Submittal documents. Construction documents, a statement of special inspections and other data shall be submitted in two or more sets with each application for a permit. The construction documents shall be prepared by a design professional where required by the statutes. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a design professional. Electronic media documents shall be submitted when required by the building official.

**Exception:** The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code.

If the design professional is an architect or engineer legally registered under the laws of this state regulating the practice of architecture as provided for in Chapter 481, *Florida Statutes*, Part I, or engineering as provided for in Chapter 471, *Florida Statutes*, then he or she shall affix his or her official seal to said drawings, specifications and accompanying data, as required by *Florida Statute*. If the design professional is a landscape architect registered under the laws of this state regulating the practice of landscape architecture as provided for in Chapter 481, *Florida Statutes*, Part II, then he or she shall affix his or her seal to said drawings, specifications and accompanying data as defined in Section 481.303(6)(a)(b)(c)(d), *FS*.

**106.1.1** Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents shall be submitted when required by the building official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this

code and relevant laws, ordinances, rules and regulations, as determined by the building official (see also Section 106.3.5).

**106.1.1.1** Fire protection system shop drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate conformance with this code and the construction documents and shall be approved prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9 of this code.

**106.1.1.2** For roof assemblies required by the code, the construction documents shall illustrate, describe and delineate the type of roofing system, materials, fastening requirements, flashing requirements and wind resistance rating that are required to be installed. Product evaluation and installation shall indicate compliance with the wind criteria required for the specific site or a statement by an architect or engineer for the specific site must be submitted with the construction documents.

**106.1.2** Additional data. The building official may require details, computations, stress diagrams, and other data necessary to describe the construction or installation and the basis of calculations. All drawings, specifications and accompanying data required by the building official to be prepared by an architect or engineer shall be affixed with their official seal, signature and date as state law requires.

**106.1.3** Quality of building plans. Building plans shall be drawn to a minimum 1/8 inch scale upon substantial paper, cloth or other acceptable medium. The building official may establish through departmental policy, other standards for plans and specifications, in order to provide conformity to its record retention program. This policy may include such things as minimum size, shape, contrast, clarity, or other items related to records management. Electronic media must be compatible with the archive requirements of Florida Statutes.

**106.2** Reserved.

**106.3** Examination of documents. The building official shall examine or cause to be examined the accompanying construction documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

**Exceptions:**

1. Building plans approved pursuant to Section 553.77(5), *Florida Statutes*, and state-approved manufactured buildings are exempt from local codes enforcing agency plan reviews except for provisions of the code relating to erection, assembly or construction at the site. Erection, assembly (including utility crossover connections) and construction at the site are subject to local permitting and inspections.

2. Industrial construction on sites where design, construction and fire safety are supervised by licensed design and inspection professionals and which contain adequate in-house fire departments and rescue squads is exempt, subject to approval by the building official, from review of plans and inspections, providing the appropriate licensed design and inspection professionals certify that applicable codes and standards have been met and supply appropriate approved drawings to local building and fire-safety inspectors.

**106.3.1** Approval of construction documents. When the building official issues a permit, the construction documents shall be endorsed, in writing or by stamp, as "Reviewed for Code Compliance." One set of construction documents so reviewed shall be retained by the building official. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the building official or a duly authorized representative.

**106.3.2** Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

**106.3.3** Product approvals. Those products which are regulated by DCA Rule 9B-72 of the *Florida Administrative Code*, shall be reviewed and approved in writing by the designer of record prior to submittal for jurisdictional approval.

**106.3.4** Design professional in responsible charge.

**106.3.4.1** Reserved.

**106.3.4.2** Reserved.

**106.3.4.3** Certifications by contractors authorized under the provisions of Section 489.1 15(4)(b), *Florida Statutes*, shall be considered equivalent to sealed plans and specifications by a person licensed under Chapter 471, *Florida Statutes*, or Chapter 481 *Florida Statutes*, by local enforcement agencies for plans review for permitting purposes relating to compliance with the wind-resistance provisions of the code or alternate methodologies approved by the *Florida Building Commission* for one and two-family dwellings. Local enforcement agencies may rely upon such certification by contractors that the plans and specifications submitted conform to the requirements of the code for wind resistance. Upon good cause shown, local government code enforcement agencies may accept or reject plans sealed by persons licensed under Chapters 471,481 or 489, *Florida Statutes*.

**106.3.5** Minimum plan review criteria for buildings. The examination of the documents by the building official shall include the following minimum criteria and documents: a floor plan; site plan; foundation plan; floor/roof framing plan or truss layout; and all exterior elevations:

### 106.3.5.1 Commercial Buildings:

#### 106.3.5.1.1 Building

1. Site requirements:
  - Parking
  - Fire access
  - Vehicle loading
  - Driving/turning radius
  - Fire hydrant/water supply/post indicator valve (PIV)
  - Set back/separation (assumed property lines)
  - Location of specific tanks, water lines and sewer lines
2. Occupancy group and special occupancy requirements shall be determined.
3. Minimum type of construction shall be determined (see Table 503).
4. Fire-resistant construction requirements shall include the following components:
  - Fire-resistant separations
  - Fire-resistant protection for type of construction
  - Protection of openings and penetrations of rated walls
  - Fire blocking and draftstopping and calculated fire resistance
5. Fire suppression systems shall include:
  - Early warning smoke evacuation systems
  - Schematic fire sprinklers
  - Standpipes
  - Preengineered systems
  - Riser diagram
6. Life safety systems shall be determined and shall include the following requirements:
  - Occupant load and egress capacities
  - Early warning
  - Smoke control
  - Stair pressurization
  - Systems schematic
7. Occupancy load/egress requirements shall include:
  - Occupancy load
  - Gross
  - Net
  - Means of egress
  - Exit access
  - Exit
  - Exit discharge
  - Stairs construction/geometry and protection
  - Doors
  - Emergency lighting and exit signs
  - Specific occupancy requirements
  - Construction requirements
  - Horizontal exits/exit passageways

8. Structural requirements shall include:
  - Soil conditions/analysis
  - Termite protection
  - Design loads
  - Wind requirements
  - Building envelope
  - Structural calculations (if required)
  - Foundation
  - Wall systems
  - Floor systems
  - Roof systems
  - Threshold inspection plan
  - Stair systems
9. Materials shall be reviewed and shall at a minimum include the following:
  - Wood
  - Steel
  - Aluminum
  - Concrete
  - Plastic
  - Glass
  - Masonry
  - Gypsum board and plaster
  - Insulating (mechanical)
  - Roofing
  - Insulation
10. Accessibility requirements shall include the following:
  - Site requirements
  - Accessible route
  - Vertical accessibility
  - Toilet and bathing facilities
  - Drinking fountains
  - Equipment
  - Special occupancy requirements
  - Fair housing requirements
11. Interior requirements shall include the following:
  - Interior finishes (flame spread/smoke development)
  - Light and ventilation
  - Sanitation
12. Special systems:
  - Elevators
  - Escalators
  - Lifts

**106.3.5.1.2 Electrical**

1. Electrical:
  - Wiring
  - Services

- Feeders and branch circuits
- Overcurrent protection
- Grounding
- Wiring methods and materials
- GFCIs
- 2. Equipment
- 5. Special occupancies
- 6. Emergency systems
- 7. Communication systems
- 8. Low voltage
- 7. Load calculations

**106.3.5.1.3 Plumbing**

- 1. Minimum plumbing facilities
- 2. Fixture requirements
- 3. Water supply piping
- 4. Sanitary drainage
- 5. Water heaters
- 6. Vents
- 7. Roof drainage
- 8. Back flow prevention
- 9. Irrigation
- 10. Location of water supply line
- 11. Grease traps
- 12. Environmental requirements
- 13. Plumbing riser

**106.3.5.1.4 Mechanical**

- 1. Exhaust systems:
  - Clothes dryer exhaust
  - Kitchen equipment exhaust
  - Specialty exhaust systems
- 2. Equipment
- 3. Equipment location
- 4. Make-up air
- 5. Roof-mounted equipment
- 6. Duct systems
- 7. Ventilation
- 8. Combustion air
- 9. Chimneys, fireplaces and vents
- 10. Appliances
- 11. Boilers
- 12. Refrigeration
- 13. Bathroom ventilation
- 14. Laboratory

**106.3.5.1.5 Gas**

- 1. Gas piping
- 2. Venting

3. Combustion air
4. Chimneys and vents
5. Appliances
6. Type of gas
7. Fireplaces
8. LP tank location
9. Riser diagram/shutoffs

#### **106.3.5.1.6 Energy Calculations**

#### **106.3.5.2 Demolition**

1. Asbestos removal

#### **106.3.5.3 Residential (one- and two-family)**

1. Site requirements
  - Set back/separation (assumed property lines)
  - Location of septic tanks
2. Fire-resistant construction (if required)
3. Smoke detector locations
4. Egress
  - Egress window size and location
  - Stairs construction requirements
5. Structural requirements shall include:
  - Wall section from foundation through roof, including assembly and materials connector tables
  - Termite protection
  - Design Loads
  - Wind requirements
  - Building envelope
  - Structural calculations (if required)
  - Foundation
  - Wall systems
  - Floor systems
  - Roof systems
6. Accessibility requirements: show/identify accessible bath
7. Electrical:
  - Electric service riser with wire sizes, conduit detail and grounding detail. Complete load calculations, Panel schedules
8. Mechanical
  - Equipment and location, Duct systems
9. Plumbing
  - Plumbing riser
10. Gas (relocation of section only)
  - Gas piping
  - Venting
  - Combustion air
  - Chimneys and vents
  - Appliances
  - Type of gas

- Fireplaces
- LP tank location
- Riser diagram/shutoffs
- 11. Energy Calculations

**106.3.5.4 Swimming Pools**

- Barrier requirements
- Spas
- Wading pools

**106.3.5.5 Exemptions.**

Plans examination by the building official shall not be required for the following work:

1. Replacing existing equipment such as mechanical units, water heaters, etc.
2. Minor electrical, plumbing and mechanical repairs
3. Annual maintenance permits
4. Manufactured buildings plans except for foundations of buildings, which are constructed on site.

**106.4** Amended construction documents. Work shall be installed in accordance with the reviewed construction documents, and any changes made during construction that are not in compliance with the reviewed construction documents shall be resubmitted for review as an amended set of construction documents.

**106.5** Retention of construction documents. One set of official construction documents shall be retained by the building official as required by *Florida Statutes*.

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## **SECTION 107 TEMPORARY STRUCTURES AND USES**

**107.1** General. The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The building official is authorized to grant extensions for demonstrated cause.

**107.2** Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

**107.3** Temporary power. The building official is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in Chapter 27 of the *Florida Building Code, Building*.

**107.4** Termination of approval. The building official is authorized to terminate such permit for a temporary structure or use and to order the temporary structure or use to be discontinued.

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## **SECTION 108 FEES**

**108.1** Prescribed fees. A permit shall not be issued until fees authorized under Section 553.80, *Florida Statutes*, have been paid. Nor shall an amendment to a permit be released until the additional fee, if any, due to an increase in the estimated cost of the building, structure, electrical, plumbing, mechanical or gas systems has been paid.

**108.2** Schedule of permit fees. On buildings, structures, electrical, gas, mechanical, and plumbing systems or alterations requiring a permit, a fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

**108.3** Building permit valuations. If, in the opinion of the building official, the claimed valuation of building, alteration, structure, electrical, gas, mechanical or plumbing systems appears to be underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates, and/or bona fide signed contracts (excluding land value) to meet the approval of the building official. For permitting purposes, valuation of buildings and systems shall be total replacement value to include structural, electric, plumbing, mechanical, interior finish, normal site work (excavation and backfill for buildings), architectural and design fees, marketing costs, overhead and profit; excluding only land value. Valuation references may include the latest published data of national construction cost analysis services (Marshall-Swift, Means, etc.), as published by International Code Congress.

**108.4** Work commencing before permit issuance. Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the building official's approval or the necessary permits shall be subject to a penalty fee in addition to the required permit fees, as set in the approved schedule of fees.

**108.5** Reserved.

**108.6** Reserved.

## **SECTION 109 INSPECTIONS**

**109.1** General. Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

**109.1.1** Manufacturers and fabricators. When deemed necessary by the building official, he/she shall make, or cause to be made, an inspection of materials or assemblies at the point of manufacture or fabrication. A record shall be made of every such examination and inspection and of all violations of the technical codes.

**109.2** Preliminary inspection. Before issuing a permit, the building official is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

**109.2.1** Existing building inspections. Before issuing a permit, the building official may examine or cause to be examined any building, electrical, gas, mechanical, or plumbing systems for which an application has been received for a permit to enlarge, alter, repair, move, demolish, install, or change the occupancy. He/she may inspect the buildings, structures, electrical, gas, mechanical and plumbing systems, from time to time, before, during and upon completion of the work for which a permit was issued. He/she shall make a record of every such examination and inspection and of all observed violations of the technical codes. Additional regulations in *Florida Building Code, Existing Building* may apply.

**109.3** Required inspections. The building official upon notification from the permit holder or his or her agent, shall make the following inspections, and such other inspections as deemed necessary, and shall either release that portion of the construction or shall notify the permit holder or his or her agent of any violations which must be corrected in order to comply with the technical codes. The building official shall determine the timing and sequencing of when inspections occur and what elements are inspected at each inspection. A complete survey, or special purpose survey may be required before an inspection is approved.

**A. Building**

1. Foundation inspection. To be made after trenches are excavated and forms erected and shall at a minimum include the following building components:
  - Stem-wall
  - Monolithic slab-on-grade
  - Piling/pile caps
  - Footers/grade beams
2. Framing inspection. To be made after the roof, all framing, fireblocking and bracing is in place, all concealed wiring, all pipes, chimneys, ducts and vents are complete and shall at a minimum include the following building components:
  - Window/door framing
  - Vertical cells/columns
  - Lintel/tie beams
  - Framing/trusses/bracing/connectors (including truss layout drawings)
  - Draft stopping/fire blocking
  - Curtain wall framing
  - Energy insulation
  - Fire resistant joints and penetrations, as required

- Verify rough opening dimensions are within tolerances.
  - Accessibility.
3. Sheathing inspection. To be 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 and shall at a minimum include the following building components:
    - Roof sheathing
    - Wall sheathing
    - Sheathing fasteners
    - Roof/wall dry-in.
    - Gypsum board, as required
    - Sheathing/cladding inspection
  4. Lath/Drywall, as required
  5. Roofing inspection. Shall at a minimum include the following building components:
    - Dry-in
    - Insulation
    - Roof coverings (including in-progress)
    - Flashing
  6. Final inspection. To be made after the building is completed and ready for occupancy.
  7. Swimming pool inspection.
    - First inspection to be made after excavation and installation of reinforcing steel, bonding and main drain and prior to placing of concrete.
    - Final inspection to be made when the swimming pool is complete and all required enclosure requirements are in place.
    - In order to pass final inspection and receive a certificate of completion, a residential swimming pool must meet the requirements relating to pool safety features as described in Section 424.2.17.
    - Final electric inspection to be made prior to filling the swimming pool with water.
    - Final permanent barrier inspection to be made prior to filling the swimming pool with water.
  8. Demolition inspections.
    - First inspection to be made after all utility connections have been disconnected and secured in such manner that no unsafe or unsanitary conditions shall exist during or after demolition operations.
    - Final inspection to be made after all demolition work is completed.
  9. Manufactured building inspections. The building department shall inspect construction of foundations; connecting buildings to foundations; installation of parts identified on plans as site installed items, joining the modules, including utility crossovers; utility connections from the building to utility lines on site; and any other work done on site which requires compliance with the *Florida Building Code*. Additional

inspections may be required for public educational facilities (see Section 423.27.20).

10. Where impact-resistant coverings are installed to meet requirements of this code, the building official shall schedule adequate inspections of impact-resistant coverings to determine the following:

- The system indicated on the plans was installed.
- The system is installed in accordance with the manufacturer's installation instructions and the product approval.

#### **B. Electrical**

1. Underground inspection (including bonding and ground). To be made after trenches or ditches are excavated, conduit or cable is installed, and before any backfill is put in place.
2. Rough-in inspection. To be made after the roof, framing, fireblocking and bracing is in place and prior to the installation of wall or ceiling membranes.
3. Low Voltage: To be made for security, alarm, elevator, and special uses.
34. Final inspection. To be made after the building is complete, all required electrical fixtures are in place and properly connected or protected, and the structure is ready for occupancy.

#### **C. Plumbing**

1. Underground inspection. To be made after trenches or ditches are excavated, piping is installed, and before any backfill is put in place.
2. Rough-in inspection. To be made after the roof, framing, fireblocking and bracing is in place and all soil, waste and vent piping is complete, and prior to this installation of wall or ceiling membranes.
3. Final inspection. To be made 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 *Florida Building Code, Plumbing* for required tests.

#### **D. Mechanical**

1. Underground inspection. To be made after trenches or ditches are excavated, underground duct and fuel piping is installed, and before any backfill is put in place.
2. Rough-in inspection. To be made after the roof, framing, fire blocking and bracing are in place and all ducting, and other concealed components are complete, and prior to the installation of wall or ceiling membranes.
3. Final inspection. To be made after the building is complete, the mechanical system is in place and properly connected, and the structure is ready for occupancy.

#### **E. Gas**

1. Rough piping inspection. To be made after all new piping authorized by the permit has been installed, and before any such piping has been covered or concealed or any fixtures or gas appliances have been connected.

2. Final piping inspection. To be made 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, and before any fixtures or gas appliances have been connected. This inspection shall include a pressure test.
3. Final inspection. To be made on all new gas work authorized by the permit and such portions of existing systems as may be affected by new work or any changes, to ensure compliance with all the requirements of this code and to assure that the installation and construction of the gas system is in accordance with reviewed plans.

**109.3.1 Reserved.**

**109.3.2 Reserved.**

**109.3.3 Reinforcing steel and structural frames.** Reinforcing steel or structural frame work of any part of any building or structure shall not be covered or concealed without first obtaining a release from the building official. Certification that field welding and structural bolted connections meet design requirements shall be submitted to the building official, upon request.

**109.3.4 Termites.** Building components and building surroundings required to be protected from termite damage in accordance with Section 1503.6, Section 2304.13 or Section 2304.11.6, specifically required to be inspected for termites in accordance with Section 2114, or required to have chemical soil treatment in accordance with Section 1816 shall not be covered or concealed until the release from the building official has been received. (also refer to Sections 105.10 and 105.11)

**109.3.5 Shoring.** For threshold buildings, shoring and associated formwork or falsework shall be designed and inspected by a Florida licensed professional engineer, employed by the permit holder or subcontractor, prior to any required mandatory inspections by the threshold building inspector.

**109.3.6 Threshold building.**

**109.3.6.1** The enforcing agency shall require a special inspector to perform structural inspections on a threshold building pursuant to a structural inspection plan prepared by the engineer or architect of record. The structural inspection plan must be submitted to the enforcing agency prior to the issuance of a building permit for the construction of a threshold building. The purpose of the structural inspection plans is to provide specific inspection procedures and schedules so that the building can be adequately inspected for compliance with the permitted documents. The special inspector may not serve as a surrogate in carrying out the responsibilities of the building official, the architect or the engineer of record. The contractor's contractual or statutory obligations are not relieved by any action of the special inspector.

**109.3.6.2** The special inspector shall determine that a professional engineer who specializes in shoring design has inspected the shoring and reshoring for conformance with the shoring and reshoring plans submitted to the enforcing agency. A fee simple title owner of a building, which does not meet the minimum size, height, occupancy, occupancy classification or number-of-stories criteria which would result in classification as a threshold building under s. 553 .71(7), may designate such building as a threshold building, subject to more than the minimum number of inspections required by the *Florida Building Code*.

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

**109.3.6.4** Each enforcement agency shall require that, on every threshold building:

**109.3.6.4.1** The special inspector, upon completion of the building and prior to the issuance of a certificate of occupancy, file a signed and sealed statement with the enforcement agency in substantially the following form: "To the best of my knowledge and belief, the above described construction of all structural load-bearing components complies with the permitted documents, and the shoring and reshoring conforms to the shoring and reshoring plans submitted to the enforcement agency."

**109.3.6.4.2** Any proposal to install an alternate structural product or system to which building codes apply shall be submitted to the enforcement agency for review for compliance with the codes and made part of the enforcement agency's recorded set of permit documents.

**109.3.6.4.3** All shoring and reshoring procedures, plans and details shall be submitted to the enforcement agency for recordkeeping. Each shoring and reshoring installation shall be supervised, inspected and certified to be in compliance with the shoring documents by the contractor.

**109.3.6.4.4** All plans for the building which are required to be signed and sealed by the architect or engineer of record 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 the applicable fire-safety standards as determined by the local authority in accordance with this section and Chapter 633, *Florida Statutes*.

**109.3.6.5** No enforcing agency may issue a building permit for construction of any threshold building except to a licensed general contractor, as defined in Section 489.105(3)(a), *Florida Statutes*, or to a licensed building contractor, as defined in Section 489.105(3)(b), *Florida Statutes*, within the scope of her or his license. The named contractor to whom the building permit is issued shall have the responsibility for supervision, direction, management and control of

the construction activities on the project for which the building permit was issued.

**109.3.6.6** The building department may allow a special inspector to conduct the minimum structural inspection of threshold buildings required by this code, Section 553.73, *Florida Statutes*, without duplicative inspection by the building department. The building official is responsible for ensuring that any person conducting inspections is qualified as a building inspector under Part XII of Chapter 468, *Florida Statutes*, or certified as a special inspector under Chapter 471 or 481, *Florida Statutes*. Inspections of threshold buildings required by Section 553.79(5), *Florida Statutes*, are in addition to the minimum inspections required by this code.

**109.3.7 Reserved.**

**109.3.8** Other inspections services. The building official may make, or cause to be made by others, the inspections required by Section 109. He/she may accept reports of inspectors of recognized inspection services, provided that after investigation he/she is satisfied as to their qualifications and reliability. A certificate called for by any provision of the technical codes shall not be based on such reports unless the same are in writing and certified by a responsible officer of such service. The building official may require the owner to employ an inspection service in the following instances:

1. For buildings or additions of Type I construction
2. For all major structural alterations
3. Where the concrete design is based on compressive strength (f'c) in excess of 3000 pounds per square inch
4. For pile driving
5. For buildings with area greater than 20,000 square foot
6. For buildings more than 2 stories in height
7. For buildings and structures of unusual design or methods of construction

Such inspectors shall be adequately present at times work is underway on the structural elements of the building. Such inspectors shall be a registered architect, or engineer. An employee of the architect or engineer licensed under Chapter 468, Part XII, *Florida Statutes* may perform the inspections, under the direction of and with final certification from the architect or engineer. Such inspectors shall submit weekly progress reports including the daily inspections to the building official, and including a code compliance opinion of the Resident Inspector.

At the completion of the construction work or project, such inspectors shall submit a certificate of compliance to the building official, stating that the work was done in compliance with this code and in accordance with the permitted drawing. Final inspection shall be made by the building official before a Certificate of Occupancy or Certificate of Completion is issued; and confirmation inspections may be made at any time to monitor activities and resident inspectors.

**109.3.9 Affidavit for inspection.**

With specific prior approval of, and in a format acceptable to the building official, an affidavit for certification of inspection may be accepted from the permit qualifier; when accompanied by extensive photographic evidence of sufficient detail to demonstrate code compliance. The photographic evidence shall be comprehensive in the display of the installation and/or construction and job location identifiers. The affidavit and accompanying photographs shall be provided to the inspector onsite, at the next scheduled inspection. If the photographs are found to be insufficient by the building official to demonstrate compliance with this code and/or the permitted document, or clearly display location identifiers, or are missing, the inspector shall require the contractor to obtain the services of a Registered Florida Professional Engineer to inspect and certify the installation and/or construction.

**109.3.10 Inspections prior to issuance of Certificate of Occupancy or Completion.** The building official shall inspect or cause to be inspected, at various intervals, all construction or work for which a permit is required, and a final inspection shall be made of every building, structure, electrical, gas, mechanical or plumbing system upon completion, prior to the issuance of the Certificate of Occupancy or Certificate of Completion. In performing inspections, the building official shall give first priority to inspections of the construction, addition, or renovation to, any facilities owned or controlled by a state university, state community college or public school district.

**109.4 Impact of construction.** All construction activity regulated by this code shall be performed in a manner so as not to adversely impact the condition of adjacent property, unless such activity is permitted to affect said property pursuant to a consent granted by the applicable property owner, under terms or conditions agreeable to the applicable property owner. This includes, but is not limited to, the control of dust, noise, water or drainage run-offs, debris, and the storage of construction materials. New construction activity shall not adversely impact legal historic surface water drainage flows serving adjacent properties, and may require special drainage design complying with engineering standards to preserve the positive drainage patterns of the affected sites. Accordingly, developers, contractors and owners of all new residential development, including additions, pools, patios, driveways, decks or similar items, on existing properties resulting in a significant decrease of permeable land area on any parcel or has altered the drainage flow on the developed property shall, as a permit condition, provide a professionally prepared drainage plan clearly indicating compliance with this paragraph. Upon completion of the improvement, a certification from a licensed engineer shall be submitted to the inspector in order to receive approval of the final inspection.

**109.5 Inspection requests.** It shall be the duty of the holder of the building permit or their duly authorized agent to notify the building official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

**109.6** Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the written release of the building inspector. The building inspector, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the building inspector.

## **SECTION 110 CERTIFICATES OF OCCUPANCY AND COMPLETION**

**110.1** Certificate of Occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the building official has issued a Certificate of Occupancy therefore as provided herein. Issuance of a Certificate of Occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Said certificate shall not be issued until all required electrical, gas, mechanical, plumbing and fire protection systems have been inspected for compliance with the technical codes and other applicable laws and ordinances and released by the building official.

**110.2** Certificate issued. After the building official inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the building official shall issue a Certificate of Occupancy that contains the following:

1. The building permit number.
2. The address of the structure.
3. The name and address of the owner.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the building official.
7. The edition of the code under which the permit was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3 of this code.
9. The type of construction as defined in Chapter 6 of this code.
10. The design occupant load.
11. If an automatic sprinkler system is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building permit.

**110.3** Temporary/partial occupancy. A temporary/partial Certificate of Occupancy or Certificate of Completion may be issued for a portion or portions of a building that may safely be occupied prior to final completion of the building. The building official may require, once all life safety issues have been complied with, an applicant to provide adequate cash surety for unfinished work or revision of plans until a permanent Certificate of Occupancy or Certificate of Completion is granted. The purpose of the cash surety is to insure completion of work under this permit. Such cash surety shall be

equal to one hundred ten percent (110%) of the estimated value of the remaining work, including labor and material, as determined by the design professional. The design professional shall submit a signed and sealed document attesting to the amount required to cover the cash surety. If work has not been completed and all finals requested within 90 days of issuance of the initial Temporary/Partial Certificate of Occupancy or Certificate of Completion, the jurisdiction retains the right to have the applicant surrender the cash surety. The jurisdiction then may use the surety to finish the remaining work. The surety shall be in the form of cash money, certified check, or cashiers check. Surety shall be returned upon approval of all final inspections and upon written request that has been approved by the building official. This provision is only for the *Florida Building Code*, all other Agency approvals necessary for construction must be secured prior to this provision being applied.

**110.4 Certificate of Completion.** Upon satisfactory completion of a building, structure, electrical, gas, mechanical or plumbing system, a Certificate of Completion may be issued. This certificate 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.

**110.5 Revocation.** The building official is authorized to, in writing, suspend or revoke a Certificate of Occupancy or Completion issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

## **SECTION 111 SERVICE UTILITIES**

**111.1 Connection of service utilities.** No person shall make connections from a utility, source of energy, fuel or power to any building or system that is regulated by this code for which a permit is required, until released by the building official and a Certificate of Occupancy or Completion is issued. The servicing utility company shall not connect the power supply until notified by the building official.

**111.2 Temporary connection.** The building official shall have the authority to authorize the temporary connection of the building or system to the utility source of energy, fuel or power for the purpose of testing building service systems or for use under a temporary Certificate of Occupancy.

**111.3 Authority to disconnect service utilities.** The building official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of emergency where necessary to eliminate an immediate hazard to life, property, or unsafe condition. The building official shall notify the serving utility, and whenever possible the owner and occupant of the building, structure, or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnecting, the owner or occupant of the building, structure, or service system shall be notified in writing, as soon as practical thereafter.

## **SECTION 112 TESTS**

The building official may require tests or test reports as proof of compliance. Required tests are to be made at the expense of the owner, or agent, by an approved testing laboratory or other approved agency.

## **SECTION 113 VIOLATIONS**

Any person, firm, corporation or agent who shall violate a provision of this code, or fail to comply therewith, or with any of the requirements thereof, or who shall erect, construct, alter, install, demolish or move any structure, electrical, gas, mechanical or plumbing system, or has erected, constructed, altered, repaired, moved or demolished a building, structure, electrical, gas, mechanical or plumbing system, without full compliance with applicable codes, laws, ordinances, rules and regulations, shall be guilty of a misdemeanor. Each such person shall be considered guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of applicable codes, laws, ordinances, rules and regulations is committed or continued, and upon conviction of any such violation such person shall be punished within the limits and as provided by state laws. Nothing in this section shall prevent the authority having jurisdiction from imposing fines, liens, or seek injunction relief, or exercising other enforcement powers as permitted by law. Code enforcement and penalties of 162 *Florida Statutes* Part I shall be authorized if building work begins without payment of all required fees, and for the purposes of enforcing this code, code officials licensed under Florida Statute 468 Part XII are deemed "Code Inspectors", as defined in Florida Statute 162.04. .

## **SECTION 114 STOP WORK ORDER**

**114.1** Stop work orders. Upon notice from the building official, work on any building, structure, electrical, gas, mechanical or plumbing system that is being done contrary to the provisions of this code or in a dangerous or unsafe manner, shall immediately cease.

**114.2** Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume. Where an emergency exists, the building official shall not be required to give a written notice prior to stopping the work.

**114.3** Unlawful continuance. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

## **SECTION 115 UNSAFE STRUCTURES AND EQUIPMENT**

**115.1** Unsafe buildings or systems. All buildings, structures, electrical, gas, mechanical or plumbing systems which are unsafe, unsanitary, or do not provide adequate egress, or which constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use, constitute a hazard to safety or health, are considered unsafe buildings or service systems. All such unsafe buildings, structures or service systems are hereby declared illegal and shall be ordered by the building official to be abated by the owner, through repair and rehabilitation or by demolition in accordance with the this Code. The extent of repairs shall be determined by the building official.

**115.1.1** When the building official determines a building, structure, electrical, gas, mechanical or plumbing system or portion thereof is unsafe, as set forth in this Code he/she shall provide the owner, agent or person in control of such building, structure, electrical, gas, mechanical or plumbing system a written notice of violation stating the defects thereof. This notice shall require the owner within a stated time either to complete specified repairs or improvements, or to demolish and remove the building, structure, electrical, gas, mechanical or plumbing system or portion thereof.

**115.1.2** If necessary, the notice shall also require the building, structure, electrical, gas, mechanical, plumbing systems or portion thereof to be vacated and/or disconnected, and not reoccupied and/or reconnected until the specified repairs and improvements are completed, inspected and approved by the building official. The building official shall post at each entrance to the building a placard stating: THIS BUILDING IS UNSAFE AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE BUILDING OFFICIAL. This placard shall remain posted until the required repairs are made or demolition is completed. It shall be unlawful for any person, firm or corporation or its officers, agents, or other servants, to remove the posting without written permission of the building official, or for any person to enter the building, or use the building or system(s) except for the purpose of making the required repairs or of demolishing same.

**115.1.3** In case the owner, agent, or person in control cannot be found within the stated time limit, or, if such owner, agent, or person in control shall fail, neglect, or refuse to comply with notice to repair, rehabilitate, or to demolish, and remove said building, structure, electrical, gas, mechanical or plumbing system or portion thereof, the building official shall take action to achieve enforcement of the code and/or abatement of the unsafe condition in a manner as dictated by the degree of threat posed by the unsafe condition.

**115.2** Enforcement proceedings; hearings.

**115.2.1** Violation proceedings and hearings for unsafe structures and equipment that do not pose an immediate threat to the public welfare will be conducted before the Special Magistrate in accordance with the provisions set forth in *Florida Statute* 162. The building official shall act in the role of code inspector as authorized in Section 113 of this code, to initiate enforcement proceedings, and

notice shall be in accordance with the provisions of the Statute. The owner of property that is subject to an enforcement proceeding before the Special Magistrate is required to make disclosures as outlined in Florida Statute 162 before a transfer of property, and failure to make the required disclosures creates a presumption of fraud.

**115.2.2** The decision of the building official shall be final in cases of emergency, which, in the opinion of the building official, involve imminent danger to human life or health, or the property of others. He/she shall promptly cause such building, structure, electrical, gas, mechanical or plumbing system or portion thereof to be made safe, secured, or cause its removal. For this purpose he/she may at once enter such structure or land on which it stands, or abutting land or structures, with such assistance and at such cost as he may deem necessary. He/she may order the vacating of adjacent structures and may require the protection of the public by appropriate fence or such other means as may be necessary, and for this purpose may close a public or private way. Taking such action does not create a continuing obligation on the part of the building official to continue with maintaining such building, structure, or system; or create liability for any damage to the property.

**115.3** Administrative fines; costs to repair; liens. All costs incurred as a result of actions taken per Section 115.1.3 are charged to the violator.

**115.3.1** All costs associated with taking a case before the Special Master shall be recovered where the jurisdiction prevails, Whenever one of the orders of the Special Magistrate has not been complied with by the time set for compliance, for each day thereafter during which each violation continues past the date set for compliance, the Special Magistrate may impose a fine. A certified copy of an order imposing a fine, or a fine plus repair, and the costs of prosecuting the case, may be recorded in the public records and shall thereafter constitute a lien against the land where the violation exists and upon any other real or personal property owned by the violator.

**115.3.2** Costs associated with the abatement of the violation shall be charged to the owner of the premises involved. If charges are not paid within a ten (10) day period following the billing notification sent by certified mail, the owner of the premises will be charged in the following manner:

1. The building official shall assess the entire cost of such vacation, demolition, or removal against the real property upon which such cost was incurred, which assessment shall include but not be limited to all administrative costs, postal expenses, newspaper publication, and shall constitute a lien upon such property superior to all others except taxes.
2. The Clerk of the Circuit Court shall file such lien in the County's Official Record Book showing the nature of such lien, the amount thereof and an accurate legal description of the property, including the street address, which lien shall be effective from the date of filing and recite the names of all persons notified and interested persons. After three (3) months from the filing of any such lien which remains unpaid, the governing body may foreclose the lien in the

same manner as mortgage liens are foreclosed. Such lien shall bear interest from date of abatement of nuisance at the rate of ten (10) percent per annum and shall be enforceable if unsatisfied as other liens may be enforced by the governing agency.

#### **115.4 Appeals.**

**115.4.1** An aggrieved party, including the local governing body, may appeal a final administrative order of the Special Magistrate to the circuit court. Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the Special Magistrate. An appeal shall be filed within 30 days of the execution of the order to be appealed.

## **SECTION 116 BUILDING BOARD OF ADJUSTMENT AND APPEALS**

**116.1** Appointment. There is hereby established a board to be called the Building Board of Adjustment and Appeals, which shall consist of seven members and two alternates. The applicable governing body shall appoint the Board.

#### **116.2 Membership and Terms**

**116.2.1** Membership. The Building Board of Adjustment and Appeals shall consist of seven members. Such board members shall be composed of individuals with knowledge and experience in the technical codes to include, to the greatest extent possible, to an architect, engineer, general contractor, electrical contractor, HVAC contractor, plumbing contractor, and any other contractor licensed category. In addition to the regular members, there should be two alternate members, one member with the qualifications referenced above and one member at large from the public. A board member shall not act in a case in which he has a personal or financial interest.

**116.2.2** Terms. The terms of office of the board members shall be staggered so no more than one-third of the board is appointed or replaced in any 12-month period. The two alternates, if appointed, shall serve one-year terms. Vacancies shall be filled for an unexpired term in the manner in which original appointments are required to be made. Three absences of any member from required meetings of the board shall in a 12 month period, at the discretion of the applicable governing body, render any such member subject to immediate removal from office.

**116.2.3** Quorum and voting. A simple majority of the board shall constitute a quorum. In varying any provision of this code, the affirmative votes of the majority present, but not less than three affirmative votes, shall be required. In modifying a decision of the building official, not less than four affirmative votes, but not less than a majority of the board, shall be required. In the event that regular members are unable to attend a meeting, the alternate members, if appointed, shall vote.

**116.2.4** Secretary of board. The building official or his/her authorized representative shall act as secretary of the board and shall make a detailed record of all of its proceedings, which shall set forth the reasons for its decision, the vote of each member, the absence of a member, and any failure of a member to vote.

**116.3** Powers. The Building Board of Adjustments and Appeals shall have the power, as further defined in 116.4, to hear appeals of decisions and interpretations of the building official and consider variances of the technical codes.

#### **116.4** Appeals

**116.4.1** Decision of the building official. The owner of a building, structure or service system, or duly authorized agent, may appeal a decision of the building official to the Building Board of Adjustment and Appeals whenever any one of the following conditions are claimed to exist:

1. The building official rejected or refused to approve the mode or manner of construction proposed to be followed, or materials to be used in the installation or alteration of a building, structure, or service system.
2. The provisions of this code do not apply to this specific case.
3. That an equally good or more desirable form of installation can be employed in any specific case, which the building official has rejected or refused.
4. The true intent and meaning of this code or any of the regulations hereunder have been misconstrued or incorrectly interpreted.

**116.4.2** Variances. The Building Board of Adjustments and Appeals, when upon written request, has been so appealed to and after a hearing, may vary the application of any provision of this code to any particular case when, in its opinion, the enforcement thereof would do manifest injustice and would be contrary to the spirit and purpose of this or the technical codes or public interest, and also finds all of the following:

1. That special conditions and circumstances exist which are peculiar to the building, structure or service system involved and which are not applicable to others.
2. That the special conditions and circumstances do not result from the action or inaction of the applicant.
3. That granting the variance requested will not confer on the applicant any special privilege that is denied by this code to other buildings, structures or service system.
4. That the variance granted is the minimum variance that will make possible the reasonable use of the building, structure or service system.
5. That the grant of the variance will be in harmony with the general intent and purpose of this code and will not be detrimental to the public health, safety and general welfare.

**116.4.2.1** Conditions of the variance. In granting the variance, the board may prescribe a reasonable time limit within which the action for which the variance is required shall be commenced or completed or both. In addition, the board may prescribe appropriate conditions and safeguards in conformity with this code. Violation of the conditions of a variance shall be deemed a violation of this code.

**116.4.3** Notice of appeal. Notice of appeal shall be in writing and filed within 30 calendar days after the building official renders the decision. Appeals shall be in a form acceptable to the building official.

**116.4.4** Unsafe or dangerous buildings or service systems. In the case of a building, structure or service system, which in the opinion of the building official, is unsafe, unsanitary or dangerous, the building official may, in the order, limit the time for such appeals to a shorter period.

## **116.5** Procedures of the board.

**116.5.1** Rules and regulations. The board shall establish rules and regulations for its own procedure not inconsistent with the provisions of this code. The board shall meet on call of the chairman. The board shall meet within 30 calendar days after notice of appeal has been received.

**116.5.1.1** Rules of Evidence. Formal rules of evidence shall not apply, but fundamental due process should be observed and govern the proceedings. Upon determination by the Chairperson, irrelevant, immaterial, or unduly repetitious evidence may be excluded, but all other evidence of a type commonly relied upon by reasonable, prudent persons in the conduct of their affairs shall be admissible, whether or not such evidence would be admissible in a trial in the courts of Florida. Any part of the evidence may be received in written form. The Board may request certain evidence be provided by an architect or engineer registered in the State of Florida, in which case said evidence shall be signed, sealed, and dated.

**116.5.1.2** Testimony. Any member of the Board or the attorney representing the Board may inquire of, or question, any witness before the Board. Any member of the Board, the petitioner or his/her attorney, and/or the building official shall be permitted to inquire of any witness before the Board. The Board may consider testimony presented by the building official, the petitioner, or any other witness.

**116.5.2** Decisions. The Building Board of Adjustment and Appeals shall, in every case, reach a decision without unreasonable or unnecessary delay. Each decision of the board shall also include the reasons for the decision. If a decision of the board reverses or modifies a refusal, order, or disallowance of the building official or varies the application of any provision of this code, the building official shall immediately take action in accordance with such decision. Every decision shall be promptly filed in writing in the office of the building official and shall be open to public inspection. A certified copy of the decision shall be sent by mail or

otherwise to the appellant and a copy shall be kept publicly posted in the office of the building official for two weeks after filing. Every decision of the board shall be final; subject however to such remedy as any aggrieved party might have at law or in equity.

**SECTION 117  
RESERVED**

**SECTION 118  
SEVERABILITY**

If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

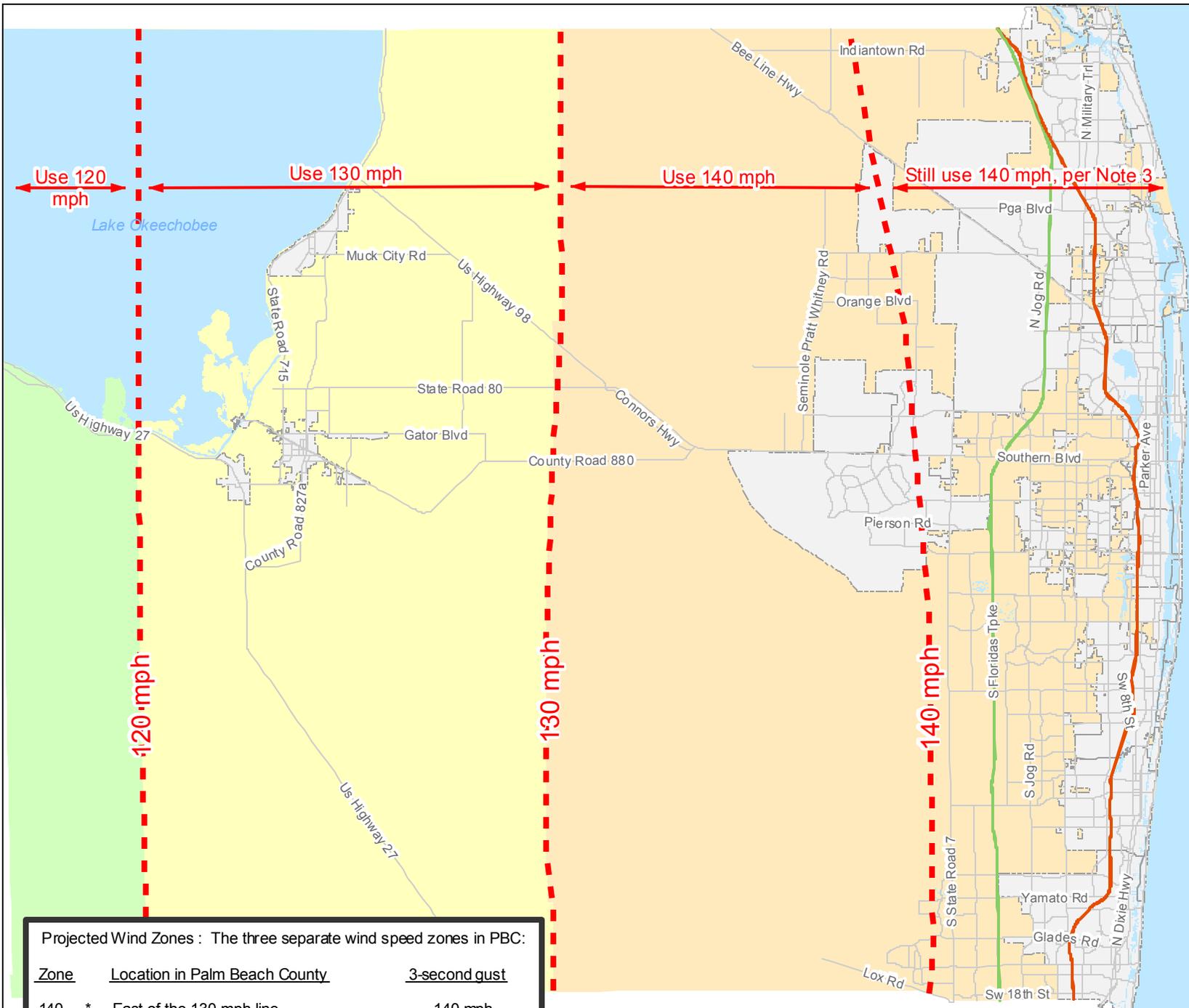
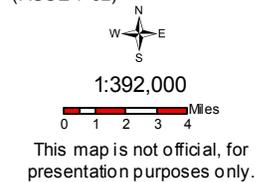
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# Palm Beach County Basic Wind Speeds

Florida Building Code  
Figure 1609.1  
Basic Wind Speed  
Three Second Gusts

**Notes:**

1. Values are nominal design, 3-second gust, wind speeds in miles per hour (mph) at 33 feet (10 m) above ground for Exposure C Category.
2. This map is accurate to the county. Local governments establish specific wind speed/wind-borne debris lines using physical landmarks such as major roads, canals, rivers, and shorelines.
3. Island and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds are American Society of Civil Engineers Standard (ASCE 7-02)



Projected Wind Zones : The three separate wind speed zones in PBC:

Zone	Location in Palm Beach County	3-second gust
140	* East of the 130 mph line	140 mph
130	* West of 130 mph line to 120 mph line	130 mph
120	* West of 120 mph line	120 mph

\* Exposure Category shall be determined per FBC 1609.4

- R35E
- R36E-R38E
- R39E-R43E
- Municipalities
- Water



**Planning, Zoning and Building Department - GIS**

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**APPENDIX F  
CONSTRUCTION BUILDING CODES FOR TURF AND  
LANDSCAPE IRRIGATION SYSTEMS**

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## PART 1: GENERAL

### A. Description.

**1. Purpose.** To establish uniform minimum standards and requirements for the design and installation of safe, cost effective, reliable irrigation systems for turf and landscape areas which promote the efficient use and protection of water and other natural resources.

**2. Definition.** Turf and landscape irrigation systems apply water by means of permanent above-ground or subsurface sprinkler or microsprinkler equipment under pressure.

**3. Scope.** These construction codes shall apply to all irrigation systems used on residential and commercial landscape areas. They address the design requirements, water quality, materials, installation, inspection, and testing for such systems. These construction codes do not apply to irrigation systems for golf courses, nurseries, greenhouses, or agricultural production systems.

**4. Application.** All new irrigation systems and any new work to existing irrigation systems shall conform to the requirements of this code. All electrical equipment, components, and wiring shall be installed in conformance with the Florida Building Code, Chapter 27 (NFPA 70).

**5. Application to Existing Irrigation Installations.** Nothing contained in this code shall be deemed to require any irrigation system or part thereof, which existed prior to the establishment of this code, to be changed altered or modified to meet the standards of this code.

### B. Permits.

**1. Permits Required.** It shall be unlawful to construct, enlarge, alter, modify, repair, or move any irrigation system or part thereof; or to install or alter any equipment for which provision is made or the installation of which is regulated by this code; without first having filed application and obtained a permit therefore from the building official. A permit shall be deemed issued when signed by the building official and impressed with the seal of the governmental agency issuing said permit. Electrical and other work outside of the scope of work allowed by a Palm Beach County licensed Irrigation Sprinkler Contractor, must be subcontracted to, and performed by a contractor licensed for competency in the specific area of the work, per Florida Statute 489, as may be amended or replaced.

**2. Exceptions.** All work where exempt from permit shall still be required to comply with the code. No permit shall be required for general maintenance or repairs which do not change the structure or alter the system and the value of which does not exceed \$600.00 in labor and material based on invoice value.

### C. Preconstruction Submittals.

#### 1. Plans or Drawings.

**a. Single-Family Residence.** Provide design drawings or shop drawings, where required, for the installation prior to start of construction. Design drawings shall be clearly readable, to reasonable scale, show the entire site to be irrigated, and include all improvements. Drawings can be prepared by a properly licensed qualified contractor.

**b. Commercial, Industrial, Municipal and Multiple-family.** Provide professionally designed drawings prior to start of construction. Design drawings shall be clearly readable, to reasonable scale, show the entire site to be irrigated, including all improvements, and shall include but not be limited to: date, scale, revisions, legend, specifications which list all aspects of equipment and assembly thereof, water source, water meter and/or point of connection, backflow prevention devices, pump station size, pump station location, design operating pressure and flow rate per zone, locations of

pipe, controllers, valves, sprinklers, sleeves, gate valves, electrical details, etc. The plans and specifications shall be prepared in accordance with Section 106 of the *Florida Building Code, Building*.

- c. The sprinkler layout may be modified to adjust for field conditions, provided it complies with Part VI, Section B. subsection 1 Sprinkler layout and spacing. Prior to final inspection, the contractor shall submit a letter or as-built drawing that reflects the modifications to the authority with jurisdiction.

#### **D. Definitions.**

**ABS Pipe:** Acrylonitrile-butadiene-styrene black, semi-rigid, plastic pipe extruded to IPS. ABS pipe is in limited use in present day irrigation systems. Solvent weld fittings are used with this pipe (see ASTM D 1788).

**Air Release Valve:** A valve which will automatically release to the atmosphere accumulated small pockets of air from a pressurized pipeline. A small orifice is used to release air at low flow rates. Air release valves are normally required at all summits of mainline and submain pipelines in an irrigation system.

**Anti-Siphon Device:** A safety device used to prevent back-flow of irrigation water to the water source by back-siphonage.

**Application Rate:** The average rate at which water is applied by an irrigation system, sometimes also called precipitation rate. Units are typically inches/hr or mm/hr.

**Arc:** The angle of coverage of a sprinkler in degrees from one side of throw to the other. A 90-degree arc would be a quarter-circle sprinkler.

**Atmospheric Vacuum Breaker:** An anti-siphon device which uses a floating seat to direct water flow. Water draining back from irrigation lines is directed to the atmosphere to protect the potable water supply.

**Automatic Control Valve:** A valve in a sprinkler system which is activated by an automatic controller by way of hydraulic or electrical control lines and controls a single device or multiple devices.

**Automatic System:** An irrigation system which operates following a preset program entered into an automatic controller.

**Backflow Prevention Device:** An approved safety device used to prevent pollution or contamination of the irrigation water supply due to backflow from the irrigation system.

**Belled (Pipe):** Pipe which is enlarged at one end so that the spigot end of another length of pipe can be inserted into it during the assembly of a pipeline.

**Block (of sprinklers):** A group of sprinklers controlled by one valve. Also called zones or subunits.

**Block System:** An irrigation system in which several groups of sprinklers are controlled by one valve for each group.

**Bubbler Irrigation:** The application of water to the soil surface or a container as a small stream or fountain. Bubbler emitter discharge rates are greater than the 0.5 to 2 gph characteristic of drip emitters, but generally less than 60 gph.

**Check Valve:** A valve which permits water to flow in one direction only.

**Chemical Water Treatment:** The addition of chemicals to water to make it acceptable for use in irrigation systems

**Chemigation:** The application of water soluble chemicals by mixing or injecting with the water applied through an irrigation system.

**Control Lines:** Hydraulic or electrical lines which carry signals (to open and close the valves) from the controller to the automatic valves.

**Controller:** The timing mechanism and its mounting box. The controller signals the automatic valves to open and close on a pre-set program or based on sensor readings.

**Contractor:** Any person who engages in the fabrication and installation of any type of irrigation system on a contractual basis in accordance with all stipulations receiving his compensation.

**Coverage:** Refers to the way water is applied to an area.

**Cycle:** Refers to one complete run of a controller through all programmed controller stations.

**Demand (or irrigation demand):** Refers to the irrigation requirements of the irrigated area. Demand primarily depends on the type of crop, stage of growth, and climatic factors.

**Design Area:** The specific land area to which water is to be applied by an irrigation system.

**Design Emission Uniformity:** An estimate of the uniformity of water application with an irrigation system.

**Design Area:** The specific land area to which water is to be applied by an irrigation system.

**Design Emission Uniformity:** An estimate of the uniformity of water application with an irrigation system.

**Design Pressure:** The pressure at which the irrigation system or certain components are designed to operate. The irrigation system design pressure is that measured at the pump discharge or entrance to the system if there is no pump, and a zone design pressure is the average operating pressure of all emitters within that zone.

**Direct Burial Wire:** Plastic-coated single-strand copper wire for use as control line for electric valves, and listed by a nationally recognized testing lab for the intended use.

**Discharge Rate:** The instantaneous flow rate of an individual sprinkler, emitter, or other water emitting device, or a unit length of line-source micro irrigation tubing. Also, the flow rate from a pumping system.

**Double Check Valve:** An approved assembly of two single, independently-acting check valves with test ports to permit independent testing of each check valve.

**Double Check Valve:** An approved assembly of two single, independently-acting check valves with test ports to permit independent testing of each check valve.

**Drain Valve:** A valve used to drain water from a line. The valve may be manually or automatically operated.

**Drip Irrigation:** The precise low-rate application of water to or beneath the soil surface near or directly into the plant root zone. Applications normally occur as small streams, discrete or continuous drops, in the range of 0.5 to 2.0 gph.

**Effluent water:** Also referred to as reclaimed or gray water is wastewater which has been treated per *Florida Statute*, §403.086, as may be amended or replaced, and is suitable for use as a water supply for irrigation systems.

**Emitters:** Devices which are used to control the discharge of irrigation water from lateral pipes. This term is primarily used to refer to the low flow rate devices used in micro irrigation systems.

**Fertigation:** The application of soluble fertilizers with the water applied through an irrigation system.

**Filtration System:** The assembly of physical components used to remove suspended solids from irrigation water. These include both pressure and gravity type devices, such as settling basins, screens, media filters, and centrifugal force units (vortex sand separators).

**Flexible Swing Joint:** A flexible connection between the lateral pipe and the sprinkler which allows the sprinkler to move when force is applied to it.

**Flow Meters:** Devices used to measure the volume of flow of water (typically in gallons), or flow rates (typically in gpm), and to provide data on system usage.

**Gauge (Wire):** Standard specification for wire size. The larger the gauge number, the smaller the wire diameter, following the standard of the American Wire Gauge.

**Head:** A sprinkler head. Sometimes used interchangeably with and in conjunction with “Sprinkler.”

**Infiltration Rate:** The rate of water flow across the surface of the soil and into the soil profile. Units are usually inches/hr.

**Irrigation:** Application of water by artificial means, that is, means other than natural precipitation. Irrigation is practiced to supply crop water requirements, leach salts, apply chemicals, and for environmental control including crop cooling and freeze protection.

**Irrigation Water Requirement or Irrigation Requirement:**

The quantity of water that is required for crop production, exclusive of effective rainfall.

**Landscape:** Refers to any and all areas which are ornamentally planted, including but not limited to turf, ground covers, flowers, shrubs, trees, and similar plant materials as opposed to agricultural crops grown and harvested for monetary return.

**Lateral:** The water delivery pipeline that supplies water to the emitters or sprinklers from a manifold or header pipeline downstream of the control valve.

**Line-Source Emitters:** Lateral pipelines which are porous or contain closely-spaced perforations so that water is discharged as a continuous band or in overlapping patterns rather than discrete widely-spaced points along the pipeline length.

**Looped System:** A piping system which allows more than one path for water to flow from the supply to the emitters or sprinklers.

**Mainline:** A pipeline which carries water from the control station to submains or to manifolds or header pipelines of the water distribution system.

**Manifold:** The water delivery pipeline that conveys water from the main or submain pipelines to the laterals. Also sometimes called a header pipeline.

**Manual System:** A system in which control valves are manually operated rather than operated by automatic controls.

**Meter Box:** A concrete or plastic box buried flush to grade which houses flow (water) meters or other components.

**Microirrigation:** The frequent application of small quantities of water directly on or below the soil surface, usually as discrete drops, tiny streams, or miniature sprays through emitters placed along the water delivery pipes (laterals). Micro irrigation encompasses a number of methods or concepts, including drip, subsurface, bubbler, and spray irrigation. Previously known as trickle irrigation.

**Overlap:** The amount one sprinkler pattern overlaps another one when installed in a pattern. Expressed as a percentage of the diameter of coverage.

**PE Pipe.** Flexible polyethylene pipe for use in irrigation systems, normally manufactured with carbon black for resistance to degradation by ultraviolet radiation.

**Potable Water:** Water which is suitable in quality for human consumption and meets the requirements of the Health Authority having jurisdiction.

**Pressure Relief Valve:** A valve which will open and discharge to atmosphere when the pressure in a pipeline or pressure vessel exceeds a pre-set point to relieve the high-pressure condition.

**Pressure Vacuum Breaker:** A backflow prevention device which includes a spring-loaded check valve and a spring-loaded vacuum breaker to prevent the backflow of irrigation system water to the water source.

**Pumping Station:** The pump or pumps that provide water to an irrigation system, together with all of the necessary accessories such as bases or foundations, sumps, screens, valves, motor controls, safety devices, electrical wiring and components, shelters and fences.

**PVC Pipe:** Polyvinyl chloride plastic pipe made in standard thermoplastic pipe dimension ratios and pressure rated for water. Manufactured in accordance with AWWA C-900 or ASTM D-2241.

**Rain Shut off Device:** A calibrated device that is designed to detect rainfall and override the irrigation cycle of the sprinkler system when a predetermined amount of rain fall has occurred.

**Riser:** A threaded pipe to which sprinklers or other emitters are attached for above-ground placement.

**Sleeve:** A pipe used to enclose other pipes, wire, or tubing; usually under pavement, sidewalks, or planters.

**Spacing:** The distance between sprinklers or other emitters.

**Spray Irrigation:** The micro irrigation application of water to the soil or plant surface by low flow rate sprays or mists.

**Sprinkler:** The sprinkler head. Sometimes called "Head."

**Supply (Water Source):** The origin of the water used in the irrigation system.

**Swing Joint:** A ridged connection between the lateral pipe and the sprinkler, utilizing multiple ells and nipples, which allows the sprinkler to move when force is applied to it.

**Tubing:** Generally used to refer to flexible plastic hydraulic control lines which are usually constructed of PE or PVC, and listed for the intended use.

## **PART II — DESIGN CRITERIA**

**A. Design Defined.** Within the scope of this code, irrigation system design is defined as the science and art of properly selecting and applying all components within the system.

### **B. Water Supply.**

1. The water source shall be adequate from the standpoint of volume, flow rate, pressure, and quality to meet the irrigation requirements of the area to be irrigated, as well as other demands, if any, both at the time the system is designed and for the expected life of the system.

2. If the water source is effluent, it shall meet the advanced waste treatment standard as set forth in Florida Statute §403.086(4), as may be amended or replaced, as well as any other standard as set forth by the controlling governmental agency.

**C. Application Uniformity.** Irrigation application uniformity describes how evenly water is distributed within an irrigation zone. Irrigation system uniformity is the uniformity coefficient.

Use application rates which avoid runoff and permit uniform water infiltration into the soil. Land slope, soil hydraulic properties, vegetative ground cover, and prevailing winds will be considered when application rates are specified. Sprinkler irrigation systems should be designed with the appropriate uniformity for the type of plant being grown and the type of soil found in that area. The general watering of different types of plants as one group without regard to their individual water requirements is to be avoided if at all possible. Different types of sprinklers with different application rates, i.e., spray heads vs. rotor heads, shall not be combined on the same zone or circuit.

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**D. System Zoning.** The irrigation system should be divided into zones based on consideration of the following:

1. Available flow rate.
2. Cultural use of the area.
3. Type of vegetation irrigated, i.e., turf, shrubs, native plants, etc.
4. Type of sprinkler, i.e., sprinklers with matching precipitation rates.
5. Soil characteristics.

**E. Sprinkler/Emitter Spacing and Selection.** Sprinkler/Emitter spacing will be determined considering the irrigation requirements, hydraulic characteristics of the soil and device, and water quality with its effect on plant growth, sidewalks, buildings, and public access areas. When using square spacing sprinklers should not be spaced farther apart than 55 percent of their manufacturer-specified diameters of coverage for prevailing wind speeds of 5 miles per hour (mph) or less. Spacing should not exceed 50 percent of sprinkler diameters of coverage for wind speeds of 5 to 10 mph, and 45 percent for prevailing wind speeds greater than 10 mph. When using triangular spacing the above overlap percentages can be reduced by five percent. Water conservation, will be emphasized by minimizing irrigation of non-vegetated areas. Micro-irrigation systems should be designed using the Emission Uniformity concept. Space micro-irrigation emitters to wet 100 percent of the root zone in turf areas and 50 percent of the root zone for shrubs and trees.

**F. Pipelines.** Pipelines will be sized to limit pressure variations so that the working pressure at all points in the irrigation system will be in the range required for uniform water application. Velocities shall not exceed 5 feet (1524 mm) per second.

**G. Wells.**

1. Well diameters and depths are to be sized to correspond to the irrigation system demand. Refer to SCS Code FL-642 and local water management district regulations
2. Well location and depth shall be in compliance with applicable state, water management district and local codes.

**H. Pumps.**

1. Pump and motor combinations shall be capable of satisfying the total system demand without invading the service factor of the motor except during start-up and between zones.
2. Pumps shall be positioned with respect to the water surface in order to ensure that the net positive suction head required (NPSHr) for proper pump operation is achieved.
3. The pumping system shall be protected against the effects of the interruption of water flow.

**I. Control Valves.**

1. Control valve size shall be based on the flow rate through the valve. Friction loss through the valve an approved air gap separation or a reduced pressure should not exceed 10 percent of the static mainline head.
2. Control systems using hydraulic communication between controller and valve(s) shall comply with the manufacturer's recommendations for maximum distance between controller and valve, both horizontally and vertically (elevation change).
3. The size of the electrical control wire shall be in accordance with the valve manufacturer's specifications based on the solenoid in-rush amperage and the circuit length, considering the number of solenoids operating on the circuit. Minimum of # 14 AWG single strand control wire shall be used on all systems, except individual, single lot residential systems.

4. Locate manually operated control valves so that they can be operated without wetting the operator.

**J. Automatic Irrigation Controller.** Automatic irrigation controllers shall be listed by a nationally recognized testing lab, and have an adequate number of stations and power output per station to accommodate the irrigation system design. The controller shall be capable of incorporating a rain shut off device to override the irrigation cycle when adequate rainfall has occurred, as required by *Florida Statutes*, Section 373.62, as may be amended or replaced.

**K. Chemical Injection.**

1. Chemical injection systems for the injection of fertilizer, pesticides, rust inhibitors, or any other injected substance will be located and sized according to the manufacturers' recommendations.
2. Injection systems will be located downstream of the applicable backflow prevention devices as required by *Florida Statutes*, Section 487.021 and 487.055, as they both may be amended or replaced; the Environmental Protection Agency (EPA); Pesticide Regulation Notice 87-1; or other applicable codes.
3. If an irrigation water supply is also used for human consumption, an air gap separation or an approved reduced pressure principal backflow prevention device is required.

**L. Backflow Prevention Methods.** Provide backflow prevention assemblies at all cross connections with all water supplies in accordance with county, municipal, or other applicable codes to determine acceptable backflow prevention assembly types and installation procedures for a given application. In the event of conflicting regulation provide the assembly type which gives the highest degree of protection.

1. Irrigation systems into which chemicals are injected shall conform to Florida state law (*Florida Statutes* 487.021 and 487.055, as they both may be amended or replaced) and Environmental Protection Agency Pesticide Regulation Notice 87-1, which requires backflow prevention regulations to be printed on the chemical label.
2. For municipal water supplies, chemical injection equipment must be separated from the water supply by an approved air gap separation or a reduced pressure principle assembly that is approved by the Foundation for CCC and the Hydraulic Research Institute. The equipment must also comply with ASSE #1013 to protect the water supply from back-siphonage and back-pressure.
3. For other water supplies, Florida State law, EPA regulations, or other applicable local codes must be followed. In the absence of legal guidelines at least a PVB should be used.

## **PART III — STANDARDS**

### **1. American Society of Agricultural Engineers (ASAE)**

**Standards:**

**ASAE S330.1:** Procedure for sprinkler distribution testing for research purposes.

**ASAE S376.1:** Design, installation, and performance of underground thermoplastic irrigation pipelines.

**ASAE S397.1:** Electrical service and equipment for irrigation.

**ASAE S435:** Drip/Trickle Polyethylene Pipe used for irrigation laterals.

**ASAE S398.1:** Procedure for sprinkler testing and performance reporting.

**ASAES339:** Uniform classification for water hardness.

**ASAE S394:** Specifications for irrigation hose and couplings used with self-propelled, hose-drag agricultural irrigation system.

**ASAE EP400.1:** Designing and constructing irrigation wells.

**ASAE EP405:** Design, installation, and performance of trickle irrigation systems.

**ASAE EP409:** Safety devices for applying liquid chemicals through irrigation systems.

**2. ASTM International Standards:**

**ASTM D 2241:** Poly (Vinyl Chloride) (PVC) Plastic pipe (SDR-PR).

**ASTM D 2239:** Specification for polyethylene (PE) plastic pipe (SDR-PR).

**ASTM D 2466:** Specification for socket-type poly (vinyl chloride) (PVC) and chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Schedule 40.

**ASTM D 2855:** Standard recommended practice for making solvent cemented joints with polyvinyl chloride pipe and fittings.

**ASTM D 3139:** Specification for joints for plastic pressure pipes using flexible elastomeric seals.

**ASTM F 477:** Specification for elastomeric seals (gaskets for joining plastic pipe).

**3. American Water Works Association (AWWA) standards:**

**AWWAC-900: PVC pipe standards and specifications**

**4. American Society of Sanitary Engineers (ASSE) Standards:**

**ASSE #1001:** Pipe applied atmospheric type vacuum breakers.

**ASSE #1013:** Reduced pressure principle backflow preventers.

**ASSE #1015:** Double check valve type back pressure backflow preventers.

**ASSE #1020:** Vacuum breakers, anti-siphon, pressure type.

**ASSE #1024:** Dual check valve type backflow preventers.

**5. Hydraulic Institute Standards, 14th Edition**

**6. Standards and Specifications For Turf and Landscape Irrigation Systems Florida Irrigation Society (FIS) Standards**

**7. Soil Conservation Service (SCS) Field Office Technical Guide, Section IV-A - Cropland Codes:**

**SCS Code 430-DD:** Irrigation water conveyance, under-ground, plastic pipeline.

**SCS Code 430-EE:** Irrigation water conveyance. Low pressure, underground, plastic pipeline.

**SCS Code 430-FF:** Irrigation water conveyance, steel pipeline.

**SOS Code 441-1:** Irrigation system, trickle.

**SCS Code 442:** Irrigation system sprinkler.

**SCS Code 449:** Irrigation water management.

**SCS Code 533:** Pumping plant for water control.

**SCS Code 642:** Well.

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## **PART IV: MATERIALS**

### **A. PVC Pipe and Fittings.**

1. PVC pipe should comply with one of the following standards ASTM D1785, ASTM D2241, AWWAC-900, or AWWA C-905. SDR-PR pipe shall have a minimum wall thickness as required by SDR-26. All pipe used with effluent water systems shall be designated for nonpotable use by either label or by the industry standard color purple.
2. All solvent-weld PVC fittings shall, at a minimum, meet the requirements of Schedule 40 as set forth in ASTM D 2466.
3. Threaded PVC pipe fittings shall meet the requirements of Schedule 40 as set forth in ASTM D 2464.
4. PVC gasketed fittings shall conform to ASTM D 3139. Gaskets shall conform to ASTM F 477.
5. PVC flexible pipe should be pressure rated as described in ASTM D 2740 with standard outside diameters compatible with PVC IPS solvent-weld fittings.
6. PVC cement should meet ASTM D 2564. PVC cleaner-type should meet ASTM F 656.

### **B. Ductile Iron Pipe and Fittings.**

1. Gasket fittings for iron pipe should be of materials and type compatible with the piping material being used.

### **C. Steel Pipe and Fittings.**

1. All steel pipe shall be rated Schedule 40 or greater and be hot-dipped galvanized or black in accordance with ASTM 53.
2. Threaded fittings for steel pipe should be Schedule 40 Malleable Iron.

### **D. Polyethylene Pipe.**

1. Flexible swing joints shall be thick-walled with a minimum pressure rating of 75 psi (517 kPa) in accordance with ASTM D 2239.
2. Low pressure polyethylene pipe for micro-irrigation systems shall conform with ASAE S-435.
3. Use fittings manufactured specifically for the type and dimensions of polyethylene pipe used.

### **E. Sprinklers, Spray Heads, and Emitters.**

1. Select units and nozzles in accordance with the size of the area and the type of plant material being irrigated. Sprinklers must fit the area they are intended to water without excessive overspray onto anything but the lot individual landscaped surface. Intentional direct spray onto walkways, buildings, electrical equipment, roadways, and drives is prohibited. All sprinklers used with effluent water systems shall be designated for non-potable use by either label or by the industry standard color purple.
2. Use equipment that is protected from contamination and damage by use of seals, screens, and springs where site conditions present a potential for damage.
3. Support riser-mounted sprinklers to minimize movement of the riser resulting from the action of the sprinkler.
4. Swing joints, either flexible or ridged, shall be constructed to provide a leak-free connection between the sprinkler and lateral pipeline to allow movement in any direction and to prevent equipment damage.

**F. Valves.**

1. Valves must have a maximum working pressure rating equal to or greater than the maximum pressure of the system, but not less than 125 psi (861 kPa). This requirement may be waived for low mainline pressure systems [30 psi (207 kPa) or less]. All valves used with effluent water systems shall be designated for non-potable use by either label or by the industry standard color purple.
2. Only valves that are constructed of materials designed for use with the water and soil conditions of the installation shall be used. Valves that are constructed from materials that will not be deteriorated by chemicals, injected into the system shall be used on all chemical injection systems.

**G. Valve Boxes.**

1. Valve boxes are to be constructed to withstand traffic loads common to the area in which they are installed. They should be sized to allow manual operation of the enclosed valves without excavation.
2. Each valve box should be permanently labeled to identify its contents. All valve boxes used with effluent water systems shall be designated for non-potable use by either label or by the industry standard color purple.

**H. Low Voltage Wiring.**

1. All low voltage wire which is directly buried must be listed and labeled by a nationally recognized testing lab for direct burial wire, and be UL listed for wet locations, in compliance with the Florida Building Code Chapter 27. All wire traveling under any hardscape or roadway must be installed within a listed and labeled pipe and sleeve.
2. The size of the electrical control wire shall be in accordance with the valve manufacturer's specifications, based on the solenoid in-rush current and the circuit length, considering the number of solenoids operating, on the circuit. Minimum of # 14 AWG single strand control wire shall be used on all systems, except single lot individual residential systems.
3. Connections are to be made using listed and labeled components specifically designed for direct burial. All splices shall be enclosed within a valve box, or a junction box listed and labeled for the intended use.

**I. Irrigation Controllers.**

1. All irrigation controllers shall be listed by a nationally recognized testing lab, conform to the provisions of the Florida Building Code Chapter 27 (NFPA 70), and be properly grounded in accordance with manufacturer's recommendations. Equip solid state controls, with surge suppressors on the primary and secondary wiring, except single lot residential systems.
2. The controller housing or enclosure shall be listed for the intended use, and shall protect the controller from the hazards of the environment in which it is installed. The rain switch shall be placed on a stationary structure minimum of 5-foot (1524 mm) "clearance", horizontally or vertically from other outdoor equipment, free and clear of any tree canopy or other overhead obstructions, and above the height of the sprinkler coverage.

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#### **J. Pumps and Wells.**

1. Irrigation pump electrical control systems must conform to the Florida Building Code Chapter 27 and all applicable building codes.
2. The pumping system shall be protected from the hazards of the environment in which it is installed.
3. Use electric motors with a nominal horsepower rating greater than the maximum horsepower requirement of the pump during normal operation. Motor shall have a service factor of at least 115% of the maximum horsepower requirement during normal operation, and be listed for the intended use.
4. Casings for drilled wells may be steel, reinforced plastic mortar, plastic, or fiberglass pipe. Only steel pipe casings shall be used in driven wells. Steel pipe must have a wall thickness equal to or greater than Schedule 40. See SCS code FL-642. Steel casings shall be equal to or exceed requirements of ASTM A 589.

#### **K. Chemical Injection Equipment.**

1. Chemical injection equipment must be constructed of materials capable of withstanding the potential corrosive effects of the chemicals being used. Equipment shall be used only for those chemicals for which it was intended as stated by the injection equipment manufacturer.

#### **L. Filters and Strainers.**

1. Filtration equipment and strainers constructed of materials resistant to the potential corrosive and erosive effects of the water shall be used. They shall be sized to prevent the passage of foreign material that would obstruct the sprinkler/emitter outlets in accordance with the manufacturer's recommendations.

### **PART V: INSTALLATION**

#### **A. Pipe Installation.**

1. Pipe shall be installed at sufficient depth below ground to protect it from hazards such as vehicular traffic or routine occurrences which occur in the normal use and maintenance of a property. Depths of cover shall meet or exceed SCS Code 430-DD, Water Conveyance, as follows:

##### ***FOR ALL AREAS EXCEPT VEHICLE TRAFFIC:***

##### **Pipe Diameter Minimum depth of Cover**

**½" through 1 ½" 6"**

**2" through 3" 12"**

**4" through 6" 18"**

**more than 6" 24"**

##### ***VEHICLE TRAFFIC AREAS SHALL REQUIRE A MINIMUM DEPTH OF COVER OF 18".***

2. Make all pipe joints and connections according to manufacturer's recommendations. Perform all solvent-weld connections in accordance with ASTM D 2855.
3. Minimum clearances shall be maintained between irrigation lines and other utilities. In no case shall one irrigation pipe rest upon another. Co-mingling or mixing of different types of pipe assemblies shall be prohibited.
4. Thrust blocks must be used on all gasketed PVC systems. They must be formed against a solid, hand-excavated trench wall undamaged by mechanical equipment. They shall be constructed of concrete, and the space between the pipe and trench shall be filled to the height of the outside diameter of the pipe. Size thrustblocks in accordance with ASAE S-376.1.

5. The trench bottom must be uniform, free of debris, and of sufficient width to properly place pipe and support it over its entire length. Native excavated material may be used to backfill the pipe trench. However, the initial backfill material to 6" above the top of the pipe shall be free from rocks or stones larger than 1-inch in diameter. The final backfill material shall be free of rock or debris that is greater than 3" in diameter. At the time of placement, the moisture content of the material shall be such that the required degree of compaction can be obtained with the backfill method to be used. Blocking or mounding shall not be used to bring the pipe to final grade.

6. Pipe sleeves must be used to protect pipes or wires installed under pavement or roadways or when position of irrigation pipes or wires conflict with pipes or appurtenances of other trades. Use pipe sleeves two pipe sizes larger than the carrier pipe or twice the diameter of the wire bundle to be placed under the paving or roadway, and extending a minimum of 3 feet beyond the paved area or as required by the Florida Department of Transportation (FDOT). Use sleeve pipe with wall thickness at least equal to the thickness of schedule 40 or PR 160 pipe, whichever is thicker. Proper backfill and compaction procedures should be followed.

7. Electrical wire and conduit shall comply with the burial depth and separation as required by the Florida Building Code (FBC) Chapter 27.

#### **B. Control Valve Installation.**

1. Valve installation shall allow enough clearance for proper operation and maintenance. Where valves are installed underground, they shall be provided with a valve box with cover extending from grade to the body of the valve. The top of the valve body should have a minimum of 6 inches (152 mm) of cover in non-traffic and non-cultivated areas and 18 inches (457 mm) of cover in traffic areas. If an automatic valve is installed under each sprinkler, then the valve box may be omitted.

2. Install valve boxes so that they do not rest on the pipe, the box cover does not conflict with the valve stem or interfere with valve operation, they are flush with the ground surface and do not present a tripping hazard or interfere with routine maintenance of the landscape.

3. Install quick coupling valves on swing joints or flexible pipe with the top of the valve at ground level. Any above-ground manually-operated valves on nonpotable water systems will be adequately identified with distinctive purple colored paint. Do not provide hose connections on irrigation systems that utilize nonpotable water supplies.

#### **C. Sprinkler Installation.**

1. On flat landscaped areas, install sprinklers plumb. In areas where they are installed on slopes, sprinklers may be tilted as required to prevent erosion. Sprinklers should be adjusted to avoid unnecessary discharge on pavements and structures. Adjust sprinklers so they do not water on roads.

2. Provide a minimum separation of 4 inches (102 mm) between sprinklers and pavement. Provide a minimum separation of 12 inches (305 mm) between sprinklers and buildings, electrical equipment, and other vertical structures. Piping must be thoroughly flushed before installation of sprinkler nozzles. Surface mounted and pop-up heads shall be installed on swing joints, flexible pipe, or polyethylene (PE) nipples. Above-ground (riser mounted) sprinklers shall be mounted on Schedule 40 PVC or steel pipe and be effectively stabilized.

#### **D. Pump Installation.**

1. Install pumps as per the manufacturer's recommendations, and the requirements of the Florida Building Code, Chapter 27. Set pumps plumb and secure to a firm concrete base.

There should be no strain or distortion on the pipe and fittings. Pipe and fittings should be supported to avoid placing undue strain on the pump. Steel pipe should be used on pumps 5 horsepower (hp) or larger whenever practical.

2. Pumps must be installed in a manner to avoid loss of prime. Install suction line to prevent the accumulation of air pockets. All connections and reductions in suction pipe sizes should be designed to avoid causing air pockets and cavitation.

3. Pumps must be located to facilitate service and ease of removal. Appropriate fittings should be provided to allow the pump to readily be primed, serviced, and disconnected. Provide an enclosure of adequate size and strength, with proper ventilation, to protect the pump from the elements (except residential systems).

#### **E. Low Voltage Wire Installation.**

1. Install low voltage wire (30 volts or less) with a minimum depth of cover of 12 inches (305 mm). Provide a sufficient length of wire at each connection to allow for thermal expansion/shrinkage. As a minimum, provide a 12-inch (305 mm) diameter loop at all splices and connections. Terminations at valves will have 24 inches (610 mm) minimum free wire.

2. Install all above-ground wire runs and wire entries into buildings in electrical conduit. Provide common wires with a different color than the power wires (white shall be used for common wires). Connections are to be made using UL approved devices specifically designed for direct burial. All splices shall be enclosed within a valve box.

#### **F. Hydraulic Control Tubing.**

1. For hydraulic control systems, use a water supply that is filtered and free of deleterious materials, as defined by the hydraulic control system manufacturer. Install a backflow prevention device where the hydraulic control system is connected to potable water supplies.

2. Install tubing in trenches freely and spaced so that it will not rub against pipe, fittings, or other objects that could score the tubing, and with a minimum 12-inch (305 mm) diameter loop at all turns and connections. Provide a minimum depth of cover of 12 inches (305 mm)

3. Connect tubing with couplings and collars recommended by the tubing manufacturer. All splices shall be made in valve boxes. Pre-fill tubing with water, expelling entrapped air and testing for leaks prior to installation. Install exposed tubing in protective piping, manufactured from Schedule 40 UV protected PVC listed and labeled for the intended use.

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## PART VI: TESTING & INSPECTIONS

**A. Purpose.** All materials and installations covered by the *Irrigation Code* shall be inspected by the governing agency to verify compliance with the *Irrigation Code*, and all other applicable codes.

**B. Rough Inspections.** Rough inspections shall be performed throughout the duration of the installation. These inspections shall be made by the governing agency to ensure that the installation is in compliance with the design intent, specifications, and the *Irrigation and all applicable Codes*. Inspections shall be made on the following items at the discretion of the governing agency:

1. **Sprinkler Layout and Spacing:** This inspection shall verify that the irrigation system design is accurately installed in the field. The authority having jurisdiction (AHJ) shall also provide for alteration or modification of the system to meet field conditions. To pass this inspection, sprinkler/emitter spacing shall be within +/- 5 percent of the design spacing.

2. **Pipe Installation Depth:** All pipes in the system shall be installed to depths as previously described in this code.

3. **Open Trench Inspection:**

a. The trench at all joints and every transition in pipe size, will be open where open trench inspection is required.

b. The trench shall be open for underground electrical inspection and not be backfilled until all required inspections have been satisfactorily completed by the AHJ.

Test all mainlines upstream of the zone valves as follows:

a. Fill the completely installed pipeline slowly with water to expel air.

b. Elevate the water pressure to the maximum static supply pressure as specified by the design professional and hold there for a period of 2 hours. Solvent-weld pipe connections shall have no leakage.

c. For gasketed pipe main lines add water as needed to maintain the pressure. Record the amount of water added to the system over the 2-hour period.

d. Use the following formulas to determine the maximum allowable leakage limit of gasketed pipe.

DUCTILE IRON:

$$L = S D (\text{square root of } P)/133,200$$

PVC, GASKETED JOINT:

$$L = ND (\text{square root of } P)/7400$$

Where:

L = allowable leakage (gph),

N = number of joints,

D = nominal diameter of pipe (inches),

P = average test pressure (psi), and

S = length of pipe (ft).

e. When testing a system, which contains metal-seated valves, an additional leakage per closed valve of 0.078 gph/inch of nominal valve size is allowed.

**C. Final Inspection.** When the work is complete the contractor shall request a final inspection.

**1. Cross Connection Control and Backflow Prevention.**

- a. Public or domestic water systems: Check that an approved backflow prevention assembly is properly installed and functioning correctly. Review the location of the assembly to check that it is not creating
  - a. hazard to pedestrians or vehicular traffic.
  - b. Water systems other than public or domestic water systems: Check that the proper backflow prevention assemblies are provided.
  - c. All assemblies that can be, will be tested by a certified technician prior to being placed into service.

**2. Sprinkler Coverage Testing.**

- a. All sprinklers must be adjusted to minimize overspray onto buildings and paved areas.
- b. All sprinkler controls must be adjusted to minimize runoff of irrigated water.
- c. All sprinklers must operate at their design radius of throw. Nozzle sizes and types called for in the system design must have been used.
- d. Spray patterns must overlap as designed.
- e. Sprinklers must be connected, as designed, to the appropriate zone.

**D. Site Restoration.**

- 1. All existing landscaping, pavement, and grade of areas affected by work must be restored to original condition or to the satisfaction of the governing authority. Pipeline trenches shall be properly compacted to the densities required by the plans and specifications.

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