

# FLORIDA BUILDING CODE

## ***2010 Termite Advanced Code, Soil and Foundation Protection*** ***(with complete Termite Code)***

### **Participant Guide**

**2010 Code** in effect as of March 2012  
Florida Building Commission  
2555 Shumard Oak Boulevard  
Tallahassee, Florida 32399-2100  
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# Building Practices and Standards

The following Florida Building Code sections and additional information should be observed to construct a building that is less conducive to termite infestation. Keep in mind that these are minimum requirements. While it is not possible to build a structure that is “termite proof”, it is possible to avoid creating conditions that favor termite infestation or make it difficult or impossible to control termites. Construction professionals who do not follow the building code place themselves in a greatly weakened liability position. Given the prevalence of termite damage in Florida, the risks of overlooking provisions of the code are too great to subject one’s company and reputation to.

## **The outline of this section is as follows:**

- Chapter 1 Administration  
Permits and Inspections
- Chapter 14 Exterior Walls  
Exterior siding (wall covering)
- Chapter 15 Roof Assemblies  
Weather protection (note that irrigation/sprinkler systems are included)
- Chapter 18 Soils and Foundations  
Foundations and retaining walls
- Chapter 21 Masonry  
Foundation masonry
- Chapter 23 Wood  
Construction practices
- Chapter 26 Plastic  
Residential References

### ***A. Permits and inspections***

#### **105 PERMITS**

**105.10 Certificate of Protective Treatment for prevention of termites.** A weather resistant job site posting board shall be provided to receive duplicate Treatment Certificates as each required protective treatment is completed, providing 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.

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

#### **110 INSPECTIONS**

**110.3.4 Termites.** Building components and building surroundings required to be protected from termite damage in accordance with Section 1503.7, Section 2304.13 or Section 2304.11.6, specifically required to be inspected for termites in accordance with 2114, or required to have chemical soil treatment in accordance with 1816 shall not be covered or concealed until the release from the building official has been received.

### ***B. Exterior siding (wall covering)***

#### **1403 Performance Requirements**

**1403.7** In order to provide for inspection for termite infestation, clearance between exterior wall coverings and final earth grade on the exterior of a building shall not be less than 6 inches (152 mm).

#### **Exceptions:**

1. Paint or decorative cementitious finish less than 5/8 inch (17.1 mm) thick adhered directly to the masonry foundation sidewall.
2. Access or vehicle ramps which rise to the interior finish floor elevation for the width of such ramps only.
3. A 4-inch (102 mm) inspection space above patio and garage slabs and entry areas.
4. If the patio has been soil treated for termites, the finish elevation may match the building interior finish floor elevations on masonry construction only.
5. Masonry veneers constructed in accordance with section 2114.2

The six-inch clearance is designed to allow for easy visual inspection for termite tunnels. The way in which exterior finishes are constructed for residential structures can affect the effectiveness of termite control practices

## C. Weather protection

(note that irrigation/sprinkler systems are included, the code for irrigation is located in the *PLUMBING edition*)

### 1503 WEATHER PROTECTION

**1503.7 Protection against decay and termites.** Condensate lines and roof downspouts shall discharge at least 1 foot (305 mm) away from the structure sidewall, whether by underground piping, tail extensions, or splash blocks. Gutters with downspouts are required on all buildings with eaves of less than 6 inches (152 mm) horizontal projection except for gable end rakes or on a roof above another roof.

### FBC PLUMBING, Section 316 Irrigation

#### 316.1 General:

Irrigation/sprinkler systems and risers for spray heads shall not be installed within 1 foot (305 mm) of the building sidewall.]

The purpose of this section is to limit all possible soil disturbances near the foundations of buildings. Liquid soil termiticide applied to these areas during construction can be easily disturbed by subsequent landscape operations and water input rendering a failed termiticide barrier. Inclusion of drought tolerant plants into landscape plans can aid in achieving this goal.

### D. Soils

#### SECTION 1816 TERMITE PROTECTION

**1816.1 Termite Protection.** Termite protection shall be provided by registered termiticides, including soil applied pesticides, baiting systems, and pesticides applied to wood, or other approved methods of termite protection labeled for use as a preventative treatment to new construction. Upon completion of the application of termite protective treatment, a certificate of completion shall be issued to the building department by the licensed pest control company that contains the following statement: "The building has received a complete treatment for the prevention of subterranean termites. Treatment is in accordance with rules and laws established by the Florida Department of Agriculture and Consumer Services."

**1816.1.1** If soil treatment is used for subterranean termite prevention, the initial chemical soil treatment inside the foundation perimeter shall be done after all excavation, backfilling, and compaction is complete.

**1816.1.2** If soil treatment is used for subterranean termite prevention, soil area disturbed after initial chemical soil treatment shall be retreated with a chemical soil treatment, including spaces boxed or formed.

**1816.1.3** If soil treatment is used for subterranean termite prevention, space in concrete floors boxed out or formed for the subsequent installation of plumbing traps, drains or any other purpose shall be created by using plastic or metal permanently placed forms of sufficient depth to eliminate any planned soil disturbance after initial chemical soil treatment.

**1816.1.4** If soil treatment is used for subterranean termite prevention, chemically treated soil shall be protected with a minimum 6 mil vapor retarder to protect against rainfall dilution. If rainfall occurs before vapor retarder placement, retreatment is required. Any work, including placement of reinforcing steel, done after chemical treatment until the concrete floor is poured, shall be done in such manner as to avoid penetrating or disturbing treated soil.]

Workers should minimize the amount of walking on treated soil and should try to walk flat-footed without digging their heels and toes into the soil. Even when walking on the vapor retarder, while installing the reinforcement wire, the horizontal soil barrier can and is likely disturbed.

Take special care to minimize disturbances, especially near cold/construction joints, expansion joints, around slab penetrations, i.e., plumbing, or places where cracks in slab will occur. Retreat these areas if disturbance occurs.

**1816.1.5** If soil treatment is used for subterranean termite prevention, concrete overpour or mortar accumulated along the exterior foundation perimeter shall be removed prior to exterior chemical soil treatment, to enhance vertical penetration of the chemicals.

**1816.1.6** If soil treatment is used for subterranean termite prevention, chemical soil treatments shall also be applied under all exterior concrete or grade within 1 foot (305 mm) of the primary structure sidewalls. Also, a vertical chemical barrier shall be applied promptly after construction is completed, including initial landscaping and irrigation/sprinkler installation. Any soil disturbed after the chemical vertical barrier is applied shall be promptly retreated.

Note that the vertical barrier is part of the entire pre-treatment requirement and should be completed after final grade. Any soil within 1 foot of structure disturbed after the chemical vertical barrier is applied shall be promptly retreated. This includes the addition of a driveway, sidewalk, air conditioner compressor pad, patio, etc.

## Chapter 18 Soils and Foundations

### 1816.1.7

If a registered termiticide formulated and registered as a bait system is used for subterranean termite prevention, Sections 1816.1.1 through 1816.1.6 do not apply; however, a signed contract assuring the installation, maintenance and monitoring of the baiting system for a minimum of 5 years from the issue of the certificate of occupancy shall be provided to the building official prior to the pouring of the slab, and the system must be installed prior to final building approval. If the baiting system directions for use require a monitoring phase prior to installation of the pesticide active ingredient, the installation of the monitoring phase components shall be deemed to constitute installation of the system.

### 1816.1.8

If a registered termiticide formulated and registered as a wood treatment is used for subterranean termite prevention, Sections 1816.1.1 through 1816.1.6 do not apply. Application of the wood-treatment termiticide shall be as required by label directions for use, and must be completed prior to final building approval. Changes in framing or additions to framing in areas of the structure requiring treatment that occur after the initial wood treatment must be treated prior to final building approval.

Rules and laws established by the Florida Department of Agriculture and Consumer Services generally refer to Chapters 487 (Pesticides) and 482 (Pest Control) of the Florida Statutes. In broad terms, Chapter 487 is satisfied if the product is labeled for the intended use and the label is followed. Chapter 482 is generally satisfied if a licensed pest control company does the treatment, the label is followed and a contract is issued. The entire text of these two statutes is found at

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Chapters 487 (Pesticides)  
Chapter 482 (Pest Control)

**1816.2 Penetration.** Protective sleeves around piping penetrating concrete slab-on-grade floors shall not be of cellulose-containing materials. If soil treatment is used for subterranean termite protection, the sleeve shall have a maximum wall thickness of 0.010 inch (0.254 mm), and be sealed within the slab using a non-corrosive clamping device to eliminate the annular space between the pipe and the sleeve. No termiticides shall be applied inside the sleeve.

### 1820 HIGH VELOCITY HURRICANE ZONES- CONCRETE SLABS ON FILL

**1820.2** Where it is proposed to place concrete slabs directly on the supporting soil, a subgrade shall be thoroughly compacted by approved methods. All fill placed under slabs shall be clean sand or rock, free of debris and other deleterious materials. The maximum size of rock within 12 inches below the floor slab in compacted fill shall be 3 inches in diameter. Where fill material includes rock, large rocks shall not be allowed to nest and all voids shall be carefully filled with small stones or sand, and properly compacted.

**1820.5** Concrete slabs outside of buildings, other than patios and pool slabs, where placed directly on the supporting soil, for minor accessory uses such as, but not limited to, walkways, driveways, minor equipment pads, etc., shall be not less than 4 inches thick. Such slabs shall be placed on clean, thoroughly compacted sand or crushed rock free from organics, debris or other deleterious materials.

### ***E. Foundation masonry***

#### **2114 TERMITE INSPECTION**

**2114.1 Cleaning.** Cells and cavities in masonry units and air gaps between brick, stone, or masonry veneers and the structure shall be cleaned of all non-preserved treated or non-naturally durable wood, or other cellulose-containing material prior to concrete placement.

**Exception:** Inorganic material manufactured for closing cells in foundation concrete masonry unit construction or clean earth fill placed in concrete masonry unit voids below slab level before termite treatment is performed.

**2114.2. Concrete bearing ledge.** Brick, stone, or other veneer shall be supported by a concrete bearing ledge at least equal to the total thickness of the brick, stone or other veneer, which is poured integrally with the concrete foundation. No supplemental concrete foundation pours which will create a hidden cold joint shall be used without supplemental treatment in the foundation unless there is an approved physical barrier. An approved physical barrier shall also be installed from below the wall sill plate or first block course horizontally to embed in a mortar joint. If masonry veneer extends below grade, a termite protective treatment must be applied to the cavity created between the veneer and the foundation, in lieu of a physical barrier.

**Exception:** Veneer supported by a shelf, angle or lintel secured to the foundation sidewall in accordance with ACI 530/ASCE5/TMS 402, provided at least a six inch (152 mm) clear inspection space of the foundation sidewall exterior exists between the veneer and the top of any soil, sod, mulch or other organic landscaping component, deck, apron, porch, walk, or any other work immediately adjacent to or adjoining the structure.]



## F. Wood

**2302 DEFINITIONS: Naturally Durable Wood:** The heartwood of the following species with the exception that an occasional piece with corner sapwood may be included if 90% or more of the width of each side on which it occurs is heartwood:

Decay resistant –	Redwood, Cedars, Black Locust and Black Walnut.
Termite resistant –	Redwood, Alaska Yellow Cedar. Eastern Red Cedar both heartwood and all Sapwood of Western Red Cedar

### **2303.1.8.1 Identification**

Wood required by Section 2304.11 to be preservative treated shall bear the quality mark of an inspection agency that maintains continuing supervision, testing and inspection over the quality of the preservative-treated wood. Inspection agencies for preservative-treated wood shall be listed by an accreditation body that complies with the requirements of the American Lumber Standards Treated Wood Program, or equivalent. The quality mark shall be on a stamp or label affixed to the preservative-treated wood, and shall include the following information:

1. *Identification of treating manufacturer.*
2. *Type of preservative used.*
3. *Minimum preservative retention (pcf).*
4. *End use for which the product is treated.*
5. *AWPA standard to which the product was treated.*
6. *Identity of the accredited inspection agency."*

## **2304 GENERAL CONSTRUCTION REQUIREMENTS**

### **2304.11 PROTECTION AGAINST DECAY AND TERMITES**

**2304.11.1 GENERAL:** Where required by this section, protection from decay and termites shall be provided by the use of naturally durable or preservative –treated wood.

#### **2304.11.2 Wood used above ground.**

Wood used above ground in the locations specified in Sections 2304.11.2.1 through 2304.11.2.7, 2304.11.3 and 2304.11.5 shall be naturally durable wood or *preservative-treated wood* using water-borne preservatives, in accordance with AWPA U1 (Commodity Specifications A or F) for above-ground use.

#### **2304.11.2.1 Joists, girders and subfloor.**

Where wood joists or the bottom of a wood structural floor without joists are closer than 18 inches (457 mm), or wood girders are closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated areas located within the perimeter of the building foundation, the floor construction (including posts, girders, joists and subfloor) shall be of naturally durable or *preservative-treated wood*.

**2304.11.2.2 Wood supported by exterior foundation walls.** Wood framing members, including wood sheathing, which rest on exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or preservative-treated wood. Wood framing members and furring strips attached directly to masonry or concrete walls shall be of approved naturally durable or preservative-treated wood.

**2304.11.2.3 Exterior walls below grade.** Wood framing members and furring strips attached directly to the interior of exterior masonry or concrete walls below grade shall be of approved naturally durable or preservative-treated wood.

**2304.11.2.4 Sleepers and sills.** Sleepers and sills on a concrete or masonry slab that is in direct contact with the earth shall be of naturally durable or preservative wood.

**2304.11.2.5 Girder Ends.** The ends of wood girders entering exterior masonry or concrete walls shall be provided with a ½ inch (12.7 mm) air space on top, sides and end, unless naturally durable or preservative treated wood is used.

**2304.11.2.6 Wood Siding** Clearance between wood siding and earth on the exterior of a building shall be not less than 6 inches (152 mm) or less than 2 inches (51 mm) vertical from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather except where siding, sheathing and wall framing are of preservative-treated wood or naturally durable wood.

**2304.11.2.7 POSTS OR COLUMNS:** Posts and columns supporting permanent structures and supported by a concrete or masonry slab or footings that is in direct contact with the earth shall be of naturally durable or preservative-treated wood..

### Exceptions:

1. Posts or columns that are either exposed to the weather or located in basements or cellars, supported by concrete piers or metal pedestals projected at least 1 inch (25 mm) above the slab or deck and 6 inches (152 mm) above exposed earth, and are separated therefrom by an impervious moisture barrier.
2. Posts or columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building, supported by a concrete pier or metal pedestal at a height greater than 8 inches (203 mm) from exposed ground, and are separated therefrom by an impervious moisture barrier.

**2304.11.3 Laminated Timbers** Those portions of glued laminated timbers which form the structural supports of a building or other structure and are exposed to weather and not properly protected by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable wood or preservative-treated wood.

### **2304.11.4 Wood in contact with the ground or fresh water**

Wood in contact with ground (exposed earth) in the location specified in Sections 2304.11.4.1 and 2304.11.4.2 shall be of naturally durable (species for both decay and termite resistance) or preservative-treated wood using water-borne preservatives and shall be treated in accordance with AWPA U1 (Commodity Specifications A or F) for soil or fresh water use.

#### **Exception:**

Untreated wood is permitted where such wood is continuously below ground water level or submerged in fresh water.

**2304.11.4.1 Posts or columns.** Posts and columns supporting permanent structures that are embedded in concrete that is in direct contact with the earth, embedded in concrete that is exposed to the weather or in direct contact with the earth shall be of preservative-treated wood.

**2304.11.4.2 WOOD STRUCTURAL MEMBERS:** Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or preservative-treated wood unless separated from such floors or roofs by an impervious moisture barrier.

**2304.11.4.3 Decks, Fences, patios, planters,** or other wooden building components that directly abut the side wall of the foundation or structure shall be constructed so as to provide:

1. Eighteen-inch (457 mm) clearance beneath or,
2. Six-inch (152 mm) clearance between the top of the component and the exterior wall covering or
3. have components that are easily removable by screws or hinges to allow access for inspection of the foundation sidewall and treatment for termites.

**2304.11.5 Supporting member for permanent appurtenances.** Naturally durable or preservative treated wood shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members.

**Exception:** When a building is located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use durable materials where the structure is exposed to the weather. **(not here)**

**2304.11.6 Termite protection.** In geographical areas where hazard of termite damage is known to be very heavy, wood framing shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWPA U1 for the species, product preservative and end use or provided with approved methods of termite protection.

**2304.11.7 Wood used in retaining or cribs. Wood installed in retaining or crib walls shall be** preservative-treated in accordance with AWPA U1 (commodity Specifications A or F) for soil and fresh water use.

**2304.11.10 Foam-plastic insulation.**

**2304.11.10.1**

The provisions of [Section 2603.8](#) shall apply to the installation of foam plastic insulation in close proximity to the ground.

**Exception:** Materials which are of naturally durable wood or are pressure treated for ground contact, and which are installed with at least 6 inches (152 mm) clear space from the structure to allow for inspection and treatment for termites.

In order to reduce chances of termite infestation, no wood, vegetation, stumps, dead roots, cardboard, trash, or other cellulose-containing material shall be buried on the building lot within 15 feet (4.6 m) of any building or the position of any building proposed to be built.

## ***G. (Wood) Construction practices***

### **2304 GENERAL CONSTRUCTION REQUIREMENTS**

**2304.13 Preparation of building site and removal of debris**

**2304.13.1** All building sites shall be graded to provide drainage under all portions of the building not occupied by basements.

**2304.13.2** The foundation and the area encompassed within 1 foot (305 mm) therein shall have all vegetation, stumps, dead roots, cardboard, trash, and foreign material removed and the fill material shall be free of vegetation and foreign material. The fill shall be compacted to assure adequate support of the foundation.

**2304.13.3** After all work is completed, loose wood and debris shall be completely removed from under the building and within 1 foot (305 mm) thereof. All wood forms and supports shall be completely removed. This includes, but is not limited to: wooden grade stakes, forms, contraction spacers, tub trap boxes, plumbing supports, bracing, shoring, forms, or other cellulose-containing material placed in any location where such materials are not clearly visible and readily removable prior to completion of the work. Wood shall not be stored in contact with the ground under any building.

Foreign cellulose material such as stumps, cardboard, form boards, paper facing on drywall and the like can become food sources for termites and thus brings more termites to the vicinity.

## Chapter 26 Plastics

### H. Plastics (including Insulated Concrete Forms and EFIS)

#### 2603.8 Protection against termites.

In Florida, extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).

#### Exceptions:

1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or preservative-treated wood.
2. An approved method of protecting the foam plastic and structure from subterranean termite damage is provided.
3. On the interior side of basement walls.

The six-inch clearance is designed to allow for easy visual inspection for termite tunnels.

## Additional Code, Residential

### SECTION R318 PROTECTION AGAINST TERMITES

#### R318.1 Termite Protection.

Termite protection shall be provided by registered termiticides, including soil applied pesticides, baiting systems, and pesticides applied to wood, or other approved methods of termite protection labeled for use as a preventative treatment to new construction.

**REGISTERED TERMITICIDE.** Product listed as registered for use as a preventative treatment for termites for new construction by the Florida Department of Agriculture and Consumer Services under authority of Chapter 487, *Florida Statutes*.

Upon completion of the application of the termite protective treatment, a Certificate of Compliance shall be issued to the building department by the licensed pest control company that contains the following statement: "The building has received a complete treatment for the prevention of subterranean termites. Treatment is in accordance with rules and laws established by the Florida Department of Agriculture and Consumer Services."

#### R318.1.1

If soil treatment used for subterranean termite prevention, the initial chemical soil treatment inside the foundation perimeter shall be done after all excavation, backfilling and compaction is complete.

#### R318.1.2

If soil treatment is used for subterranean termite prevention, soil area disturbed after initial chemical soil treatment shall be retreated with a chemical soil treatment, including spaces boxed or formed.

#### R318.1.3

- If soil treatment is used for subterranean termite prevention, space in concrete floors boxed out or formed for the subsequent installation of plumbing traps, drains or any other purpose shall be created by using plastic or metal permanently placed forms of sufficient depth to eliminate any planned soil disturbance after initial chemical soil treatment.

#### R318.1.4

If soil treatment is used for subterranean termite prevention, chemically treated soil shall be protected with a minimum 6 mil vapor retarder to protect against rainfall dilution. If rainfall occurs before vapor retarder placement, retreatment is required. Any work, including placement of reinforcing steel, done after chemical treatment until the concrete floor is poured, shall be done in such manner as to avoid penetrating or disturbing treated soil.

#### R318.1.5

If soil treatment is used for subterranean termite prevention, concrete overpour or mortar accumulated along the exterior foundation perimeter shall be removed prior to exterior chemical soil treatment, to enhance vertical penetration of the chemicals.

#### R318.1.6

If soil treatment is used for subterranean termite prevention, chemical soil treatments shall also be applied under all exterior concrete or grade within 1 foot (305 mm) of the primary structure sidewalls. Also, a vertical chemical barrier shall be applied promptly after construction is completed, including initial landscaping and irrigation/sprinkler installation. Any soil disturbed after the chemical vertical barrier is applied shall be promptly retreated.

#### R318.1.7

If a registered termiticide formulated and registered as a bait system is used for subterranean termite prevention, Section R318.1.1 through Section R318.1.6 do not apply; however, a signed contract assuring the installation, maintenance and monitoring of the baiting system for a minimum of five years from the issue of the Certificate of Occupancy shall be provided to the building official prior to the pouring of the slab, and the system must be installed prior to final building approval.

If the baiting system directions for use require a monitoring phase prior to installation of the pesticide active ingredient, the installation of the monitoring phase components shall be deemed to constitute installation of the system.

#### R318.1.8

If a registered termiticide formulated and registered as a wood treatment is used for subterranean termite prevention, Sections R318.1.1 through R318.1.6 do not apply. Application of the wood treatment termiticide shall be as required by label directions for use, and must be completed prior to final building approval.

#### R318.2 Penetration.

Protective sleeves around piping penetrating concrete slab-on-grade floors shall not be of cellulose-containing materials. If soil treatment is used for subterranean termite protection, the sleeve shall have a maximum wall thickness of 0.010 inch (0.25 mm), and be sealed within the slab using a non-corrosive clamping device to eliminate the annular space between the pipe and the sleeve. No termiticides shall be applied inside the sleeve.

#### R318.3 Cleaning.

Cells and cavities in masonry units and air gaps between brick, stone or masonry veneers and the structure shall be cleaned of all non-preserved treated or non-naturally durable wood, or other cellulose-containing material prior to concrete placement.

**Exception:** Inorganic material manufactured for closing cells in foundation concrete masonry unit construction or clean earth fill placed in concrete masonry unit voids below slab level before termite treatment is performed.