

2009 SUPPLEMENT TO THE 2007 FLORIDA BUILDING CODE

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2009 Supplement to the 2007 Florida Building Code

BUILDING VOLUME

This package of replacement pages is designed to update the 1st edition of the 2007 Florida Building Code[®] to the latest revisions. To update your existing code, replace sheets by page number. Place all these sheets in the code and remove any existing sheets.

PREFACE

History

The State of Florida first mandated statewide building codes during the 1970s at the beginning of the modern construction boom. The first law required all municipalities and counties to adopt and enforce one of the four state-recognized model codes known as the "state minimum building codes." During the early 1990s a series of natural disasters, together with the increasing complexity of building construction regulation in vastly changed markets, led to a comprehensive review of the state building code system. The study revealed that building code adoption and enforcement was inconsistent throughout the state and those local codes thought to be the strongest proved inadequate when tested by major hurricane events. The consequences of the building codes system failure were devastation to lives and economies and a statewide property insurance crisis. The response was a reform of the state building construction regulatory system that placed emphasis on uniformity and accountability.

The 1998 Florida Legislature amended Chapter 553, *Florida Statutes* (FS), Building Construction Standards, to create a single state building code that is enforced by local governments. As of March 1, 2002, the *Florida Building Code*, which is developed and maintained by the Florida Building Commission, supersedes all local building codes. The Florida Building Code is updated every three years and may be amended annually to incorporate interpretations and clarifications.

Scope

The *Florida Building Code* is based on national model building codes and national consensus standards which are amended where necessary for Florida's specific needs. The code incorporates all building construction-related regulations for public and private buildings in the State of Florida other than those specifically exempted by Section 553.73, Florida Statutes. It has been harmonized with the *Florida Fire Prevention Code*, which is developed and maintained by the Department of Financial Services, Office of the State Fire Marshal, to establish unified and consistent standards.

The base codes for the 2007 edition of the *Florida Building Code* include: the *International Building Code*[®], 2006 edition; the *International Plumbing Code*[®], 2006 edition; the *International Mechanical Code*[®], 2006 edition; the *International Fuel Gas Code*[®], 2006 edition; the *International Residential Code*[®], 2006 edition; the *International Existing Building Code*[®], 2006 edition;

the *National Electrical Code*, 2008 edition; the U. S. Department of Housing and Urban Development, *Fair Housing Guidelines*, and; substantive criteria from the American Society of Heating, Refrigerating and Air-conditioning Engineers' (ASHRAE) Standard 90.1-2004. State and local codes adopted and incorporated into the code include the *Florida Energy Efficiency Code for Building Construction*, the *Florida Accessibility Code for Building Construction* and special hurricane protection standards for the high-velocity hurricane zone.

The code is composed of seven main volumes: the *Florida Building Code, Building*, which also includes Chapter 13 (energy efficiency) and Chapter 11(accessibility) as well as state regulations for licensed facilities; the *Florida Building Code, Plumbing*; the *Florida Building Code, Mechanical*; the *Florida Building Code, Fuel Gas*; the *Florida Existing Building Code*; the *Florida Building Code*; the *Florida Building Code*, the *Florida Building Code*; the *Florida Build*

Under certain strictly defined conditions, local governments may amend requirements to be more stringent than the code. All local amendments to the *Florida Building Code* must be adopted by local ordinance and reported to the Florida Building Commission then posted on www.floridabuilding.org in Legislative format for a month before being enforced. Local amendments to the *Florida Building Code* may be obtained from the Florida Building Commission web site, or from the Florida Department of Community Affairs or the Florida Department of Financial Services, Office of the State Fire Marshal, respectively.

Adoption and Maintenance

The *Florida Building Code* is adopted and updated with new editions triennially by the Florida Building Commission. It is amended annually to incorporate interpretations, clarifications and to update standards. Minimum requirements for permitting, plans review and inspections are established by the code, and local jurisdictions may adopt additional administrative requirements that are more stringent. Local technical amendments are subject to strict criteria established by Section 553.73, F.S. They are subject to commission review and adoption into the code or repeal when the code is updated triennially and are subject to appeal to the Commission according to the procedures established by Section 553.73, F.S.

Ten Technical Advisory Committees (TACs), which are constituted consistent with American National Standards Institute (ANSI) Guidelines, review proposed code changes and clarifications of the code and make recommendations to the Commission. These TACs whose membership is constituted consistent with American National Standards Institute (ANSI) Guidelines include: Accessibility; Joint Building Fire (a joint committee of the Commission and the State Fire Marshal); Building Structural; Code Administration/ Enforcement; Electrical; Energy; Mechanical; Plumbing and Fuel Gas; Roofing; and Special Occupancy (state agency construction and facility licensing regulations).

The Commission may only issue official code clarifications using procedures of Chapter 120, Florida Statutes. To obtain such a clarification, a request for a Declaratory Statement (DEC) must be made to the Florida Building Commission in a manner that establishes a clear set of facts and circumstances and identifies the section of the code in question. Requests are analyzed by staff, reviewed by the appropriate Technical Advisory Committee, and sent to the Florida Building Commission for a first action. Draft Declaratory Statements are subject to public comment and are finalized by the Commission at its next meeting. These interpretations establish precedents for situations having similar facts and circumstances and are typically incorporated into the code in the next code amendment cycle. Non-binding opinions are available from the Building Officials Association of Florida's web site (www.BOAF.net) and a Binding Opinion process is available online at www.floridabuilding.org.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to the code are considered at the Code Development Hearings by the ICC Building Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section that has a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [F] in front of them (e.g. [F] 903.1.1) are considered by the ICC Fire Code Development Committee at the code development hearings.

The content of sections in this code that begin with a letter designation are maintained by another code development committee in accordance with the following:

[E] = International Energy Conservation Code Development Committee;

[EB] = International Existing Building Code Development Committee;

[EL] = ICC Electrical Code Development Committee;

[F] = International Fire Code Development Committee;

[FG] = International Fuel Gas Code Development Committee;

[M] = International Mechanical Code Development Committee; and

[P] = International Plumbing Code Development Committee.

Marginal Markings

Vertical lines in the margins within the body of the code indicate a change from the requirements of the base codes to the 2007 *Florida Building Code* effective March 1, 2009.

Sections deleted from the base code are designated "Reserved."

An * inserted in the margin indicates a change from the 2007 *Florida Building Code* to the 2009 *Florida Building Code* revisions, effective March 1, 2009.

An ** inserted in the margin indicates a change from the 2007 *Florida Building Code* to the 2009 *Florida Building Code* revisions, effective October 1, 2009.

Acknowledgments

The *Florida Building Code* is produced through the efforts and contributions of building designers, contractors, product manufacturers, regulators and other interested parties who participate in the Florida Building Commission's consensus processes, Commission staff and the participants in the national model code development processes.

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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. 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.
- 2. 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.
- 3. 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 cool-

ing 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.
- 4. 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 stamped such document as provided in Section 471.025, *Florida Statutes*.

5. Electrical documents. See Florida Statutes 471.003(2)(h).

105.3.2 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, 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 and justifiable cause demonstrated.

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 therefor 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 become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is uspended 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 180 days 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 inspec-

tion within 180 days. 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.

105.4.1.4 The fee for renewal reissuance and extension of a permit shall be set forth by the administrative authority.

105.5 Expiration. Reserved.

105.6 Suspension or revocation. 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 IMPROVE-MENTS 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.

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 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 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.

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.

105.14 Permit issued on basis of an affidavit. 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 supervise such work. In addition, they shall be responsible for conformity to the permit, provide copies of inspection reports as inspections are performed, and upon completion make and file with the building official written affidavit that the work has been done in conformity to the reviewed plans and with the structural provisions of the technical codes. 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.

* * 105.15 Opening protection. When any activity requiring a building permit that is applied for on or after July 1, 2008, and for which the estimated cost is \$50,000 or more for a site-built single-family detached residential structure that is located in the wind-borne debris region as defined in this code and that has an insured value of \$750,000 or more, or, if the site-built single-family detached residential structure is uninsured or for which documentation of insured value is not presented, has a just valuation for the structure for purposes of ad valorem taxation of \$750,000 or more; opening protections as required within this code or *Florida Building Code, Residential* for new construction

shall be provided.

Exception: Single-family residential structures permitted subject to the *Florida Building Code* are not required to comply with this section.

SECTION 106 CONSTRUCTION DOCUMENTS

106.1 Submittal documents. Construction documents, a statement of special inspections and other data shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by Chapter 471, Florida Statutes or Chapter 481, Florida Statutes. Where special conditions exist, the building official is authorized to require additional construction.

tion documents to be prepared by a registered design |*|* professional.

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.

106.1.1 Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved 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.

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 Means of egress. Reserved.

106.1.3 Exterior wall envelope. Reserved.

106.2 Site plan. 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 and construction at the site are subject to local permitting and inspections.
- Industrial construction on sites where design, construction and fire safety are supervised by appropriate design and inspection professionals and which contain adequate in-house fire departments and rescue squads is exempt, subject to local government option, from review of plans and inspections, providing owners

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 approved, 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 Phased approval. Reserved.

106.3.4 Design professional in responsible charge. Reserved.

106.3.4.1 General. Reserved.

106.3.4.2 Deferred submittals. Reserved.

106.3.4.3 Certifications by contractors authorized under the provisions of Section 489.115(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:

Commercial Buildings:

Building

 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).
- 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
- Fire suppression systems shall include: Early warning smoke evacuation systems Schematic fire sprinklers Standpipes Preengineered systems Riser diagram Same as above
- 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
- 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
- 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
- Interior requirements shall include the following: Interior finishes (flame spread/smoke development) Light and ventilation Sanitation
- 12. Special systems: Elevators Escalators Lifts
- Swimming pools: Barrier requirements Spas Wading pools

Electrical

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

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

Mechanical

- 1. Energy calculations
- 2. Exhaust systems:

Clothes dryer exhaust Kitchen equipment exhaust Specialty exhaust systems

- 3. Equipment
- 4. Equipment location
- 5. Make-up air
- 6. Roof-mounted equipment
- 7. Duct systems
- 8. Ventilation
- 9. Combustion air
- 10. Chimneys, fireplaces and vents
- 11. Appliances
- 12. Boilers
- 13. Refrigeration
- 14. Bathroom ventilation
- 15. Laboratory

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

Demolition

1. Asbestos removal

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. Fire
- 4. Smoke detector locations
- 5. Egress

Egress window size and location stairs construction requirements

6. Structural requirements shall include:

Wall section from foundation through roof, including assembly and materials connector tables wind requirements structural calculations (if required)

7. Accessibility requirements: show/identify accessible bath

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. Reroofs
- 3. Minor electrical, plumbing and mechanical repairs
- 4. Annual maintenance permits
- 5. Prototype plans

Except for local site adaptions, siding, foundations and/or modifications.

Except for structures that require waiver.

6. Manufactured buildings plan except for foundations and modifications of buildings on site.

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

106.5 Retention of construction documents. One set of approved construction documents shall be retained by the building official for a period of not less than 180 days from date of completion of the permitted work, or as required by *Florida Statutes*.

106.6 Affidavits. 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. 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 and upon completion of the structure, electrical, gas, mechanical or plumbing systems a certification 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. 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 build-ing inspector under Part XII of Chapter 468, *Florida Statutes*.

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.

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. Reserved.

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 of 100 percent of the usual permit fee in addition to the required permit fees.

108.5 Related fees. Reserved.

108.6 Refunds. Reserved.

CHAPTER 2 DEFINITIONS

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Words not defined. Words not defined herein shall have the meanings stated in the *Florida Building Code, Plumbing, Mechanical* and *Fuel Gas,* or the *Florida Fire Prevention Code.* Words not defined in the Florida Building Codes shall have the meanings in *Webster's Third New International Dictionary of the English Language, Unabridged.*

201.4 Terms not defined. Reserved.

SECTION 202 DEFINITIONS

AAC MASONRY. See Section 2102.1.

|| ACCESSIBLE. See Section 11-3.5.

ACCESSIBLE MEANS OF EGRESS. See Section 1002.1.

ACCESSIBLE ROUTE. See Section 11-3.5.

ACCESSIBLE UNIT. Reserved.

ACCREDITATION BODY. See Section 2302.1.

ADDITION. An extension or increase in floor area or height of a building or structure.

ADHERED MASONRY VENEER. See Section 1402.1.

ADOBE CONSTRUCTION. See Section 2102.1.

Adobe, stabilized. See Section 2102.1.

Adobe, unstabilized. See Section 2102.1.

[F] AEROSOL. See Section 307.2.

Level 1 aerosol products. See Section 307.2.

Level 2 aerosol products. See Section 307.2.

Level 3 aerosol products. See Section 307.2.

[F] AEROSOL CONTAINER. See Section 307.2.

* AGRICULTURAL, BUILDING. Reserved.

AIR-INFLATED STRUCTURE. See Section 3102.2.

AIR-SUPPORTED STRUCTURE. See Section 3102.2.

Double skin. See Section 3102.2.

Single skin. See Section 3102.2.

AISLE. See Section 1002.1.

AISLE ACCESSWAY. See Section 1002.1.

[F] ALARM NOTIFICATION APPLIANCE. See Section 902.1.

[F] ALARM SIGNAL. See Section 902.1.

[F] ALARM VERIFICATION FEATURE. See Section 902.1.

ALLOWABLE STRESS DESIGN. See Section 1602.1.

ALTERATION. Any construction or renovation to an existing structure other than repair or addition.

ALTERNATING TREAD DEVICE. See Section 1002.1.

ANCHOR. See Section 2102.1.

ANCHOR BUILDING. See Section 402.2.

ANCHORED MASONRY VENEER. See Section 1402.1.

ANNULAR SPACE. See Section 702.1.

[F] ANNUNCIATOR. See Section 902.1.

APPLICABLE GOVERNING BODY. A city, county, state, state agency or other political government subdivision or entity authorized to administer and enforce the provisions of this code, as adopted or amended. Also applies to administrative authority.

APPROVED. Acceptable to the code official or authority having jurisdiction.

APPROVED AGENCY. See Section 1702.1.

APPROVED FABRICATOR. See Section 1702.1.

APPROVED SOURCE. An independent person, firm or corporation, approved by the building official, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses.

ARCHITECT. A Florida-registered architect.

ARCHITECTURAL TERRA COTTA. See Section 2102.1.

AREA. See Section 2102.1.

Bedded. See Section 2102.1.

Gross cross-sectional. See Section 2102.1.

Net cross-sectional. See Section 2102.1.

AREA, BUILDING. See Section 502.1.

AREA OF REFUGE. See Section 1002.1.

AREAWAY. A subsurface space adjacent to a building open at the top or protected at the top by a grating or guard.

ASSISTED LIVING FACILITIES. See Section 310.2, "Residential Care/Assisted living facilities."

ATRIUM. See Section 404.1.1.

ATTIC. The space between the ceiling beams of the top story and the roof rafters.

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[F] AUDIBLE ALARM NOTIFICATION APPLIANCE. See Section 902.1.

AUTOCLAVED AERATED CONCRETE (AAC). See Section 2102.1.

[F] AUTOMATIC. See Section 902.1.

[F] AUTOMATIC FIRE-EXTINGUISHING SYSTEM. See Section 902.1.

[F] AUTOMATIC SPRINKLER SYSTEM. See Section 902.1.

[F] AVERAGE AMBIENT SOUND LEVEL. See Section 902.1

AWNING. Any rigid or movable (retractable) roof-like structure, cantilevered, or otherwise entirely supported from a building. An awning is comprised of a lightweight rigid or removable skeleton structure over which an approved cover is attached.

BACKING. See Section 1402.1.

BALCONY, EXTERIOR. See Section 1602.1.

BALED COTTON. See Section 307.2.

BALED COTTON, DENSELY PACKED. See Section 307.2.

[F] BARRICADE. See Section 307.2.

Artificial barricade. See Section 307.2.

Natural barricade. See Section 307.2.

BASE FLOOD. Reserved.

BASE FLOOD ELEVATION. Reserved.

BASEMENT. See Sections 502.1.

BED JOINT. See Section 2102.1.

BLEACHERS. See Section 1002.1.

BOARDING HOUSE. See Section 310.2.

[F] BOILING POINT. See Section 307.2.

BOND BEAM. See Section 2102.1.

BOND REINFORCING. See Section 2102.1.

BRACED WALL LINE. See Section 2302.1.

BRACED WALL PANEL. See Section 2302.1.

BRICK. See Section 2102.1.

Calcium silicate (sand lime brick). See Section 2102.1.

Clay or shale. See Section 2102.1.

Concrete. See Section 2102.1.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING LINE. The line established by law, beyond which a building shall not extend, except as specifically provided by law.

BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

BUILT-UP ROOF COVERING. See Section 1502.1.

BURIAL CHAMBER MAUSOLEUM. A family mausoleum consisting of 6 or fewer casket placement crypts plus a chamber to be used for loading of caskets from the interior of the mausoleum which is not below the level of the ground and which is substantially exposed above ground.

BUTTRESS. See Section 2102.1.

CABLE-RESTRAINED, AIR-SUPPORTED STRUC-TURE. See Section 3102.2.

CANOPY. Any fixed roof-like structure, not movable like an awning, and which is cantilevered in whole or in part self-supporting, but having no side walls or curtains other than valances not more than 18 inches (457 mm) deep. Lean-to canopies, fixed umbrellas and similar structures are included in this classification. Structures having side walls or valances more than 18 inches (457 mm) deep shall be classified as a tent as set forth herein.

[F] CARBON DIOXIDE EXTINGUISHING SYSTEMS. See Section 902.1.

CARBON MONOXIDE ALARM. A device for the purpose of detecting carbon monoxide, that produces a distinct audible alarm, and is listed or labeled with the appropriate standard, either ANSI/UL 2034, *Standard for Single and Multiple Station CO Alarms*, or UL 2075, *Gas and Vapor Detector Sensor*, in accordance with its application.

CAST STONE. See Section 2102.1.

[F] CEILING LIMIT. See Section 902.1.

CEILING RADIATION DAMPER. See Section 702.1.

CELL. See Section 2102.1.

CEMENT PLASTER. See Section 2502.1.

CERAMIC FIBER BLANKET. See Section 721.1.1.

CERTIFICATE OF COMPLIANCE. See Section 1702.1.

CHAPEL MAUSOLEUM. A mausoleum for the public that has heat or air conditioning, with or without a committal area or office.

CHIMNEY. See Section 2102.1.

CHIMNEY TYPES. See Section 2102.1.

High-heat appliance type. See Section 2102.1.

Low-heat appliance type. See Section 2102.1.

Masonry type. See Section 2102.1.

Medium-heat appliance type. See Section 2102.1.

CIRCULAR STAIRS. See Section 1002.

CIRCULATION PATH. Reserved.

[F] CLEAN AGENT. See Section 902.1.

CLEANOUT. See Section 2102.1.

[F] CLOSED SYSTEM. See Section 307.2.

COLLAR JOINT. See Section 2102.1.

COLLECTOR. See Section 2302.1.

COLUMBARIUM. A permanent structure consisting of niches.

COLUMN, MASONRY. See Section 2102.1.

COMBINATION FIRE/SMOKE DAMPER. See Section 702.1.

[F] COMBUSTIBLE DUST. See Section 307.2.

[F] COMBUSTIBLE FIBERS. See Section 307.2.

[F] COMBUSTIBLE LIQUID. See Section 307.2.

Class II. See Section 307.2.

Class IIIA. See Section 307.2.

Class IIIB. See Section 307.2.

[] COMMISSION. The Florida Building Commission.

COMMON PATH OF EGRESS TRAVEL. See Section 1002.1.

COMMON USE. Reserved.

COMPANION CRYPT. A permanent chamber in a mausoleum for the containment of human remains of more than one individual.

COMPOSITE ACTION. See Section 2102.1.

COMPOSITE MASONRY. See Section 2102.1.

[F] COMPRESSED GAS. See Section 307.2.

COMPRESSIVE STRENGTH OF MASONRY. See Section 2102.1.

CONCRETE, CARBONATE AGGREGATE. See Section 721.1.1.

CONCRETE, CELLULAR. See Section 721.1.1.

CONCRETE, LIGHTWEIGHT AGGREGATE. See Section 721.1.1.

CONCRETE, PERLITE. See Section 721.1.1.

CONCRETE, SAND-LIGHTWEIGHT. See Section 721.1.1.

CONCRETE, SILICEOUS AGGREGATE. See Section 721.1.1.

CONCRETE, VERMICULITE. See Section 721.1.1.

CONGREGATE LIVING FACILITIES. See Section 310.2.

CONNECTOR. See Section 2102.1.

[F] CONSTANTLY ATTENDED LOCATION. See Section 902.1.

CONSTRUCTION DOCUMENTS. Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit.

CONSTRUCTION TYPES. See Section 602.

Type I. See Section 602.2.

Type II. See Section 602.2.

Type III. See Section 602.3.

Type IV. See Section 602.4.

Type V. See Section 602.5.

[F] CONTINUOUS GAS-DETECTION SYSTEM. See Section 415.2.

[F] CONTROL AREA. See Section 307.2.

CONTROLLED LOW-STRENGTH MATERIAL. A

self-compacted, cementitious material used primarily as a backfill in place of compacted fill.

CONVENTIONAL LIGHT-FRAME WOOD CON-STRUCTION. See Section 2302.1.

CORRIDOR. See Section 1002.1.

CORROSION RESISTANCE. The ability of a material to withstand deterioration of its surface or its properties when exposed to its environment.

[F] CORROSIVE. See Section 307.2.

COURT. An open, uncovered space, unobstructed to the sky, bounded on three or more sides by exterior building walls or other enclosing devices.

COVER. See Section 2102.1.

COVERED MALL BUILDING. See Section 402.2.

CRANE LOAD. The dead, live and impact loads and forces resulting from the operation of permanent cranes.

CRIPPLE WALL. See Section 2302.1.

CRYOGENIC FLUID. See Section 307.2.

CRYPT. A permanent chamber in a mausoleum for the containment of human remains.

DALLE GLASS. See Section 2402.1.

DAMPER. See Section 702.1.

DAY BOX. See Section 307.2.

DAY-CARE HOME. A building or a portion of a building in which more than 3 but not more than 12 clients receive care, maintenance and supervision, by other than their relative(s) or legal guardian(s), for less than 24 hour per day.

DAY-CARE OCCUPANCY. A building or a portion of a building in which more than 12 clients receive care, maintenance and supervision, by other than their relative(s) or legal guardian(s), for less than 24 hour per day.

DEAD LOADS. See Section 1602.1.

DECK. See Section 1602.1.

DECORATIVE CEMENTITIOUS COATING. A skim coat, as defined in ASTM C 926, of portland cement based plaster applied to concrete or masonry surfaces intended for cosmetic purposes.

DECORATIVE GLASS. See Section 2402.1.

[F] DECORATIVE MATERIALS. All materials applied over the building interior finish for decorative, acoustical or other effect (such as curtains, draperies, fabrics, streamers and surface coverings), and all other materials utilized for decorative effect (such as batting, cloth, cotton, hay, stalks, straw, vines, leaves, trees, moss and similar items), including foam plastics and materials containing foam plastics. Decorative materials do not include floor coverings, ordinary window shades, interior finish and materials 0.025 inch (0.64 mm) or less in thickness applied directly to and adhering tightly to a substrate.

[F] DEFLAGRATION. See Section 307.2.

[F] DELUGE SYSTEM. See Section 902.1.

- **DESIGN DISPLACEMENT.** Reserved.
- **DESIGN EARTHQUAKE GROUND MOTION.** Reserved. **DESIGN FLOOD.** Reserved.
- **DESIGN FLOOD ELEVATION.** Reserved. **DESIGN STRENGTH.** See Section 1602.1.
- DESIGNATED SEISMIC SYSTEM. Reserved.
 [F] DETACHED BUILDING. See Section 307.2.
 DETAILED PLAIN CONCRETE STRUCTURAL WALL. See Section 1908.1.3.
- **DETECTABLE WARNING.** See Section 11-3.**[F] DETECTOR, HEAT.** See Section 902.1.

[F] DETONATION. See Section 307.2.

DIAPHRAGM. See Sections 1602.1 and 2102.1.

Diaphragm, blocked. See Sections 1602.1.

Diaphragm, boundary. See Section 1602.1.

Diaphragm, chord. See Section 1602.1.

Diaphragm, flexible. See Section 1602.1.

Diaphragm, rigid. See Section 1602.1.

Diaphragm, unblocked. See Section 2302.1.

DIMENSIONS. See Section 2102.1.

Actual. See Section 2102.1.

Nominal. See Section 2102.1.

Specified. See Section 2102.1.

DISPENSING. See Section 307.2.

DOOR, BALANCED. See Section 1002.1.

DORMITORY. See Section 310.2.

DRAFTSTOP. See Section 702.1.

DRAG STRUT. See Section 2302.1.

[F] DRY-CHEMICAL EXTINGUISHING AGENT. See Section 902.1.

|| DRY FLOODPROOFING. Reserved.

DURATION OF LOAD. See Section 1602.1.

DWELLING. A building that contains one or two dwelling units used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes.

DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

DWELLING UNIT OR SLEEPING UNIT, MULTI-STORY. Reserved.

DWELLING UNIT OR SLEEPING UNIT, TYPE A. Reserved.

DWELLING UNIT OR SLEEPING UNIT, TYPE B. Reserved.

EFFECTIVE HEIGHT. See Section 2102.1. **EGRESS COURT.** See Section 1002.1.

[F] EMERGENCY ALARM SYSTEM. See Section 902.1.

[F] EMERGENCY CONTROL STATION. See Section 415.2.

EMERGENCY ESCAPE AND RESCUE OPENING. See Section 1002.1.

[F] EMERGENCY VOICE/ALARM COMMUNICA-TIONS. See Section 902.1.

EMPLOYEE WORK AREA. Reserved.

ENFORCEMENT AGENCY.

Local enforcement agency. Means an agency of local government with authority to make inspections of buildings and to enforce the codes which establish standards for design, construction, erection, alteration, repair, modification or demolition of public or private buildings, structures or facilities.

State enforcement agency. Means the agency of state government with authority to make inspections of buildings and to enforce the codes, as required by this part, which establish standards for design, construction, erection, alteration, repair, modification or demolition of public or private buildings, structures or facilities.

ENGINEER. A Florida-licensed professional engineer.

EQUIPMENT PLATFORM. See Section 502.1.

ESSENTIAL FACILITIES. See Section 1602.1.

[F] EXHAUSTED ENCLOSURE. See Section 415.2.

EXISTING CONSTRUCTION. Reserved.

EXISTING STRUCTURE. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.

EXIT. See Section 1002.1.

EXIT, HORIZONTAL. See Section 1002.1.

EXIT ACCESS. See Section 1002.1.

EXIT DISCHARGE. See Section 1002.1.

EXIT DISCHARGE, LEVEL OF. See Section 1002.1.

EXIT ENCLOSURE. See Section 1002.1.

EXIT PASSAGEWAY. See Section 1002.1.

EXPANDED VINYL WALL COVERING. See Section 802.1.

[F] EXPLOSION. See Section 902.1.

[F] EXPLOSIVE. See Section 307.2.

High explosive. See Section 307.2.

Low explosive. See Section 307.2.

Mass detonating explosives. See Section 307.2.

UN/DOTn Class 1 Explosives. See Section 307.2.

Division 1.1. See Section 307.2.

Division 1.2. See Section 307.2.

Division 1.3. See Section 307.2.

Division 1.4. See Section 307.2.

Division 1.5. See Section 307.2.

Division 1.6. See Section 307.2.

EXTERIOR SURFACES. See Section 2502.1.

EXTERIOR WALL. See Section 1402.1.

EXTERIOR WALL COVERING. See Section 1402.1.

EXTERIOR WALL ENVELOPE. See Section 1402.1.

F RATING. See Section 702.1.

FABRIC COVERED FRAMEWORK (FCF). A nonpressurized structure which is composed of a rigid framework to support tensioned membrane or fabric which provides the weather barrier.

FABRIC PARTITIONS. See Section 1602.1.

FABRICATED ITEM. See Section 1702.1.

[F] FABRICATION AREA. See Section 415.2.

FACILITY. See Section 11-3.5.

FACTORED LOAD. See Section 1602.1.

FAMILY DAY CARE HOME. Family day care home means an occupied residence in which child care is regularly provided for at least two unrelated families which receive payment, fee, or grant for any of the children receiving care, whether or not operated for profit. A family day care home shall be allowed to care for one of the following groups of children, which shall include those children under 13 years of age who are related to the care giver: A. A maximum of four children from birth to 12 months of age. B. A maximum of three children to birth to 12 years of age and other children for maximum total of six children. C. A maximum of six preschool children if all are older than 12 months of age. D. A maximum of 10 children if no more than five are preschool age and, of those five, no more than two are under 12 months of age.

FAMILY MAUSOLEUM. A mausoleum for the private use of a family or group of family members.

FIBER CEMENT SIDING. See Section 1402.1.

FIBERBOARD. See Section 2302.1.

FIRE ALARM BOX, MANUAL. See Section 902.1.

[F] FIRE ALARM CONTROL UNIT. See Section 902.1.

[F] FIRE ALARM SIGNAL. See Section 902.1.

[F] FIRE ALARM SYSTEM. See Section 902.1.

FIRE AREA. See Section 702.1.

FIRE BARRIER. See Section 702.1.

[F] FIRE COMMAND CENTER. See Section 902.1.

FIRE DAMPER. See Section 702.1.

[F] FIRE DETECTOR, AUTOMATIC. See Section 902.1.

FIRE DOOR. See Section 702.1.

FIRE DOOR ASSEMBLY. See Section 702.1.

FIRE EXIT HARDWARE. See Section 1002.1.

[F] FIRE LANE. A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

FIRE PARTITION. See Section 702.1.

FIRE PROTECTION RATING. See Section 702.1.

[F] FIRE PROTECTION SYSTEM. See Section 902.1.

FIRE RESISTANCE. See Section 702.1.

FIRE-RESISTANCE RATING. See Section 702.1.

FIRE-RESISTANT JOINT SYSTEM. See Section 702.1.

[F] FIRE SAFETY FUNCTIONS. See Section 902.1.

FIRE SEPARATION DISTANCE. See Section 702.1.

FIRE WALL. See Section 702.1.

FIRE WINDOW ASSEMBLY. See Section 702.1.

FIREBLOCKING. See Section 702.1.

FIREPLACE. See Section 2102.1.

FIREPLACE THROAT. See Section 2102.1.

FIREWORKS. See Section 307.2.

FIREWORKS, 1.3G. See Section 307.2.

FIREWORKS, 1.4G. See Section 307.2.

FLAME SPREAD. See Section 802.1.

FLAME SPREAD INDEX. See Section 802.1.

[F] FLAMMABLE GAS. See Section 307.2.

[F] FLAMMABLE LIQUEFIED GAS. See Section 307.2.

[F] FLAMMABLE LIQUID. See Section 307.2.

Class IA. See Section 307.2.

Class IB. See Section 307.2.

Class IC. See Section 307.2.

[F] FLAMMABLE MATERIAL. See Section 307.2.

[F] FLAMMABLE SOLID. See Section 307.2.

[F] FLAMMABLE VAPORS OR FUMES. See Section 415.2.

[F] FLASH POINT. See Section 307.2.

FLEXIBLE PLAN BUILDINGS. Buildings used for day-care homes which have movable corridor walls and movable partitions of full-height construction with doors leading from rooms to corridors.

FLEXURAL LENGTH. See Section 1808.1.

FLOATING RESIDENTIAL UNIT. Means a structure primarily designed or constructed as a living unit, built on a floating base, which is not designed primarily as a vessel, is not self-propelled although it may be towed about from place to place, and is primarily intended to be anchored or otherwise moored in a fixed location.

FLOOD OR FLOODING. Reserved.

FLOOD DAMAGE-RESISTANT MATERIALS. Reserved.

FLOOD HAZARD AREA. Reserved.

FLOOD HAZARD AREA SUBJECT TO HIGH VELOC-ITY WAVE ACTION. Reserved.

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FLOOD INSURANCE RATE MAP (FIRM). Reserved.

FLOOD INSURANCE STUDY. Reserved.

FLOODWAY. Reserved.

FLOOR AREA, GROSS. See Section 1002.1.

FLOOR AREA, NET. See Section 1002.1.

FLOOR FIRE DOOR ASSEMBLY. A combination of a fire door, a frame, hardware and other accessories, installed in a horizontal plane, which together provide a specific degree of fire protection to a through opening in a fire rated floor.

FLY GALLERY. See Section 410.2.

[F] FOAM-EXTINGUISHING SYSTEMS. See Section 902.1.

FOAM PLASTIC INSULATION. See Section 2602.1.

FOLDING AND TELESCOPIC SEATING. See Section 1002.1.

FOOD COURT. See Section 402.2.

FOSSIL FUEL. Coal, kerosene, oil, fuel gases or other petroleum or hydrocarbon product that emits carbon monoxide as a by-product of combustion.

FOUNDATION PIER. See Section 2102.1.

FRAMEWORK. A skeletal or structural frame; an openwork frame structure.

GARDEN MAUSOLEUM. A mausoleum for the public built without heat or air conditioning but may contain an open-air committal area.

[F] GAS CABINET. See Section 415.2.

[F] GAS ROOM. See Section 415.2.

[F] GASEOUS HYDROGEN SYSTEM. See Section 420.2.

GLASS FIBERBOARD. See Section 721.1.1.

GLUED BUILT-UP MEMBER. See Section 2302.1.

GRADE FLOOR OPENING. A window or other opening located such that the sill height of the opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening.

GRADE (LUMBER). See Section 2302.1.

GRADE PLANE. See Section 502.1.

GRANDSTAND. See Section 1002.1.

GRIDIRON. See Section 410.2.

GROSS LEASABLE AREA. See Section 402.2.

GROUP DAY CARE HOME. A day care home in which at least 7 but not more than 12 client receive care, maintenance and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day with no more than 3 clients incapable of self-preservation.

GROUTED MASONRY. See Section 2102.1.

Grouted hollow-unit masonry. See Section 2102.1.

Grouted multiwythe masonry. See Section 2102.1.

GUARD. See Section 1002.1.

GYPSUM BOARD. See Section 2502.1.

GYPSUM PLASTER. See Section 2502.1.

GYPSUM VENEER PLASTER. See Section 2502.1.

HABITABLE SPACE. A space in a structure for living, sleeping, eating or cooking. Bathrooms, toilet compartments, closets, halls, screen enclosures, sunroom Categories I, II and III as defined in the AAMA/NPEA/NSA 2100, storage or utility space and similar areas are not considered habitable space.

[F] HALOGENATED EXTINGUISHING SYSTEMS. See Section 902.1.

[F] HANDLING. See Section 307.2.

HANDRAIL. See Section 1002.1.

HARDBOARD. See Section 2302.1.

[F] HAZARDOUS MATERIALS. See Section 307.2.

[F] HAZARDOUS PRODUCTION MATERIAL (HPM). See Section 415.2.

HEAD JOINT. See Section 2102.1.

HEADER (Bonder). See Section 2102.1.

[F] HEALTH HAZARD. See Section 307.2.

HEATING. See Chapter 28 of the *Florida Building Code*, *Building* and the *Florida Building Code*, *Mechanical*.

HEIGHT, BUILDING. See Section 502.1.

HEIGHT, STORY. See Section 502.1.

HEIGHT, THRESHOLD BUILDING. The height of the building is at the mean distance between the eaves and the ridge of the roofing structure. If the distance from grade to the line which is the mean distance between the eaves and the ridge of the roofing structure is more than 50 feet, the building is to be considered a "threshold building" within the contemplation of the Threshold Building Act.

HEIGHT, WALLS. See Section 2102.1.

HELIPORT. See Section 412.5.1.

HELISTOP. See Section 412.5.1.

[F] HIGHLY TOXIC. See Section 307.2.

HIGH VELOCITY HURRICANE ZONE. This zone consists of Broward and Miami-Dade counties.

HISTORIC BUILDINGS. Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law (see Chapter 11 of the *Florida Existing Building Code*).

HORIZONTAL ASSEMBLY. See Section 702.1.

[F] HPM FLAMMABLE LIQUID. See Section 415.2.

[F] HPM ROOM. See Section 415.2.

HURRICANE-PRONE REGIONS. See Section 1609.2.

[F] HYDROGEN CUTOFF ROOM. See Section 420.2.

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (**IDLH**). See Section 415.2.

IMPACT LOAD. See Section 1602.1.

INCOMPATIBLE MATERIALS. See Section 307.2.

[F] INITIATING DEVICE. See Section 902.1.

INSPECTION CERTIFICATE. See Section 1702.1.

INSULATING CONCRETE FORM (ICF). A concrete forming system using stay-in-place forms of rigid foam plastic insulation, a hybrid of cement and foam insulation, a hybrid of cement and wood chips, or other insulating material for constructing cast-in-place concrete walls.

|| INTENDED TO BE OCCUPIED AS A RESIDENCE. Reserved. INTERIOR FINISH. See Section 802.1.

INTERIOR FLOOR FINISH. See Section 802.1.

INTERIOR SURFACES. See Section 2502.1.

INTERIOR WALL AND CEILING FINISH. See Section 802.1.

INTERLAYMENT. See Section 1502.1.

JOINT. See Section 702.1.

JURISDICTION. The governmental unit that has adopted this code under due legislative authority.

LABEL. See Section 1702.1.

LANDSCAPE ARCHITECT. A Florida-registered landscape architect.

LIGHT-DIFFUSING SYSTEM. See Section 2602.1.

LIGHT-FRAME CONSTRUCTION. A type of construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or light gage steel framing members.

LIGHT-TRANSMITTING PLASTIC ROOF PANELS. See Section 2602.1.

LIGHT-TRANSMITTING PLASTIC WALL PANELS. See Section 2602.1.

LIMIT STATE. See Section 1602.1.

[F] LIQUID. See Section 415.2.

[F] LIQUID STORAGE ROOM. See Section 415.2.

[F] LIQUID USE, DISPENSING AND MIXING ROOMS. See Section 415.2.

LISTED. See Section 902.1.

LIVE LOADS. See Section 1602.1.

LIVE LOADS (ROOF). See Section 1602.1.

LOAD AND RESISTANCE FACTOR DESIGN (LRFD). See Section 1602.1.

LOAD EFFECTS. See Section 1602.1.

LOAD FACTOR. See Section 1602.1.

LOADS. See Section 1602.1.

LOT. A portion or parcel of land considered as a unit.

LOT LINE. A line dividing one lot from another, or from a street or any public place.

[F] LOWER FLAMMABLE LIMIT (LFL). See Section 415.2.

II LOWEST FLOOR. Reserved.

MAIN WINDFORCE-RESISTING SYSTEM. See Section 1702.1.

MALL. See Section 402.2.

[F] MANUAL FIRE ALARM BOX. See Section 902.1.

MANUFACTURER'S DESIGNATION. See Section 1702.1.

MARK. See Section 1702.1.

MARQUEE. A permanent roofed structure attached to and supported by the building and that projects into the public right-of-way.

MASONRY. See Section 2102.1.

Ashlar masonry. See Section 2102.1.

Coursed ashlar. See Section 2102.1.

Glass unit masonry. See Section 2102.1.

Plain masonry. See Section 2102.1.

Random ashlar. See Section 2102.1.

Reinforced masonry. See Section 2102.1.

Solid masonry. See Section 2102.1.

Unreinforced (plain) masonry. See Section 2102.1.

MASONRY UNIT. See Section 2102.1.

Clay. See Section 2102.1.

Concrete. See Section 2102.1.

Hollow. See Section 2102.1.

Solid. See Section 2102.1.

MATERIAL CODE VIOLATION. A material code violation is a violation that exists within a completed building, structure or facility which may reasonably result, or has resulted, in physical harm to a person or significant damage to the performance of a building or its systems.

MATERIAL VIOLATION. As defined in Florida Statutes.

MAUSOLEUM. A permanent structure or building which is substantially exposed above the ground and is intended for the interment, entombment, or inurnment of human remains.

MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION. Reserved.

MEAN DAILY TEMPERATURE. See Section 2102.1.

MEANS OF EGRESS. See Section 1002.1.

MEANS OF ESCAPE. See Section 1002.

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MECHANICAL-ACCESS OPEN PARKING GARAGES. See Section 406.3.2.

MECHANICAL EQUIPMENT SCREEN. See Section 1502.1.

MECHANICAL SYSTEMS. Reserved.

MEMBRANE-COVERED CABLE STRUCTURE. See Section 3102.2.

MEMBRANE-COVERED FRAME STRUCTURE. See Section 3102.2.

MEMBRANE PENETRATION. See Section 702.1.

MEMBRANE-PENETRATION FIRESTOP. See Section 702.1.

MERCHANDISE PAD. See Section 1002.1.

METAL COMPOSITE MATERIAL (MCM). See Section 1402.1.

METAL COMPOSITE MATERIAL (MCM) SYSTEM. See Section 1402.1.

METAL ROOF PANEL. See Section 1502.1.

METAL ROOF SHINGLE. See Section 1502.1.

MEZZANINE. See Section 502.1.

MICROPILES.See Section 1808.1.

MINERAL BOARD. See Section 721.1.1.

MINERAL FIBER. See Section 702.1.

MINERAL WOOL. See Section 702.1.

MODIFIED BITUMEN ROOF COVERING. See Section 1502.1.

MORTAR. See Section 2102.1.

MORTAR, SURFACE-BONDING. See Section 2102.1.

|| MULTILEVEL ASSEMBLY SEATING. Reserved.

[F] MULTIPLE-STATION ALARM DEVICE. See Section 902.1.

[F] MULTIPLE-STATION SMOKE ALARM. See Section 902.1.

|| MULTISTORY UNITS. Reserved.

NAILING, BOUNDARY. See Section 2302.1.

NAILING, EDGE. See Section 2302.1.

NAILING, FIELD. See Section 2302.1.

NATURALLY DURABLE WOOD. See Section 2302.1.

Decay resistant. See Section 2302.1.

Termite resistant. See Section 2302.1.

NICHE. A permanent chamber in a columbarium or mausoleum to hold the cremated remains of one or more individuals.

NOMINAL LOADS. See Section 1602.1.

NOMINAL SIZE (LUMBER). See Section 2302.1.

NONCOMBUSTIBLE MEMBRANE STRUCTURE. See Section 3102.2.

NONVISITATION CRYPT MAUSOLEUM. A mausoleum for the public where the crypts are not accessible to the public.

[F] NORMAL TEMPERATURE AND PRESSURE (NTP). See Section 415.2.

NOSING. See Section 1002.1.

[F] NUISANCE ALARM. See Section 902.1.

OCCUPANCY CATEGORY. See Section 1602.1.

OCCUPANT LOAD. See Section 1002.1.

OCCUPIABLE SPACE. A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged at labor, and which is equipped with means of egress and light and ventilation facilities meeting the requirements of this code.

OPEN PARKING GARAGE. See Section 406.3.2.

OPEN PLAN BUILDINGS. Buildings used for day-care homes which have rooms and corridors delineated by tables, chairs, desks, bookcases, counters, low-height [maximum 5-ft (1.5-m)] partitions, or similar furnishings.

[F] OPEN SYSTEM. See Section 307.2.

OPENINGS. Apertures or holes in a building envelope and which are designed as "open" during design winds as defined by these provisions.

OPERATING BUILDING. See Section 307.2.

 ORDINARY PRECAST STRUCTURAL WALL. Reserved.
 *

 ORDINARY REINFORCED CONCRETE STRUCTURAL

 WALL. Reserved.
 *

ORDINARY STRUCTURAL PLAIN CONCRETE WALL. Reserved.

[F] ORGANIC PEROXIDE. See Section 307.2.

Class I. See Section 307.2.

Class II. See Section 307.2.

Class III. See Section 307.2.

Class IV. See Section 307.2.

Class V. See Section 307.2.

Unclassified detonable. See Section 307.2.

ORTHOGONAL. Reserved.

OTHER STRUCTURES. See Section 1602.1.

OWNER. Any person, agent, firm or corporation having a legal or equitable interest in the property.

[F] OXIDIZER. See Section 307.2.

Class 4. See Section 307.2.

Class 3. See Section 307.2.

Class 2. See Section 307.2.

Class 1. See Section 307.2.

[F] OXIDIZING GAS. See Section 307.2.

PANEL (PART OF A STRUCTURE). See Section 1602.1.

PANIC HARDWARE. See Section 1002.1.

PARTICLEBOARD. See Section 2302.1.

PENETRATION FIRESTOP. See Section 702.1.

PENTHOUSE. See Section 1502.1.

PERMIT. An official document or certificate issued by the authority having jurisdiction which authorizes performance of a specified activity.

PERSON. An individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

PERSONAL CARE SERVICE. See Section 310.2.

[F] PHYSICAL HAZARD. See Section 307.2.

[F] PHYSIOLOGICAL WARNING THRESHOLD LEVEL. See Section 415.2.

PIER FOUNDATIONS. See Section 1808.1.

Belled piers. See Section 1808.1.

PILE FOUNDATIONS. See Section 1808.1.

Auger uncased piles. See Section 1808.1.

Caisson piles. See Section 1808.1.

Concrete-filled steel pipe and tube piles. See Section 1808.1.

Driven uncased piles. See Section 1808.1.

Enlarged base piles. See Section 1808.1.

Steel-cased piles. See Section 1808.1.

Timber piles. See Section 1808.1.

PINRAIL. See Section 410.2.

PLANS. All construction drawings and specifications for any structure necessary for the building official to review in order to determine whether a proposed structure, addition or renovation will meet the requirements of this code and other applicable codes.

PLASTIC, APPROVED. See Section 2602.1.

PLASTIC GLAZING. See Section 2602.1.

PLASTIC HINGE. See Section 2102.1.

PLATFORM. See Section 410.2.

POSITIVE ROOF DRAINAGE. See Section 1502.1.

PREFABRICATED WOOD I-JOIST. See Section 2302.1.

PRESERVATIVE-TREATED WOOD. See Section 2302.1.

PRESTRESSED MASONRY. See Section 2102.1.

PRIMARY FUNCTION. See Section 3402.1.

PRISM. See Section 2102.1.

PROSCENIUM WALL. See Section 410.2.

|| PUBLIC ENTRANCE. Reserved.

|| PUBLIC-USE AREAS. Reserved.

PUBLIC WAY. See Section 1002.1.

[F] PYROPHORIC. See Section 307.2.

[F] PYROTECHNIC COMPOSITION. See Section 307.2.

RAMP. See Section 1002.1.

RAMP-ACCESS OPEN PARKING GARAGES. See Section 406.3.2.

[F] RECORD DRAWINGS. See Section 902.1.

REFERENCE RESISTANCE (D). See Section 2302.1.

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

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*.

REINFORCED PLASTIC, GLASS FIBER. See Section 2602.1.

RELIGIOUS WORSHIP, PLACE OF. A building or portion thereof intended for the performance of religious services.

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

REQUIRED STRENGTH. See Sections 1602.1 and 2102.1.

REROOFING. See Section 1502.1.

RESIDENTIAL AIRCRAFT HANGAR. See Section 412.3.1.

RESIDENTIAL CARE/ASSISTED LIVING FACILI-TIES. See Section 310.2.

RESIDENT SLEEPING UNIT. A single unit providing sleeping facilities for one or more persons. Resident sleeping units can also include permanent provisions for living, eating and sanitation, but do not include kitchen facilities.

RESISTANCE FACTOR. See Section 1602.1.

RESTRICTED ENTRANCE. Reserved.

RETAINING WALL, SEGMENTAL. A retaining wall formed of modular block units stacked dry without mortar.

RETRACTABLE AWNING. Reserved.

ROOF ASSEMBLY. See Section 1502.1.

ROOF COVERING. See Section 1502.1.

ROOF COVERING SYSTEM. See Section 1502.1.

ROOF DECK. See Section 1502.1.

ROOF RECOVER. See Section 1502.1.

ROOF REPAIR. See Section 1502.1.

ROOF REPLACEMENT. See Section 1502.1.

ROOF VENTILATION. See Section 1502.1.

ROOFTOP STRUCTURE. See Section 1502.1.

RUBBLE MASONRY. See Section 2102.1.

Coursed rubble. See Section 2102.1.

Random rubble. See Section 2102.1.

Rough or ordinary rubble. See Section 2102.1.

RUNNING BOND. See Section 2102.1.

SCISSOR STAIR. See Section 1002.1.

SCREEN ENCLOSURE. A building or part thereof, in whole or in part self-supporting, and having walls of insect screening with or without removable vinyl or acrylic wind break panels and a roof of insect screening, plastic, aluminum or similar lightweight material.

SCUPPER. See Section 1502.1.

SEISMIC DESIGN CATEGORY. Reserved.

SEISMIC-FORCE-RESISTING SYSTEM. Reserved.

SELF-CLOSING. See Section 702.1.

SELF-PRESERVATION. A client who is capable of self-preservation is one who can evacuate the building without direct intervention by a staff member.

SELF-SERVICE STORAGE FACILITY. Reserved.

SEPARATE ATMOSPHERE. The atmosphere that exists between rooms, spaces, or areas that are separated by an approved smoke barrier.

[F] SERVICE CORRIDOR. See Section 415.2.

|| SERVICE ENTRANCE. Reserved.

SHAFT. See Section 702.1.

SHAFT ENCLOSURE. See Section 702.1.

SHEAR WALL. A wall designed to resist lateral forces parallel to the plane of the wall.

SHELL. See Section 2102.1.

SINGLE-PLY MEMBRANE. See Section 1502.1.

[F] SINGLE-STATION SMOKE ALARM. See Section 902.1.

SITE. Reserved.

SITE CLASS. Reserved.

SITE COEFFICIENTS. Reserved.

SKYLIGHT, UNIT. A factory-assembled, glazed fenestration unit, containing one panel of glazing material that allows for natural lighting through an opening in the roof assembly while preserving the weather-resistant barrier of the roof.

SKYLIGHTS AND SLOPED GLAZING. Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls, are included in this definition.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

[F] SMOKE ALARM. See Section 902.1.

SMOKE BARRIER. See Section 702.1.

SMOKE COMPARTMENT. See Section 702.1.

SMOKE DAMPER. See Section 702.1.

[F] SMOKE DETECTOR. See Section 902.1.

SMOKE-DEVELOPED INDEX. See Section 802.1.

SMOKE-PROTECTED ASSEMBLY SEATING. See Section 1002.1.

SMOKEPROOF ENCLOSURE. See Section 902.1.

[F] SOLID. See Section 415.2.

SPECIAL AMUSEMENT BUILDING. See Section 411.2.

SPECIAL INSPECTION. Reserved.

Special inspection, continuous. Reserved.

Special inspection, periodic. Reserved.

SPECIAL FLOOD HAZARD AREA. Reserved.

SPECIFIED. See Section 2102.1.

SPECIFIED COMPRESSIVE STRENGTH OF **MASONRY** (f'_m). See Section 2102.1.

SPIRAL STAIRS. A stairway with steps that have a central connecting point, and the travel path is a corkscrew or spiral.

SPLICE. See Section 702.1.

SPRAYED FIRE-RESISTANT MATERIALS. See Section 1702.1.

STACK BOND. See Section 2102.1.

STAGE. See Section 410.2.

STAIR. See Section 1002.1.

STAIRWAY. See Section 1002.1.

STAIRWAY, EXTERIOR. See Section 1002.1.

STAIRWAY, INTERIOR. See Section 1002.1.

STAIRWAY, SPIRAL. See Section 1002.1.

[F] STANDPIPE SYSTEM, CLASSES OF. See Section 902.1.

Class I system. See Section 902.1.

Class II system. See Section 902.1.

Class III system. See Section 902.1.

[F] STANDPIPE, TYPES OF. See Section 902.1.

Automatic dry. See Section 902.1.

Automatic wet. See Section 902.1.

Manual dry. See Section 902.1.

Manual wet. See Section 902.1.

Semiautomatic dry. See Section 902.1.

START OF CONSTRUCTION. Reserved.

STEEL CONSTRUCTION, COLD-FORMED. See Section

STEEL JOIST. See Section 2202.1.

2202.1.

STEEL MEMBER, STRUCTURAL. See Section 2202.1.

STEEP SLOPE. A roof slope greater than two units vertical in 12 units horizontal (17-percent slope).

STONE MASONRY. See Section 2102.1.

Ashlar stone masonry. See Section 2102.1.

Rubble stone masonry. See Section 2102.1.

[F] STORAGE, HAZARDOUS MATERIALS. See Section 415.2.

STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above (also see "Mezzanine" and Section 502.1). It is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

STORY ABOVE GRADE PLANE. Any story having its finished floor surface entirely above grade plane, except that a basement shall be considered as a story above grade plane where the finished surface of the floor above the basement is:

1. More than 6 feet (1829 mm) above grade plane; or

2. More than 12 feet (3658 mm) above the finished ground level at any point.

STREET. Any public thoroughfare, street, avenue, boulevard or space more than 20 feet (6096 mm) wide which has been dedicated or deeded for vehicular use by the public and which can be used for access by fire department vehicles.

STRENGTH. See Section 2102.1.

Design strength. See Section 2102.1.

Nominal strength. See Sections 1602.1 and 2102.1.

Required strength. See Sections 1602.1 and 2102.1.

STRENGTH DESIGN. See Section 1602.1.

STRUCTURAL COMPOSITE LUMBER. See Section 2302.1.

Laminated veneer lumber (LVL). See Section 2302.1.

Parallel strand lumber (PSL). See Section 2302.1.

STRUCTURAL GLUED-LAMINATED TIMBER. See Section 2302.1.

|| STRUCTURAL OBSERVATION. Reserved.

STRUCTURE. That which is built or constructed.

SUBDIAPHRAGM. See Section 2302.1.

SUBSTANTIAL DAMAGE. Reserved.

SUBSTANTIAL IMPROVEMENT. See Section 3109.1.

SUNROOM. See Section 1202.1.

SUNROOM ADDITION. Reserved.

[F] SUPERVISING STATION. See Section 902.1.

[F] SUPERVISORY SERVICE. See Section 902.1.

[F] SUPERVISORY SIGNAL. See Section 902.1.

[F] SUPERVISORY SIGNAL-INITIATING DEVICE. See Section 902.1.

SWIMMING POOLS. See Section 424.2.1.

T RATING. See Section 702.1.

TECHNICALLY INFEASIBLE. Reserved.

TENANT. Any person, agent, firm, corporation or division who uses or occupies land, a building or portion of a building by title, under a lease, by payment of rent or who exercises limited control over the space.

TENT. Any structure, enclosure or shelter which is constructed of canvas or pliable material supported in any manner except by air or the contents it protects.

THERMAL ISOLATION. See Section 1202.1.

THERMOPLASTIC MATERIAL. See Section 2602.1.

THERMOSETTING MATERIAL. See Section 2602.1.

THIN-BED MORTAR. See Section 2102.1.

THRESHOLD BUILDING. In accordance with *Florida Statute*, any building which is greater than three stories or 50 feet in height, or which has an assembly occupancy classification that exceeds 5,000 square feet in area and an occupant content of greater than 500 persons.

THROUGH PENETRATION. See Section 702.1.

THROUGH-PENETRATION FIRESTOP SYSTEM. See Section 702.1.

TIE-DOWN (HOLD-DOWN). See Section 2302.1.

TIE, LATERAL. See Section 2102.1.

TIE, WALL. See Section 2102.1.

TILE. See Section 2102.1.

TILE, STRUCTURAL CLAY. See Section 2102.1.

[F] TIRES, BULK STORAGE OF. See Section 902.1.

TOWNHOUSE. A single-family dwelling unit constructed in a group of three or more attached units with property lines separating each unit in which each unit extends from the foundation to roof and with open space on at least two sides.

[F] TOXIC. See Section 307.2.

TRANSIENT. See Section 310.2.

TREATED WOOD. See Section 2302.1.

TRIM. See Section 802.1.

[F] TROUBLE SIGNAL. See Section 902.1.

TYPE A UNIT. Reserved.

TYPE B UNIT. Reserved.

UNDERLAYMENT. See Section 1502.1.

[F] UNSTABLE (REACTIVE) MATERIAL. See Section 307.2.

Class 4. See Section 307.2.

Class 3. See Section 307.2.

Class 2. See Section 307.2.

Class 1. See Section 307.2.

[F] USE (MATERIAL). See Section 415.2.

VALUE. The estimated current replacement cost of the building in kind.

VAPOR-PERMEABLE MEMBRANE. A material or covering having a permeance rating of 5 perms ($52.9 \times 10^{-10} \text{ kg/Pa} \cdot \text{s} \cdot \text{m}^2$) or greater, when tested in accordance with the dessicant method using Procedure A of ASTM E 96. A vapor-permeable material permits the passage of moisture vapor.

VAPOR RETARDER. A vapor-resistant material, membrane or covering such as foil, plastic sheeting or insulation facing having a permeance rating of 1 perm $(5.7 \times 10^{-11} \text{ kg/Pa} \cdot \text{s} \cdot \text{m}^2)$ or less, when tested in accordance with the dessicant method using Procedure A of ASTM E 96. Vapor retarders limit the

amount of moisture vapor that passes through a material or wall assembly.

VEHICLE BARRIER SYSTEM. See Section 1602.1.

VENEER. See Section 1402.1.

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VINYL SIDING. See Section 1402.1.

[F] VISIBLE ALARM NOTIFICATION APPLIANCE. See Section 902.1.

WALKWAY, COVERED. A roofed, unobstructed walkway connecting buildings and used as a means of travel by persons and where less than 50 percent of the perimeter is enclosed and the maximum width perpendicular to the direction of travel is less than 30 feet (9144 mm).

WALKWAY, ENCLOSED. A roofed, unobstructed walkway connecting buildings and used as a means of travel by persons and where 50 percent or more of the perimeter is enclosed and the maximum width perpendicular to the direction of travel is less than 30 feet (9144 mm).

WALKWAY, PEDESTRIAN. A walkway used exclusively as a pedestrian trafficway.

WALL. See Section 2102.1.

Cavity wall. See Section 2102.1.

Composite wall. See Section 2102.1.

Dry-stacked, surface-bonded wall. See Section 2102.1.

Masonry-bonded hollow wall. See Section 2102.1.

Parapet wall. See Section 2102.1.

WALL, LOAD-BEARING. Any wall meeting either of the following classifications:

- 1. Any metal or wood stud wall that supports more than 100 pounds per linear foot (1459 N/m) of vertical load in addition to its own weight.
- 2. Any masonry or concrete wall that supports more than 200 pounds per linear foot (2919 N/m) of vertical load in addition to its own weight.

WALL, NONLOAD-BEARING. Any wall that is not a load-bearing wall.

WALL PIER. See Section 1908.1.3.

[F] WATER-REACTIVE MATERIAL. See Section 307.2.

Class 3. See Section 307.2.

Class 2. See Section 307.2.

Class 1. See Section 307.2.

WATER-RESISTIVE BARRIER. See Section 1402.

WEATHER-EXPOSED SURFACES. See Section 2502.1.

WEB. See Section 2102.1.

[F] WET-CHEMICAL EXTINGUISHING SYSTEM. See Section 902.1.

|| WHEELCHAIR SPACE. Reserved.

WIND-BORNE DEBRIS IMPACT RESISTANT PROD-

UCTS. Those products meeting TAS 201, TAS 202 and TAS 203, ASTME 1886 or ASTME 1996 or AAMA 506, SSTD 12, or ANSI/DASMA 115.

WIND-BORNE DEBRIS REGION. See Section 1609.2.

WINDER. See Section 1002.1.

WIRE BACKING. See Section 2502.1.

[F] WIRELESS PROTECTION SYSTEM. See Section 902.1.

WOOD SHEAR PANEL. See Section 2302.1.

WOOD STRUCTURAL PANEL. See Section 2302.1.

Composite panels. See Section 2302.1.

Oriented strand board (OSB). See Section 2302.1.

Plywood. See Section 2302.1.

[F] WORKSTATION. See Section 415.2.

WYTHE. See Section 2102.1.

YARD. An open space, other than a court, unobstructed from the ground to the sky, except where specifically provided by this code, on the lot on which a building is situated.

[F] ZONE. See Section 902.1.

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 301 GENERAL

301.1 Scope. The provisions of this chapter shall control the classification of all buildings and structures as to use and occupancy.

SECTION 302 CLASSIFICATION

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

- 1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5
- 2. Business (see Section 304): Group B
- 3. Educational (see Section 305): Group E
- 4. Factory and Industrial (see Section 306): Groups F-1, F-2 and F-3.
- 5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5
- 6. Institutional (see Section 308): Groups I-1, I-2 and I-3
- 7. Mercantile (see Section 309): Group M
- 8. Residential (see Section 310): Groups R-1, R-2, R-3 as applicable in Section 101.2, and R-4
- 9. Storage (see Section 311): Groups S-1 and S-2
- 10. Utility and Miscellaneous (see Section 312): Group U
- 11. Day care (see Section 313): Group D

SECTION 303 ASSEMBLY GROUP A

303.1 Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.

Exceptions:

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1. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be classified as a Group B occupancy.

- 2. A room or space used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
- 3. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and is accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

Assembly occupancies shall include the following:

A-1 Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:

> Motion picture theaters Symphony and concert halls Television and radio studios admitting an audience Theaters

- A-2 Assembly uses intended for food and/or drink consumption including, but not limited to:
 - Banquet halls Night clubs Restaurants Taverns and bars
- A-3 Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

Amusement arcades Art galleries Bowling alleys Places of religious worship Community halls Courtrooms Dance halls (not including food or drink consumption) Exhibition halls Funeral parlors Gymnasiums (without spectator seating) Indoor swimming pools (without spectator seating) Indoor tennis courts (without spectator seating) Lecture halls Libraries Museums Waiting areas in transportation terminals Pool and billiard parlors

- A-4 Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:
 - Arenas Skating rinks Swimming pools Tennis courts

- A-5 Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:
 - Amusement park structures Bleachers Grandstands Stadiums

303.1.1 Restaurants and drinking establishments with an occupant load of less than 50 persons shall be classified as Group M, mercantile.

SECTION 304 BUSINESS GROUP B

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers Animal hospitals, kennels and pounds Banks Barber and beauty shops Car wash Civic administration Clinic—outpatient Dry cleaning and laundries: pick-up and delivery stations and self-service Educational occupancies for students above the 12th grade Electronic data processing Laboratories: testing and research Motor vehicle showrooms Post offices Print shops Professional services (architects, attorneys, dentists, physicians, engineers, etc.) Radio and television stations Telephone exchanges Training and skill development not within a school or academic program **304.2** Sections 423(1) and 423(2) are applicable to community colleges.

SECTION 305 EDUCATIONAL GROUP E

305.1 Educational Group E. Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade. Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 508.3.1 and have occupant loads of less than 100, shall be classified as A-3 occupancies.

305.2 Public education occupancies shall comply with Section 423.

SECTION 306 FACTORY GROUP F

306.1 Factory Industrial Group F. Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H hazardous or Group S storage occupancy.

306.2 Factory Industrial F-1 Moderate-hazard Occupancy. Factory industrial uses which are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft Appliances Athletic equipment Automobiles and other motor vehicles Bakeries Beverages; over 12-percent alcohol content Bicycles Boats Brooms or brushes **Business** machines Cameras and photo equipment Canvas or similar fabric Carpets and rugs (includes cleaning) Clothing Construction and agricultural machinery Disinfectants Dry cleaning and dyeing Electric generation plants Electronics Engines (including rebuilding) Food processing Furniture Hemp products Jute products Laundries Leather products Machinery Metals Millwork (sash & door) Motion pictures and television filming (without spectators) Musical instruments Optical goods Paper mills or products Photographic film Plastic products Printing or publishing Recreational vehicles Refuse incineration Shoes Soaps and detergents Textiles Tobacco Trailers Upholstering Wood; distillation Woodworking (cabinet)
306.3 Factory Industrial F-2 Low-hazard Occupancy. Factory industrial uses that involve the fabrication or manufacturing of noncombustible materials which during finishing, packing or processing do not involve a significant fire hazardshall be classified as F-2 occupancies and shall include, but not be limited to, the following:

Beverages; up to and including 12-percent alcohol content Brick and masonry Ceramic products Foundries Glass products Gypsum Ice Metal products (fabrication and assembly)

306.4 Special purpose F-3. Factory-industrial occupancy includes industrial operations in buildings designed for and suitable only for particular types of operations, characterized by a relatively low density of employee population, with much of the area occupied by machinery or equipment. Group F-3 special purpose factory-industrial occupancy shall include, among others, the occupancies listed in this section: steel mills, paper plants and generating plants.

SECTION 307 HIGH-HAZARD GROUP H

[F] 307.1 High-hazard Group H. High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas constructed and located as required in Section 414. Hazardous uses are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of Section 415 and the *Florida Fire Prevention Code*.

Exceptions: The following shall not be classified in Group H, but shall be classified in the occupancy that they most nearly resemble:

- 1. Buildings and structures that contain not more than the maximum allowable quantities per control area of hazardous materials as shown in Tables 307.1(1) and 307.1(2), provided that such buildings are maintained in accordance with the *Florida Fire Prevention Code*.
- 2. Buildings utilizing control areas in accordance with Section 414.2 that contain not more than the maximum allowable quantities per control area of hazardous materials as shown in Tables 307.1(1) and 307.1(2).
- 3. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *Florida Fire Prevention Code*.
- 4. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *Florida Fire Prevention Code*.

- 5. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
- 6. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment listed by an approved testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour fire barriers or 1-hour horizontal assemblies or both.
- 7. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).
- 8. Liquor stores and distributors without bulk storage.
- 9. Refrigeration systems.
- 10. The storage or utilization of materials for agricultural purposes on the premises.
- 11. Stationary batteries utilized for facility emergency power, uninterrupted power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with the *Florida Building Code, Mechanical.*
- 12. Corrosives shall not include personal or household products in their original packaging used in retail display or commonly used building materials.
- 13 Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *Florida Fire Prevention Code*.
- 14. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per control area in Group M or S occupancies complying with Section 414.2.5.
- 15. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *Florida Fire Prevention Code*.
- 16. Mercantile occupancies offering for retail sale sparklers, novelties and trick noisemakers as defined at Section 791.01, *Florida Statutes*, and that are not defined as fireworks by Chapter 791, *Florida Statutes*. Storage of sparklers and other novelties or trick noisemakers as defined in Chapter 791, *Florida Statutes*, within mercantile occupancies shall be in accordance with Section 791.055, *Florida Statutes*.

307.1.1 Hazardous materials. Hazardous materials in any quantity shall conform to the requirements of this code, including Section 414, and the *Florida Fire Prevention Code*.

[F] 307.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

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FTORAGE STORAGE USE-CLOSED SYSTEMS USE-CLOSED SYSTEMS USE-CLOSED SYSTEMS USE-CLOSED SYSTEMS USE-CLOSED SYSTEMS USE-CLOSED SYSTEMS USE-COREN USE-COREN USE-CLOSED SYSTEMS USE-COREN USE-COREN	IAXI		BLE QUANTIT	Y PER CONTR	[F] TABLE OL AREA OF H	E 307.1(1) IAZARDOUS M	IATERIALS PO	SING A PHYSIC	AL HAZARD ^{a, j}	i, m, n, p	
Interpreted Gase (conticited) Gase (conticited) <t< th=""><th>GROUP W</th><th>SROUP W</th><th>HEN</th><th></th><th>STORAGE^b</th><th></th><th>USE USE</th><th>-CLOSED SYSTE</th><th>MS^b</th><th>USE-OPEN</th><th>SYSTEMS^b</th></t<>	GROUP W	SROUP W	HEN		STORAGE ^b		USE USE	-CLOSED SYSTE	MS ^b	USE-OPEN	SYSTEMS ^b
NA 120^{6} NA 120^{6} NA 330^{6} NA 330^{6} NA 330^{6} NA 300^{6} 330^{6} NA <th>THE MAXIM ALLOWAB QUANTITY CLASS EXCEEDE</th> <th>THE MAXIM ALLOWAB QUANTITY EXCEEDE</th> <th>n 5 F C</th> <th>Solid pounds (cubic feet)</th> <th>Liquid gallons (pounds)</th> <th>Gas (cubic feet at NTP)</th> <th>Solid pounds (cubic feet)</th> <th>Liquid gallons (pounds)</th> <th>Gas (cubic feet at NTP)</th> <th>Solid pounds (cubic feet)</th> <th>Liquid gallons (pounds)</th>	THE MAXIM ALLOWAB QUANTITY CLASS EXCEEDE	THE MAXIM ALLOWAB QUANTITY EXCEEDE	n 5 F C	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
	II H-2 or H-3 IIIA H-2 or H-3 IIIB N/A	H-2 or H-3 H-2 or H-3 N/A		N/A	120 ^{d, e} 330 ^{d, e} 13,200 ^{e, f}	N/A	N/A	$120^{\rm d}$ $330^{\rm d}$ $13,200^{\rm f}$	N/A	N/A	${30}^{ m d} 80^{ m d}$ ${3,300}^{ m f}$
	Loose H-3 baled ^o	Н-3		(100) (1,000)	N/A	N/A	(100) $(1,000)$	N/A	N/A	(20) (200)	N/A
	1.4G H-3	Н-3		125 ^{d, e, 1}	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A H-2	H-2		N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	10^{d}
	N/A H-3	H-3		N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	10^{d}
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Division 1.1 H-1 Division 1.2 H-1	H-1 H-1		ວິ ອີ ຍາຍຄ	(1) ^{e, g} (1) ^{e, g}	N/A N/A	0.25^{g} 0.25^{g}	$(0.25)^{g}_{g}$ $(0.25)^{g}_{g}$	N/A N/A	$\begin{array}{c} 0.25^{g}\\ 0.25^{g}\end{array}$	$(0.25)^{g}$ $(0.25)^{g}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Division 1.3 H-1 or 2 Division 1.4 H-3	H-1 or 2 H-3		50 ^{6, g}	(5) ^{6, g}	N/A N/A	1° 50 ^g	$(1)^{e}$ (50) ^g	N/A N/A	N/A	°(I) N/A
N/A N/A I,000 ^{d.e} N/A N/A I,000 ^{d.e} N/A	Division 1.4G H-3 Division 1.5 H-1 Division 1.6 H-1	H-3 H-1 H-1		125 ^{u, c, r} 1 ^{e, g} 1 ^{d, e, g}	N/A (1) ^{e, g} N/A	N/A N/A N/A	N/A 0.25 ^g N/A	N/A (0.25) ^g N/A	N/A N/A N/A	N/A 0.25 ^g N/A	N/A (0.25) ^g N/A
	Gaseous H-2 liquefied	H-2		N/A	N/A 30 ^{d, e}	1,000 ^{d, e} N/A	N/A	${ m N/A}_{ m 30^{d,e}}$	1,000 ^{d, e} N/A	N/A	N/A
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1A H-2 1B and 1C or H-3	H-2 or H-3		N/A	30 ^{d, e} 120 ^{d, e}	N/A	N/A	$30^{\rm d}$ $120^{\rm d}$	N/A	N/A	$10^{\rm d}$ $30^{\rm d}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	N/A H-2 or H-3	H-2 or H-3		N/A	120 ^{d, e, h}	N/A	N/A	120 ^{d, h}	N/A	N/A	$30^{d, h}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	N/A H-3	H-3		125 ^{d, e}	N/A	N/A	125 ^d	N/A	N/A	25 ^d	N/A
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	UD H-1 I H-2	H-1 H-2		1 ^{e, g} 5 ^{d, e}	$(1)^{e, g}$ (5) ^{d, e}	N/A N/A	0.25^{g}	$(0.25)^g$	N/A N/A	0.25^{g} 1^{d}	$(0.25)^{g}_{(1)^{d}}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	II H-3 III H-3	H-3 H-3		50 ^{d, e} 175 ^{d, e}	$(50)^{d, e}$	N/A N/A	50^{d}	$(50)^{d}$	N/A N/A	10^{d}	$(10)^d$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	V N/A N/A	N/A N/A		N N	ST N	N/A N/A	NIL	NN	N/A N/A	NL NL	<u>j</u> r
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4 H-1 3 ^k H-2 or H-3	H-1 H-2 or H-3		$1^{e, g}$ $10^{d, e}$	$(1)^{e, g}$ $(10)^{d, e}$	N/A N/A	$0.25^{\mathfrak{g}}_{d}$	$(0.25)^{g}_{(2)^{d}}$	N/A N/A	0.25^{g}	$(0.25)^{g}_{(2)}^{d}$
	2 H-3 1 N/A	H-3 N/A		250°°, č 4,000 ^{e,f}	(250)". (4,000) ^{e,f}	N/A N/A	250° 4,000 ^f	$(250)^{\circ}$ (4,000) ^f	N/A N/A	50° $1,000^{f}$	$(50)^{\circ}$ $(1,000)^{f}$

(continued)

MAX		ABLE QUANTIT	Y PER CONTR	OL AREA OF H STORAGE ^b	ÀŹARDOUS M	ATERIALS PO	SING A PHYSIC	AL HAZARD ^{a, I} MS ^b	l, m, n, p USE-OPEN	SYSTEMS ^b
MATERIAL	CLASS	THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Pyrophoric material	N/A	H-2	4 ^{e, g}	(4) ^{e, g}	50 ^{e, g}	18	(1) ^g	10 ^{e, g}	0	0
Unstable (reactive)	4 m U –	H-1 H-1 or H-2 H-3 N/A	1 ^{e, g} 5 ^{d, e} S0 ^{d, e} NL	$(1)^{e, g}_{d, e}$ $(5)^{d, e}_{d, e}$ NL	10 ^{d. g} 50 ^{d. e} 250 ^{d. e} N/L	0.25^{g} 1^{d} 50^{d} NL	(0.25) ^g (1) (50) ^d N/L	2 ^{e, g} 10 ^{d, e} NL	$\begin{array}{c} 0.25^{g} \\ 1^{d} \\ 10^{d} \end{array}$ NL	$(0.25)^{g}$ (1) ^d (10) ^d NL
Water reactive	. 7 3	H-2 H-3 N/A	5 ^{d, e} 50 ^{d, e} NL	(5) ^{d, e} (50) ^{d, e} NL	N/A N/A N/A	5 ^d S0 ^d NL	$(5)^d$ NL	N/A N/A N/A	1 ^d 10 ^d NL	$(10)^d$ NL
For SI: 1 cubic foot = 0.023 m ³ , NL = Not Limited; N/A = Not AF a. For use of control areas, see See b. The aggregate quantity in use a c. The quantities of alcoholic beve occupancies, the quantities of m being flammable, shall not be 1 d. Maximum allowable quantities.	1 pound = 0.454 pplicable; UD = U ection 414.2. and storage shall r rages in retail and tedicines, foodstui imited, providedu imited, providedu shall be increased umulatively.	kg, 1 gallon = 3.78 Inclassified Detona not exceed the quar wholesale sales oca ffs, consumer or ind that such materials 100 percent in build	55 L. ible ntity listed for stor upancies shall no usupancies shall no usuparial products, a are packaged in i dings equipped thu	rage. ot be limited provic ot commetics cont individual contain roughout with an a	ling the liquids ar taining not more t ers not exceedin utomatic sprinkl	e packaged in indi han 50 percent by g 1.3 gallons. er system in accore	vidual containers n volume of water-m lance with Section	ot exceeding 1.3 niscible liquids w 903.3.1.1. Where	gallons. In retail a ith the remainder c e Note e also appli	rd wholesale sales f the solutions not s, the increase for
e. Maximum allowable quantities both notes shall be applied acct f The nermited numities shall r	shall be increased umulatively.	d 100 percent when	t stored in approve	ed storage cabinets an automatic sori	s, day boxes, gas on the sector of the secto	condance with S	d enclosures or saf	fety cans. Where	Note d also applie	s, the increase for
 For the position of position of the second se	iipped throughou naximum allowat 1 capacity of a con	t with an automatic le quantity per con abustible liquid stor	s sprinkler system (trol area of Class rage system that is	IA, IB or IC flam s connected to a fu	th Section 903.3. Imable liquids. Iel-oil piping syst	1.1. em shall be 660 g	allons provided suc	ch system compl	ies with the <i>Floric</i>	la Fire Prevention
 Quantities in parenthesis indic k. A maximum quantity of 200 poi ers and the manner of storage s 	ate quantity units unds of solid or 20 hall be approved.	in parenthesis at th) gallons of liquid C	le head of each cc lass 3 oxidizers is	alumn. allowed when suc	h materials are no	cessary for maint	enance purposes, o	peration or sanit	ation of equipment	. Storage contain-
 Net weight of the pyrotectime of shall be used. m. For gallons of liquids, divide th n. For storage and display quantit 	niposition of the reamount in pour ies in Group M an	nds by 10 in accord nd storage quantitie	le liet weight of the Flo same with the Flo s in Group S occ	e pyrotectime com orida Fire Prevent upancies complyi	position of the III ion Code. ng with Section	eworks is not know 14.2.5, see Table	un 10.1 percent of 11.8 s 414.2.5(1) and 4	le gross weigin ui 14.2.5(2).	ure lifeworks, inc	luuning packagung,
o. Densely packed baled couon tr p. The following shall not be incli	lat complies with uded in determini	the packing requir- ng the maximum a	ements of 1SU &1 llowable quantitie	IS shall not be in es:	cluded in this ma	terial class.				

Liquid or gaseous fuel in fuel tanks on vehicles.
 Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with this code.
 Gaseous fuels in piping systems and fixed appliances regulated by the *Florida Building Code, Huel Gas.* Liquid fuels in piping systems and fixed appliances regulated by the *Florida Building Code, Mechanical.*

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MAAIM		LGOANIIIIII					IIEAEIIII IIAEA	
		STORAGEd		USE	-CLOSED SYSTE	MS ^d	USE-OPEN	SYSTEMS ^d
MATERIAL	Solid pounds ^{e, f}	Liquid gallons (pounds) ^{e, f}	Gas (cubic feet at NTP) ^e	Solid pounds ^e	Liquid gallons (pounds) ^e	Gas (cubic feet at NTP) ^e	Solid pounds ^e	Liquid gallons (pounds) ^e
Corrosive	5,000	500	810 ^{f, g}	5,000	500	810 ^{f, g}	1,000	100
Highly toxic	10	(10) ⁱ	20^{h}	10	(10) ⁱ	20 ^h	3	$(3)^{i}$
Toxic	500	(500) ⁱ	810 ^f	500	(500) ⁱ	810 ^f	125	(125) ⁱ

[F] TABLE 307.1(2) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD^{a, b, c, j}

For SI: 1 cubic foot = 0.028 m^3 , 1 pound = 0.454 kg, 1 gallon = 3.785 L.

a. For use of control areas, see Section 414.2.

b. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs, consumer or industrial products, and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

c. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).

d. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

e. Quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note f also applies, the increase for both notes shall be applied accumulatively.

f. Quantities shall be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the *Florida Fire Prevention Code*. Where Note e also applies, the increase for both notes shall be applied accumulatively.

g. A single cylinder containing 150 pounds or less of anhydrous ammonia in a single control area in a nonsprinklered building shall be considered a maximum allowable quantity. Two cylinders, each containing 150 pounds or less in a single control area, shall be considered a maximum allowable quantity provided the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

11 h. Allowed only when stored in approved exhausted gas cabinets or exhausted enclosures as specified in the Florida Fire Prevention Code.

i. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.

11 j. For gallons of liquids, divide the amount in pounds by 10 in accordance with the Florida Fire Prevention Code.

AEROSOL. A product that is dispensed from an aerosol container by a propellant.

Aerosol products shall be classified by means of the calculation of their chemical heats of combustion and shall be designated Level 1, 2 or 3.

Level 1 aerosol products. Those with a total chemical heat of combustion that is less than or equal to 8,600 British thermal units per pound (Btu/lb) (20 kJ/g).

Level 2 aerosol products. Those with a total chemical heat of combustion that is greater than 8,600 Btu/lb (20 kJ/g), but less than or equal to 13,000 Btu/lb (30 kJ/g).

Level 3 aerosol products. Those with a total chemical heat combustion that is greater than 13,000 Btu/lb (30 kJ/g).

AEROSOL CONTAINER. A metal can or a glass or plastic bottle designed to dispense an aerosol. Metal cans shall be limited to a maximum size of 33.8 fluid ounces (1,000 ml). Glass or plastic bottles shall be limited to a maximum size of 4 fluid ounces (118 ml).

BALED COTTON. A natural seed fiber wrapped in and secured with industry accepted materials, usually consisting of burlap, woven polypropylene, polyethylene or cotton or sheet polyethylene, and secured with steel, synthetic or wire bands or wire; also includes linters (lint removed from the cottonseed) and motes (residual materials from the ginning process).

BALED COTTON, DENSELY PACKED. Cotton made into banded bales with a packing density of at least 22 pounds per cubic foot (360 kg/m^3), and dimensions complying with the following: a length of 55 inches ($1397 \pm 20 \text{ mm}$), a width of 21 inches ($533.4 \pm 20 \text{ mm}$) and a height of 27.6 to 35.4 inches (701 to 899 mm).

BARRICADE. A structure that consists of a combination of walls, floor and roof, which is designed to withstand the rapid

release of energy in an explosion and which is fully confined, partially vented or fully vented; or other effective method of shielding from explosive materials by a natural or artificial barrier.

Artificial barricade. An artificial mound or revetment a minimum thickness of 3 feet (914 mm).

Natural barricade. Natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures that require protection cannot be seen from the magazine or building containing explosives when the trees are bare of leaves.

BOILING POINT. The temperature at which the vapor pressure of a liquid equals the atmospheric pressure of 14.7 pounds per square inch (psi) (101 kPa) gage or 760 mm of mercury. Where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for the purposes of this classification, the 20-percent evaporated point of a distillation performed in accordance with ASTM D 86 shall be used as the boiling point of the liquid.

CLOSED SYSTEM. The use of a solid or liquid hazardous material involving a closed vessel or system that remains closed during normal operations where vapors emitted by the product are not liberated outside of the vessel or system and the product is not exposed to the atmosphere during normal operations; and all uses of compressed gases. Examples of closed systems for solids and liquids include product conveyed through a piping system into a closed vessel, system or piece of equipment.

COMBUSTIBLE DUST. Finely divided solid material that is 420 microns or less in diameter and which, when dispersed in air in the proper proportions, could be ignited by a flame, spark or other source of ignition. Combustible dust will pass through a U.S. No. 40 standard sieve.

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COMBUSTIBLE FIBERS. Readily ignitable and free-burning materials in a fibrous or shredded form, such as cocoa fiber, cloth, cotton, excelsior, hay, hemp, henequen, istle, jute, kapok, oakum, rags, sisal, Spanish moss, straw, tow, wastepaper, certain synthetic fibers or other like materials. This definition does not include densely packed baled cotton.

COMBUSTIBLE LIQUID. A liquid having a closed cup flash point at or above 100°F (38°C). Combustible liquids shall be subdivided as follows:

Class II. Liquids having a closed cup flash point at or above 100°F (38°C) and below 140°F (60°C).

Class IIIA. Liquids having a closed cup flash point at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB. Liquids having a closed cup flash point at or above $200^{\circ}F$ (93°C).

The category of combustible liquids does not include compressed gases or cryogenic fluids.

COMPRESSED GAS. A material, or mixture of materials which:

- 1. Is a gas at 68°F (20°C) or less at 14.7 pounds per square inch atmosphere (psia) (101 kPa) of pressure; and
- 2. Has a boiling point of 68°F (20°C) or less at 14.7 psia (101 kPa) which is either liquefied, nonliquefied or in solution, except those gases which have no other health- or physical-hazard properties are not considered to be compressed until the pressure in the packaging exceeds 41 psia (282 kPa) at 68°F (20°C).

The states of a compressed gas are categorized as follows:

- 1. Nonliquefied compressed gases are gases, other than those in solution, which are in a packaging under the charged pressure and are entirely gaseous at a temperature of 68°F (20°C).
- 2. Liquefied compressed gases are gases that, in a packaging under the charged pressure, are partially liquid at a temperature of 68°F (20°C).
- 3. Compressed gases in solution are nonliquefied gases that are dissolved in a solvent.
- 4. Compressed gas mixtures consist of a mixture of two or more compressed gases contained in a packaging, the hazard properties of which are represented by the properties of the mixture as a whole.

CONTROL AREA. Spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled.

See also the definition of "Outdoor control area" in the *Florida Fire Prevention Code*.

CORROSIVE. A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the point of contact. A chemical shall be considered corrosive if, when tested on the intact skin of albino rabbits by the method described in DOTn 49 CFR, Part 173.137, such a chemical destroys or changes irreversibly the structure of the tissue at the point of contact following an exposure period of 4 hours. This term does not refer to action on inanimate surfaces.

CRYOGENIC FLUID. A liquid having a boiling point lower than -150° F (-101° C) at 14.7 pounds per square inch atmosphere (psia) (an absolute pressure of 101 kPa).

DAY BOX. A portable magazine designed to hold explosive materials constructed in accordance with the requirements for a Type 3 magazine as defined and classified in Chapter 33 of the *Florida Fire Prevention Code*.

DEFLAGRATION. An exothermic reaction, such as the extremely rapid oxidation of a flammable dust or vapor in air, in which the reaction progresses through the unburned material at a rate less than the velocity of sound. A deflagration can have an explosive effect.

DETACHED BUILDING. A separate single-story building, without a basement or crawl space, used for the storage or use of hazardous materials and located an approved distance from all structures.

DETONATION. An exothermic reaction characterized by the presence of a shock wave in the material which establishes and maintains the reaction. The reaction zone progresses through the material at a rate greater than the velocity of sound. The principal heating mechanism is one of shock compression. Detonations have an explosive effect.

DISPENSING. The pouring or transferring of any material from a container, tank or similar vessel, whereby vapors, dusts, fumes, mists or gases are liberated to the atmosphere.

EXPLOSIVE. Any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters and display fireworks, 1.3G (Class B, Special).

The term "explosive" includes any material determined to be within the scope of USC Title 18: Chapter 40 and also includes any material classified as an explosive other than consumer fireworks, 1.4G (Class C, Common) by the hazardous materials regulations of DOTn 49 CFR.

High explosive. Explosive material, such as dynamite, which can be caused to detonate by means of a No. 8 test blasting cap when unconfined.

Low explosive. Explosive material that will burn or deflagrate when ignited. It is characterized by a rate of reaction that is less than the speed of sound. Examples of low explosives include, but are not limited to, black powder; safety fuse; igniters; igniter cord; fuse lighters; fireworks, 1.3G (Class B, Special) and propellants, 1.3C.

Mass-detonating explosives. Division 1.1, 1.2 and 1.5 explosives alone or in combination, or loaded into various types of ammunition or containers, most of which can be expected to explode virtually instantaneously when a small portion is subjected to fire, severe concussion, impact, the impulse of an initiating agent or the effect of a considerable discharge of energy from without. Materials that react in this manner represent a mass explosion hazard. Such an explosive will normally cause severe structural damage to adjacent objects. Explosive propagation could occur immediately to other items of ammunition and explosives stored sufficiently close to and not adequately protected from the initially

exploding pile with a time interval short enough so that two or more quantities must be considered as one for quantity-distance purposes.

UN/DOTN Class 1 explosives. The former classification system used by DOTn included the terms "high" and "low" explosives as defined herein. The following terms further define explosives under the current system applied by DOTn for all explosive materials defined as hazard Class 1 materials. Compatibility group letters are used in concert with the division to specify further limitations on each division noted (i.e., the letter G identifies the material as a pyrotechnic substance or article containing a pyrotechnic substance and similar materials).

Division 1.1. Explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

Division 1.2. Explosives that have a projection hazard but not a mass explosion hazard.

Division 1.3. Explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

Division 1.4. Explosives that pose a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

Division 1.5. Very insensitive explosives. This division is comprised of substances that have a mass explosion hazard, but that are so insensitive there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

Division 1.6. Extremely insensitive articles which do not have a mass explosion hazard. This division is comprised of articles that contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.

FIREWORKS. Any composition or device for the purpose of producing a visible or audible effect for entertainment purposes by combustion, deflagration or detonation that meets the definition of 1.4G fireworks or 1.3G fireworks as set forth herein.

FIREWORKS, 1.3G. (Formerly Class B, Special Fireworks.) Large fireworks devices, which are explosive materials, intended for use in fireworks displays and designed to produce audible or visible effects by combustion, deflagration or detonation. Such 1.3G fireworks include, but are not limited to, firecrackers containing more than 130 milligrams (2 grains) of explosive composition, aerial shells containing more than 40 grams of pyrotechnic composition, and other display pieces which exceed the limits for classification as 1.4G fireworks. Such 1.3G fireworks are also described as fireworks, UN0335 by the DOTn.

FIREWORKS, 1.4G. (Formerly Class C, Common Fireworks.) Small fireworks devices containing restricted amounts of pyrotechnic composition designed primarily to produce vis-

ible or audible effects by combustion. Such 1.4G fireworks which comply with the construction, chemical composition and labeling regulations of the DOTn for fireworks, UN0336, and the U.S. Consumer Product Safety Commission (CPSC) as set forth in CPSC 16 CFR: Parts 1500 and 1507, are not explosive materials for the purpose of this code.

FLAMMABLE GAS. A material that is a gas at $68^{\circ}F(20^{\circ}C)$ or less at 14.7 pounds per square inch atmosphere (psia) (101 kPa) of pressure [a material that has a boiling point of $68^{\circ}F(20^{\circ}C)$ or less at 14.7 psia (101 kPa)] which:

- 1. Is ignitable at 14.7 psia (101 kPa) when in a mixture of 13 percent or less by volume with air; or
- 2. Has a flammable range at 14.7 psia (101 kPa) with air of at least 12 percent, regardless of the lower limit.

The limits specified shall be determined at 14.7 psi (101 kPa) of pressure and a temperature of $68^{\circ}F$ (20°C) in accordance with ASTM E 681.

FLAMMABLE LIQUEFIED GAS. A liquefied compressed gas which, under a charged pressure, is partially liquid at a temperature of $68^{\circ}F(20^{\circ}C)$ and which is flammable.

FLAMMABLE LIQUID. A liquid having a closed cup flash point below 100°F (38°C). Flammable liquids are further categorized into a group known as Class I liquids. The Class I category is subdivided as follows:

Class IA. Liquids having a flash point below $73^{\circ}F(23^{\circ}C)$ and a boiling point below $100^{\circ}F(38^{\circ}C)$.

Class IB. Liquids having a flash point below 73°F (23°C) and a boiling point at or above 100°F (38°C).

Class IC. Liquids having a flash point at or above $73^{\circ}F$ ($23^{\circ}C$) and below $100^{\circ}F$ ($38^{\circ}C$).

The category of flammable liquids does not include compressed gases or cryogenic fluids.

FLAMMABLE MATERIAL. A material capable of being readily ignited from common sources of heat or at a temperature of 600° F (316°C) or less.

FLAMMABLE SOLID. A solid, other than a blasting agent or explosive, that is capable of causing fire through friction, absorption or moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which has an ignition temperature below 212°F (100°C) or which burns so vigorously and persistently when ignited as to create a serious hazard. A chemical shall be considered a flammable solid as determined in accordance with the test method of CPSC 16 CFR; Part 1500.44, if it ignites and burns with a self-sustained flame at a rate greater than 0.1 inch (2.5 mm) per second along its major axis.

FLASH POINT. The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient vapors to form an ignitable mixture with air near the surface or in the container, but will not sustain combustion. The flash point of a liquid shall be determined by appropriate test procedure and apparatus as specified in ASTM D 56, ASTM D 93 or ASTM D 3278.

HANDLING. The deliberate transport by any means to a point of storage or use.

HAZARDOUS MATERIALS. Those chemicals or substances that are physical hazards or health hazards as defined and classi-

[] fied in this section and the *Florida Fire Prevention Code*, whether the materials are in usable or waste condition.

HEALTH HAZARD. A classification of a chemical for which there is statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. The term "health hazard" includes chemicals that are toxic or highly toxic, and corrosive.

HIGHLY TOXIC. A material which produces a lethal dose or lethal concentration that falls within any of the following categories:

- 1. A chemical that has a median lethal dose (LD_{50}) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- 2. A chemical that has a median lethal dose (LD_{50}) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
- 3. A chemical that has a median lethal concentration (LC_{50}) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation that is required for the precise categorization of this type of material shall be performed by experienced, technically competent persons.

INCOMPATIBLE MATERIALS. Materials that, when mixed, have the potential to react in a manner that generates heat, fumes, gases or byproducts which are hazardous to life or property.

OPEN SYSTEM. The use of a solid or liquid hazardous material involving a vessel or system that is continuously open to the atmosphere during normal operations and where vapors are liberated, or the product is exposed to the atmosphere during normal operations. Examples of open systems for solids and liquids include dispensing from or into open beakers or containers, dip tank and plating tank operations.

OPERATING BUILDING. A building occupied in conjunction with the manufacture, transportation or use of explosive materials. Operating buildings are separated from one another with the use of intraplant or intraline distances.

ORGANIC PEROXIDE. An organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by an organic radical. Organic peroxides can pose an explosion hazard (detonation or deflagration) or they can be shock sensitive. They can also decompose into various unstable compounds over an extended period of time. **Class I.** Those formulations that are capable of deflagration but not detonation.

Class II. Those formulations that burn very rapidly and that pose a moderate reactivity hazard.

Class III. Those formulations that burn rapidly and that pose a moderate reactivity hazard.

Class IV. Those formulations that burn in the same manner as ordinary combustibles and that pose a minimal reactivity hazard.

Class V. Those formulations that burn with less intensity than ordinary combustibles or do not sustain combustion and that pose no reactivity hazard.

Unclassified detonable. Organic peroxides that are capable of detonation. These peroxides pose an extremely high explosion hazard through rapid explosive decomposition.

OXIDIZER. A material that readily yields oxygen or other oxidizing gas, or that readily reacts to promote or initiate combustion of combustible materials. Examples of other oxidizing gases include bromine, chlorine and fluorine.

Class 4. An oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock. Additionally, the oxidizer will enhance the burning rate and can cause spontaneous ignition of combustibles.

Class 3. An oxidizer that will cause a severe increase in the burning rate of combustible materials with which it comes in contact or that will undergo vigorous self-sustained decomposition due to contamination or exposure to heat.

Class 2. An oxidizer that will cause a moderate increase in the burning rate or that causes spontaneous ignition of combustible materials with which it comes in contact.

Class 1. An oxidizer whose primary hazard is that it slightly increases the burning rate but which does not cause spontaneous ignition when it comes in contact with combustible materials.

OXIDIZING GAS. A gas that can support and accelerate combustion of other materials.

PHYSICAL HAZARD. A chemical for which there is evidence that it is a combustible liquid, compressed gas, cryogenic, explosive, flammable gas, flammable liquid, flammable solid, organic peroxide, oxidizer, pyrophoric or unstable (reactive) or water-reactive material.

PYROPHORIC. A chemical with an autoignition temperature in air, at or below a temperature of 130° F (54.4°C).

PYROTECHNIC COMPOSITION. A chemical mixture that produces visible light displays or sounds through a self-propagating, heat-releasing chemical reaction which is initiated by ignition.

TOXIC. A chemical falling within any of the following categories:

1. A chemical that has a median lethal dose (LD_{50}) of more than 50 milligrams per kilogram, but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

- 2. A chemical that has a median lethal dose (LD_{50}) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
- 3. A chemical that has a median lethal concentration (LC_{50}) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

UNSTABLE (REACTIVE) MATERIAL. A material, other than an explosive, which in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor, or in the presence of contaminants, or in contact with incompatible materials. Unstable (reactive) materials are subdivided as follows:

Class 4. Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. This class includes materials that are sensitive to mechanical or localized thermal shock at normal temperatures and pressures.

Class 3. Materials that in themselves are capable of detonation or of explosive decomposition or explosive reaction but which require a strong initiating source or which must be heated under confinement before initiation. This class includes materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures.

Class 2. Materials that in themselves are normally unstable and readily undergo violent chemical change but do not detonate. This class includes materials that can undergo chemical change with rapid release of energy at normal temperatures and pressures, and that can undergo violent chemical change at elevated temperatures and pressures.

Class 1. Materials that in themselves are normally stable but which can become unstable at elevated temperatures and pressure.

WATER-REACTIVE MATERIAL. A material that explodes; violently reacts; produces flammable, toxic or other hazardous gases; or evolves enough heat to cause autoignition or ignition of combustibles upon exposure to water or moisture. Water-reactive materials are subdivided as follows:

Class 3. Materials that react explosively with water without requiring heat or confinement.

Class 2. Materials that react violently with water or have the ability to boil water. Materials that produce flammable, toxic or other hazardous gases or evolve enough heat to cause autoignition or ignition of combustibles upon exposure to water or moisture.

Class 1. Materials that react with water with some release of energy, but not violently.

[F] 307.3 High-hazard Group H-1. Buildings and structures containing materials that pose a detonation hazard shall be classified as Group H-1. Such materials shall include, but not be limited to, the following:

Explosives:

Division 1.1 Division 1.2 Division 1.3

Exception: Materials that are used and maintained in a form where either confinement or configuration will not elevate the hazard from a mass fire to mass explosion hazard shall be allowed in H-2 occupancies.

Division 1.4

Exception: Articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco and Firearms regulations, or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles shall be allowed in H-3 occupancies.

Division 1.5 Division 1.6

Organic peroxides, unclassified detonable

Oxidizers, Class 4

Unstable (reactive) materials, Class 3 detonable and Class 4 Detonable pyrophoric materials

[F] 307.4 High-hazard Group H-2. Buildings and structures containing materials that pose a deflagration hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or combustible liquids which are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 psi (103.4 kPa) gage.

Combustible dusts

Cryogenic fluids, flammable

Flammable gases

Organic peroxides, Class I

Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 psi (103 kPa) gage

Pyrophoric liquids, solids and gases, nondetonable Unstable (reactive) materials, Class 3, nondetonable Water-reactive materials, Class 3

[F] 307.5 High-hazard Group H-3. Buildings and structures containing materials that readily support combustion or that pose a physical hazard shall be classified as Group H-3. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or combustible liquids that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103.4 kPa) or less

Combustible fibers, other than densely packed baled cotton Consumer fireworks, 1.4G (Class C, Common)

Cryogenic fluids, oxidizing

Flammable solids

Organic peroxides, Class II and III

Oxidizers, Class 2 Oxidizers, Class 3, that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103 kPa) or less Oxidizing gases Unstable (reactive) materials, Class 2 Water-reactive materials, Class 2

[F] 307.6 High-hazard Group H-4. Buildings and structures which contain materials that are health hazards shall be classified as Group H-4. Such materials shall include, but not be limited to, the following:

Corrosives Highly toxic materials Toxic materials

[F] 307.7 High-hazard Group H-5 structures. Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those listed in Tables 307.1(1) and 307.1(2) shall be classified as Group H-5. Such facilities and areas shall be designed and constructed in accordance with Section 415.8.

[F] 307.8 Multiple hazards. Buildings and structures containing a material or materials representing hazards that are classified in one or more of Groups H-1, H-2, H-3 and H-4 shall conform to the code requirements for each of the occupancies so classified.

SECTION 308 INSTITUTIONAL GROUP I

308.1 Institutional Group I. Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which people are cared for or live in a supervised environment, having physical limitations because of health or age are harbored for medical treatment or other care or treatment, or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is
restricted. Institutional occupancies shall be classified as Group

I restricted. Institutional occupancies shall be classified as Group I-1, I-2 or I-3.

308.2 Group I-1. This occupancy shall include buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

Residential board and care facilities Assisted living facilities Halfway houses Group homes Congregate care facilities Social rehabilitation facilities Alcohol and drug centers Convalescent facilities

A facility such as the above with five or fewer persons shall be || classified as a Group R-3 or shall comply with the *Florida Build*- *ing Code, Residential* in accordance with Section 101.2. A facility such as above, housing at least six and not more than 16 persons, shall be classified as Group R-4.

308.3 Group I-2. This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care on a 24-hour basis for more than five persons who are not capable of self-preservation. This group shall include, but not be limited to, the following:

Hospitals

Nursing homes (both intermediate care facilities and skilled nursing facilities)

Mental hospitals

Detoxification facilities

A facility such as the above with five or fewer persons shall be classified as Group R-3 or shall comply with the *Florida Build-ing Code, Residential.*

308.3.1 Child care facility. A child care facility that provides care on a 24-hour basis to more than five children $2^{1}/_{2}$ years of age or less shall be classified as Group I-2.

308.4 Group I-3. This occupancy shall include buildings and structures that are inhabited by more than five persons who are under restraint or security. An I-3 facility is occupied by persons who are generally incapable of self-preservation due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:

Prisons Jails Reformatories Detention centers Correctional centers Prerelease centers

Buildings of Group I-3 shall be classified as one of the occupancy conditions indicated in Sections 308.4.1 through 308.4.5 (see Section 408.1).

308.4.1 Condition 1. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas, and other spaces where access or occupancy is permitted, to the exterior via means of egress without restraint. A Condition 1 facility is permitted to be constructed as Group R.

308.4.2 Condition 2. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas and any other occupied smoke compartment to one or more other smoke compartments. Egress to the exterior is impeded by locked exits.

308.4.3 Condition 3. This occupancy condition shall include buildings in which free movement is allowed within individual smoke compartments, such as within a residential unit comprised of individual sleeping units and group activity spaces, where egress is impeded by remote-controlled release of means of egress from such a smoke compartment to another smoke compartment.

308.4.4 Condition 4. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Remote-controlled release is provided to permit movement from sleeping units, activity spaces and other

occupied areas within the smoke compartment to other smoke compartments.

308.4.5 Condition 5. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Staff-controlled manual release is provided to permit movement from sleeping units, activity spaces and other occupied areas within the smoke compartment to other smoke compartments.

308.5 Group I-4, day care facilities. Reserved.

308.5.1 Adult care facility. Reserved.

308.5.2 Child care facility. Reserved.

SECTION 309 MERCANTILE GROUP M

309.1 Mercantile Group M. Mercantile Group M occupancy includes, among others, buildings and structures or a portion thereof, for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following:

Department stores Drug stores Markets Motor fuel-dispensing facilities Retail or wholesale stores Restaurants and drinking establishments with an occupant load of less than 50 persons Sales rooms

309.2 Quantity of hazardous materials. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored or displayed in a single control area of a Group M occupancy shall not exceed the quantities in Table 414.2.5(1).

SECTION 310 RESIDENTIAL GROUP R

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *Florida Building Code, Residential* in accordance with Section 101.2. Residential occupancies shall include the following:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) Hotels (transient) Motels (transient)

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses Boarding houses (not transient) Convents Dormitories Fraternities and sororities Hotels (nontransient) Monasteries Motels (nontransient) Vacation timeshare properties

Congregate living facilities with 16 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

- **R-3** Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:
 - Buildings that do not contain more than two dwelling units.
 - Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.
 - Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.

Congregate living facilities with 16 or fewer persons.

Adult and child care facilities that are within a single-family home are permitted to comply with the *Florida Building Code, Residential.*

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R-4 Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code, or shall comply with the *Florida Building Code, Residential*.

310.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

BOARDING HOUSE. A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single-family unit.

CONGREGATE LIVING FACILITIES. A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities.

DORMITORY. A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

PERSONAL CARE SERVICE. The care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident while inside the building.

RESIDENTIAL CARE/ASSISTED LIVING FACILI-TIES. A building or part thereof housing persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment which provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from **SPECIAL AMUSEMENT BUILDING.** A special amusement building is any temporary or permanent building or portion thereof that is occupied for amusement, entertainment or educational purposes and that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction so arranged that the means of egress path is not readily apparent due to visual or audio distractions or is intentionally confounded or is not readily available because of the nature of the attraction or mode of conveyance through the building or structure.

411.3 Automatic fire detection. Where the nature of the special amusement buildings is such that it operates in reduced lighting levels, special amusement buildings shall be equipped with an automatic fire detection system in accordance with Section 907.

411.4 Automatic sprinkler system. Special amusement buildings shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Where the special amusement building is temporary, the sprinkler water supply shall be of an approved temporary means.

Exception: Automatic fire sprinklers are not required where special amusement buildings or structures do not exceed 120 inches (3050 mm) in height and do not exceed 160 square feet (15 m^2) in aggregate horizontal projection.

[F] 411.5 Alarm. Actuation of a single smoke detector, the automatic sprinkler system or other automatic fire detection device shall immediately sound an alarm at the building at a constantly attended location from which emergency action can be initiated including the capability of manual initiation of requirements in Section 907.2.11.2.

[F] 411.6 Emergency voice/alarm communications system. An emergency voice/alarm communications system shall be provided in accordance with Sections 907.2.11 and 907.2.12.2, which is also permitted to serve as a public address system and shall be audible throughout the entire special amusement building.

411.7 Exit marking. Exit signs shall be installed at the required exit or exit access doorways of amusement buildings. Approved directional exit markings shall also be provided. Where mirrors, mazes or other designs are utilized that disguise the path of egress travel such that they are not apparent, approved low-level exit signs and directional path markings shall be provided and located not more than 8 inches (203 mm) above the walking surface and on or near the path of egress travel. Such markings shall become visible in an emergency. The directional exit marking shall be activated by the automatic fire detection system and the automatic sprinkler system in accordance with Section 907.2.11.2.

411.8 Interior finish. The interior finish shall be Class A in accordance with Section 803.1.

SECTION 412 AIRCRAFT-RELATED OCCUPANCIES

412.1 Airport traffic control towers.

412.1.1 General. The provisions of this section shall apply to airport traffic control towers not exceeding 1,500 square feet (140 m^2) per floor occupied only for the following uses:

- 1. Airport traffic control cab.
- 2. Electrical and mechanical equipment rooms.
- 3. Airport terminal radar and electronics rooms.
- 4. Office spaces incidental to the tower operation.
- 5. Lounges for employees, including sanitary facilities.

412.1.2 Type of construction. Airport traffic control towers shall be constructed to comply with the height and area limitations of Table 412.1.2.

TYPE OF CONSTRUCTION	HEIGHT ^a (feet)	MAXIMUM AREA (square feet)
IA	Unlimited	1,500
IB	240	1,500
IIA	100	1,500
IIB	85	1,500
IIIA	65	1,500

	TABLE 412.1.2
HEIGHT	AND AREA LIMITATIONS FOR AIRPORT
	TRAFFIC CONTROL TOWERS

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2 .

a. Height to be measured from grade plane to cab floor.

412.1.3 Egress. A minimum of one exit stairway shall be permitted for airport traffic control towers of any height provided that the occupant load per floor does not exceed 15. The stairway shall conform to the requirements of Section 1009. The stairway shall be separated from elevators by a minimum distance of one-half of the diagonal of the area served measured in a straight line. The exit stairway and elevator hoistway are permitted to be located in the same shaft enclosure, provided they are separated from each other by a 4-hour fire barrier having no openings. Such stairway shall be pressurized to a minimum of 0.15 inch of water column (43 Pa) and a maximum of 0.35 inch of water column (101 Pa) in the shaft relative to the building with stairway doors closed. Stairways need not extend to the roof as specified in Section 1009.11. The provisions of Section 403 do not apply.

Exception: Smokeproof enclosures as set forth in Section 1020.1.7 are not required where required stairways are pressurized.

[F] 412.1.4 Automatic fire detection systems. Airport traffic control towers shall be provided with an automatic fire detection system installed in accordance with Section 907.2.

[F] 412.1.5 Standby power. A standby power system that conforms to Section 2702 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:

- 1. Pressurization equipment, mechanical equipment and lighting.
- 2. Elevator operating equipment.
- 3. Fire alarm and smoke detection systems.

412.1.6 Accessibility shall be in accordance with Chapter 11.

412.2 Aircraft hangars. Aircraft hangars shall be in accordance with Sections 412.2.1 through 412.2.6.

412.2.1 Exterior walls. Exterior walls located less than 30 feet (9 144 mm) from property lines, lot lines or a public way shall have a fire-resistance rating not less than 2 hours.

412.2.2 Basements. Where hangars have basements, the floor over the basement shall be of Type IA construction and shall be made tight against seepage of water, oil or vapors. There shall be no opening or communication between the basement and the hangar. Access to the basement shall be from outside only.

412.2.3 Floor surface. Floors shall be graded and drained to prevent water or fuel from remaining on the floor. Floor drains shall discharge through an oil separator to the sewer or to an outside vented sump.

Exception: Aircraft hangars with individual lease spaces not exceeding 2,000 square feet (186 m^2) each in which servicing, repairing or washing is not conducted and fuel is not dispensed shall have floors that are graded toward the door, but shall not require a separator.

412.2.4 Heating equipment. Heating equipment shall be placed in another room separated by 2-hour fire-resistance-rated construction. Entrance shall be from the outside or by means of a vestibule providing a two-doorway separation.

Exceptions:

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- 1. Unit heaters and vented infrared radiant heating equipment suspended at least 10 feet (3048 mm) above the upper surface of wings or engine enclosures of the highest aircraft that are permitted to be housed in the hangar and at least 8 feet (2438 mm) above the floor in shops, offices and other sections of the hangar communicating with storage or service areas.
- 2. A single interior door shall be allowed, provided the sources of ignition in the appliances are at least 18 inches (457 mm) above the floor.

412.2.5 Finishing. The process of "doping," involving use of a volatile flammable solvent, or of painting, shall be carried on in a separate detached building equipped with automatic fire-extinguishing equipment in accordance with Section 903.

[F] 412.2.6 Fire suppression. Aircraft hangars shall be provided with fire suppression as required by NFPA 409.

Exception: Group II hangars as defined in NFPA 409 storing private aircraft without major maintenance or overhaul are exempt from foam suppression requirements.

412.3 Residential aircraft hangars. Residential aircraft hangars as defined in Section 412.3.1 shall comply with Sections 412.3.2 through 412.3.6.

412.3.1 Definition. The following word and term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning shown herein.

RESIDENTIAL AIRCRAFT HANGAR. An accessory building less than 2,000 square feet (186 m²) and 20 feet (6096 mm) in height, constructed on a one- or two-family residential property where aircraft are stored. Such use will be considered as a residential accessory use incidental to the dwelling.

412.3.2 Fire separation. A hangar shall not be attached to a dwelling unless separated by a fire barrier having a fire-resistance rating of not less than 1 hour. Such separation shall be continuous from the foundation to the underside of the roof and unpierced except for doors leading to the dwelling unit. Doors into the dwelling unit must be equipped with self-closing devices and conform to the requirements of Section 715 with at least a 4-inch (102 mm) noncombustible raised sill. Openings from a hanger directly into a room used for sleeping purposes shall not be permitted.

412.3.3 Egress. A hangar shall provide two means of egress. One of the doors into the dwelling shall be considered as meeting only one of the two means of egress.

[F] 412.3.4 Smoke alarms. Smoke alarms shall be provided within the hangar in accordance with Section 907.2.21.

412.3.5 Independent systems. Electrical, mechanical and plumbing drain, waste and vent (DWV) systems installed within the hangar shall be independent of the systems installed within the dwelling. Building sewer lines shall be permitted to be connect outside the structures.

Exception: Smoke detector wiring and feed for electrical subpanels in the hangar.

412.3.6 Height and area limits. Residential aircraft hangars shall not exceed 2,000 square feet (186 m^2) in area and 20 feet (6096 mm) in height.

[F] 412.4 Aircraft paint hangars. Aircraft painting operations where flammable liquids are used in excess of the maximum allowable quantities per control area listed in Table 307.7(1) shall be conducted in an aircraft paint hangar that complies with the provisions of Section 412.4.

[F] 412.4.1 Occupancy group. Aircraft paint hangars shall be classified as Group H-2. Aircraft paint hangars shall comply with the applicable requirements of this code and the *Florida Fire Prevention Code* for such occupancy.

412.4.2 Construction. The aircraft paint hangar shall be of Type I or II construction.

[F] 412.4.3 Operations. Only those flammable liquids necessary for painting operations shall be permitted in quantities less than the maximum allowable quantities per control area in Table 307.1(1). Spray equipment cleaning operations shall be conducted in a liquid use, dispensing and mixing room.

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- The inner core of the duct is constructed of Chlorinated Polyethylene (CPE) material encircling a steel helix bonded to the CPE.
- The duct has a fire-retardant metalized vapor barrier that is reinforced with crosshatched fiberglass scrim having a permanence of not greater than 0.05 perms when tested in accordance with ASTM E 96 Procedure A.
- The duct has passed an impact test equal to the UL 181 standard, conducted by a nationally recognized testing laboratory (NRTL) except it shall use a 25-pound weight dropped from a height of 10 feet. As a result of the test, the inner and outer surfaces of the sample shall not have ruptured, broken, torn, ripped, collapsed or separated in order for the duct to pass the test. In addition, the helix shall rebound to a cross-sectional elliptical area not less than 80 percent of the original test sample diameter.

The use of flexible duct shall be limited to flexible air connector applications.

419.3.11.7 Variable air volume systems shall not be permitted for use in surgical departments, obstetrical departments, laboratories, isolation rooms and critical care units and rooms.

419.3.11.8 Filter housing frame blank-off panels shall be permanently attached to the frame, constructed of rigid materials and have sealing surfaces equal to or greater than the filter media installed in the filter frame.

419.3.11.9 Each air handling unit filter rated in excess of 1,000 cfm (28.32 m3/min) capacity shall be equipped with a differential pressure gauge. The range of acceptable operation shall be clearly and permanently indicated on the gauge face or display. Multiple bank filter assemblies shall be equipped with a gauge for each filter media bank.

419.3.12 Fan and damper control during fire alarm.

419.3.12.1 During a fire alarm, fan systems and fan equipment serving more than one room shall be stopped to prevent the movement of smoke by mechanical means from the zone in alarm to adjacent smoke zones.

419.3.12.2 Fan control shall be designed so as to minimize the interruption of heating, ventilating and air conditioning in compartments remote from the compartment in alarm.

419.3.12.3 Fan control shall not interfere with the continuous operation of exhaust systems conveying ethylene oxide or other hazardous chemicals and fumes or systems required to operate continuously for the health and safety of occupants. Such systems shall include fume hood exhaust deemed by the governing body of the hospital to present a hazard to occupants if exhaust airflow is stopped. Air-handling systems shall be designed to allow for continuous operation of all such systems and to minimize movement of smoke by mechanical means from the zone in alarm.

419.3.12.4 Carbon monoxide detector. See Section 913.1.

419.3.13 Plumbing. (See Section 7.31.E of The Guidelines for other requirements.)

419.3.13.1 All plumbing systems shall be designed and installed in accordance with the *Florida Building Code*, *Plumbing*.

419.3.13.2 Grease interceptors shall be located outside of the building.

419.3.13.3 Wall-mounted lavatories and hand-washing facilities shall be attached to floor-mounted carriers and shall withstand an applied vertical load of a minimum of 250 pounds (114 kg) on the front of the fixture.

419.3.14 Fire pump. Where required in new construction, fire pumps and ancillary equipment shall be separated from other functions by construction having a 2-hour fire-resistance rating.

419.3.14.1 The fire pump normal service disconnect shall be rated to hold locked rotor current indefinitely. If the approved normal service disconnect is located on the exterior, it shall be supervised by connection to the fire pump remote annunciator and shall provide a separate fire alarm system trouble indication.

419.3.14.2 When the fire pump is placed on the emergency system in addition to the normal supply, the emergency feeder protective device shall be sized in accordance with maximum rating or settings of Chapter 27 of the *Florida Building Code, Building.*

419.3.14.3 The fire pump transfer switch may be either manual or automatic. If located on the line side of the controller as a separate unit, the switch must be rated for the pump motor locked rotor current indefinitely and must be located in the pump room.

419.3.14.4 Combination fire pump controller and transfer switch units listed by the Underwriter's Laboratories, Inc., as prescribed by Chapter 27 of the *Florida Building Code, Building* are acceptable when the transfer switch has exposable and replaceable contacts, not circuit breaker types, rated for the available short-circuit current.

419.3.14.5 The fire pump shall be installed in a readily accessible location. When it is located on the grade level floor, there shall be direct access from the exterior.

419.3.15 Electrical requirements. (See The Guidelines for other requirements.) All material, including equipment, conductors, controls, and signaling devices, shall be installed to provide a complete electrical system with the necessary characteristics and capacity to supply the electrical facility requirements as shown in the specifications and as indicated on the plans. All materials and equipment shall be factory listed as complying with applicable standards of Underwriter's Laboratories, Inc. or other similarly established standards of a nationally recognized testing laboratory (NRTL) that has been certified by the Occupational Safety and Health Administration (OSHA) for that referenced standard.

419.3.15.1 Nonmetallic sheathed cable or similar systems are not permitted for power and lighting wiring in any facility.

419.3.15.2 Panel boards located in spaces subject to storage shall have the clear working space per Chapter 27, *Florida Building Code, Building.* "ELECTRICAL ACCESS - NOT FOR STORAGE" shall be permanently marked on the floor and wall about the panel. Panel boards shall not be located in egress corridors.

419.3.15.3 There shall be documentation for equipotential grounding in all patient care areas, building service ground electrode systems, lightning protection ground terminals and special systems such as fire alarm, nurse call, paging, generator, emergency power, fault analysis and breaker coordination.

419.3.15.4 All spaces occupied by people, machinery and equipment within buildings and approaches to buildings shall have electric lighting.

419.3.15.5 Operating rooms and delivery rooms shall have general lighting for the room in addition to local high intensity, specialized lighting provided by special fixtures at the surgical and obstetrical tables. Each special lighting unit for local lighting at the tables shall be connected to an independent circuit and shall be powered from the critical branch. A minimum of one general purpose lighting fixture shall be powered from a normal circuit in an operating room, delivery or similar room.

419.3.15.6 There shall be a maximum of six duplex receptacles on a circuit in general patient care areas.

419.3.15.7 Duplex receptacles in critical care areas, in all emergency treatment rooms or areas, and other areas including, angiographic laboratories, cardiac catheterization laboratories, coronary care units, hemodialysis rooms or areas, human physiology laboratories, intensive care units and postoperative recovery rooms, shall be provided as follows:

419.3.15.7.1 There shall be a minimum of six duplex electrical receptacles for each patient station.

419.3.15.7.2 Four shall be connected to the critical branch of the essential electrical system, and two of the required number shall be connected to dedicated circuits.

419.3.15.7.3 Two shall be connected to a normal power circuit except in anesthetizing locations where two shall be connected to critical power circuits.

419.3.15.7.4 There shall be no more than two receptacles per circuit.

419.3.15.8 All receptacles shall have engraved cover plates to indicate the panel board and circuit numbers powering the device.

419.3.15.9 Branch circuit over-current devices shall be readily accessible to nursing staff and other authorized personnel.

419.3.16 Fire alarm systems. A fire alarm annunciator panel shall be provided at a 24-hour monitored location. The panel shall indicate the zone of actuation of the alarm, and there shall be a trouble signal indicator. Each smoke compartment shall be annunciated as a separate fire alarm

zone. A fire alarm system zone shall not include rooms or spaces in other smoke compartments and shall be limited to a maximum area of 22,500 square feet (2090 m^2).

419.3.17 Nurse call system. (See Section 7.32.G of The Guidelines for other requirements.) A nurse call system shall be provided that will register a call from each patient bed to the nurse station and activate a visual signal at the patient room door and activate a visual and audible signal in the clean workroom, the soiled workroom, the nourishment station and the master station of the nursing unit. In multicorridor nursing units, additional visible signals shall be installed at corridor intersections in the vicinity of nurse stations. In rooms containing two or more calling stations, indicating lights shall be provided for each calling station.

419.3.17.1 Master staff and duty stations may include volume controls, provided the minimum setting provides audibility of 15 decibels above normal ambient noise levels where the station is located.

419.3.17.2 An emergency calling station of the pull cord type shall be provided and shall be conveniently located for patient use in each patient toilet, bath or shower room, but not inside the shower. The call signal shall be cancelled only at the emergency calling station. The emergency station shall activate distinctive audible and visual signals immediately.

419.3.17.3 An emergency resuscitation alarm (Code Blue) calling station shall be provided for staff use in each operating, delivery, recovery LDR, LDRP, emergency, cardiac and intensive nursing care rooms, nurseries and similar rooms.

419.3.17.4 Emergency resuscitative alarm panels (centralized Code Blue) shall be provided at the attending nurse station and at other locations as determined by the facility that are staffed 24 hours per day. Audible signals may be silenced temporarily for a call provided subsequent calls automatically reactivate the audible signal immediately. The alarm panel at the 24-hour staffed station may indicate the nurse station/suite where the call originated in lieu of identifying the bed only when a 24-hour station is not one and the same as the attending nurse station.

419.3.18 Emergency electric service. A Type 1 essential electrical system shall be provided in all hospitals as described in NFPA 99, *Health Care Facilities*. The emergency power for this system shall meet the requirements of a Level 1, Type 10, Class 48 generator as described in NFPA 110, *Emergency Standby Power Systems*.

419.3.18.1 In new construction, the normal main service equipment shall be separated from the emergency distribution equipment by locating it in a separate room. Transfer switches shall be considered emergency distribution equipment for this purpose.

419.3.18.2 Switches for critical branch lighting shall be totally separate from normal switching. The devices or cover plates shall be of a distinctive color. Critical branch switches may be adjacent to normal switches. Switches for life safety lighting are not permitted except as

420.3.10.18 Toilet compartment partitions and urinal screens shall not be constructed of enameled steel.

420.3.10.19 All smoke partitions, horizontal exits and exit passageway partitions shall be constructed prior to the construction of intervening walls.

420.3.10.20 Smoke partitions shall be constructed so as to provide a continuous smoke-tight membrane from exterior wall to exterior wall and from the floor to the underside of the deck above. This includes interstitial space and the area above solid fire-tested membranes.

420.3.10.21 Where it is not possible to inspect fire/smoke partitions because of the fire-tested membrane, fire-rated access panels shall be installed adjacent to each side of the smoke partitions at intervals not exceeding 30 feet (9.00 m) and in such locations as necessary to view all surfaces of the partition. Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings shall be effectively and permanently identified with signs or stenciling. Such identification shall be above any decorative ceiling and in concealed spaces. Suggested wording for a fire/smoke partition is as follows: "FIRE AND SMOKE BARRIER – PROTECT ALL OPENINGS."

420.3.10.22 Where electrical conduits, cable trays, ducts and utility pipes pass through the smoke partition, the utilities shall be located so that access is maintained to adjacent wall surfaces and to all damper access panels. The details shall show the studs and reinforcing half studs so that proper support is provided for the wall surfacing material. There shall be a minimum clearance of 6 inches (152 mm) between all conduits, piping, and duct work at corridor walls to facilitate the inspection of these walls.

420.3.11 Elevators. (Where required).

420.3.11.1 All buildings having resident use areas on more than one floor shall have hospital-type electric or hydraulic elevator(s) that shall be in compliance with the requirements of Chapter 30 of this code and Chapter 69A-47, *Florida Administrative Code*, "Uniform Fire Safety Standards for Elevators."

420.3.11.2 In the absence of an engineered traffic study, the minimum number of elevators shall be as follows:

420.3.11.2.1 At least one elevator shall be installed where resident beds are located on any floor other than the main entrance floor.

420.3.11.2.2 When 60 to 200 resident beds are located on floors other than the main entrance floor, at least two elevators, one of which shall be of the hospital-type and capacity, shall be installed.

420.3.11.2.3 When 201 to 350 resident beds are located on floors other than main entrance floor, at least three elevators, two of which shall be of the hospital-type and capacity, shall be installed.

420.3.11.2.4 For facilities with more than 350 resident beds above the main entrance floor, the number

of elevators shall be determined from a facility plan study and from the estimated vertical transportation requirements.

420.3.11.2.5 When the skilled nursing unit is part of a general hospital, elevators may be shared.

420.3.11.3 Cars of elevators shall have inside dimensions that accommodate a resident bed with attendants. Cars shall be at least 5 feet (1.52 m) wide by 7 feet 6 inches (2.29 m) deep. The car door shall have a clear opening of not less than 4 feet (1.22 m).

420.3.11.4 Elevator call buttons shall not be activated by heat or smoke. If employed, light beam door activators shall be used in combination with door-edge safety devices and shall be connected to a system of smoke detectors such that the light control feature will disengage or be overridden if it encounters smoke at any landing.

420.3.12 Water supply and sewage disposal.

420.3.12.1 An approved, accessible, adequate, safe and potable supply of water shall be provided. The water supply shall be accessible and available at all times for drinking, fire protection, culinary, bathing, cleaning and laundry purposes.

420.3.12.2 Hot water shall be supplied to all lavatory and sink plumbing fixtures available for use by residents and staff.

420.3.12.3 An approved, adequate and safe method of sewage collection, treatment and disposal shall be provided for each nursing home.

420.3.13 Ventilating and air-conditioning systems.

420.3.13.1 Mechanical equipment shall be defined as equipment utilized in air-conditioning, heating, ventilating systems and associated electrical, electronic and pneumatic components required for the mechanical equipment to provide the function intended by the application of the equipment. New and existing equipment replacements shall comply with these requirements.

420.3.13.2 Mechanical equipment shall be installed in a designated equipment room(s), or in a space(s) located in an attic(s).

420.3.13.3 If the unit serves only one room it may be located above the ceiling and shall be accessible through an access opening in accordance with this code. Access panels are not required for lay-in ceiling installations, provided the service functions are not obstructed by other above-ceiling construction, such as electrical conduits, piping, audio visual cabling and like equipment components or supports.

420.3.13.4 Ventilation shall be provided by mechanical means in all rooms in new facilities and in all renovated or remodeled rooms. The minimum air quantities and filtration efficiencies shall be met as set forth in Table 420.3.13.7 for those spaces that are listed.

420.3.13.5 For spaces listed in the minimum ventilated rate table, central station type air-handling equipment

shall be used. Package terminal air-conditioning units or fan coils may be used to serve resident rooms and shall be provided with 20-percent filters minimum.

420.3.13.6 System designs utilizing fan coil or package terminal air-conditioning units shall have the outdoor air ventilation damper permanently closed. The ventilation requirement shall be satisfied by a central station type air handling unit provided with a 30-percent filter minimum or as required by the listed space served. Spaces designated for the exclusive use of physical plant personnel need not comply with this requirement.

420.3.13.7 Administrative and other staff-only areas shall be provided with outside air at the minimum rate of 20 cfm (9.43 L/s) per person, and the central system shall have a minimum of 30 percent ASHRAE dust spot efficiency filter.

420.3.13.8 All outdoor air intakes shall be located a minimum of 3 feet (0.91 m) above surrounding surfaces and a minimum of 10 feet (3.05 m) horizontally from any exhaust air or plumbing vent.

420.3.13.9 All filters in systems in excess of 1000 cfm $(28.32 \text{ m}^3/\text{min})$ capacity shall be installed with differential pressure gauges. The filter gauge shall have the range of acceptable filter operation clearly and permanently indicated.

420.3.13.10 Filter housings for 80-percent efficiency filters shall be fully gasketed and sealed with mechanical latching devices capable of exerting and maintaining a continuous, uniform sealing pressure on the filter media when in the latched, closed position.

420.3.13.11 The transfer of air quantities through one space to an adjacent space is not permitted except that the transfer of air to maintain space relative pressure by the under cutting of doors is permitted. The maximum allowable air quantity for door undercuts shall be 75 cfm (35.38 L/s) for single door widths up to 44 inches (1117 mm).

420.3.13.12 Space relative pressure requirements shall be maintained throughout the entire system control range where variable volume systems are utilized.

420.3.13.13 Spaces having exhaust hoods shall have sufficient make-up supply air such that the required pressure relationship will not be affected by the operation of the hood.

420.3.13.14 All supply, return and exhaust ventilation fans shall operate continuously. Dietary hood, laundry area, administrative areas that are separated from all resident areas and support areas and maintenance area supply and exhaust fans shall be exempted from continuous operation.

420.3.13.15 Cooling coil condensate shall be piped to a roof drain, floor drain or other approved location.

420.3.13.16 Carbon monoxide detector. See Section 913.1.

420.3.14 Exhaust.

420.3.14.1 Exhaust fans and other fans operating in conjunction with a negative duct system pressure shall be located at the discharge end of the system. Fans located immediately within the building located at the end of all exhaust ducts shall be permitted. Existing, nonconforming systems need not be brought into compliance when equipment is replaced due to equipment failure.

420.3.14.2 Exhaust hoods in food preparation areas shall be listed or certified by a nationally recognized testing laboratory (NRTL).

420.3.15 Ducts.

420.3.15.1 All new facility construction shall have totally ducted supply, return, exhaust and outside air systems including areas of all occupancy classifications.

420.3.15.2 In new construction, duct system risers penetrating more than one floor shall be installed in vertical fire-rated shafts. Horizontal offsets of the risers shall not be allowed. Fire/smoke dampers shall be installed at duct penetrations of the chase. Existing nonconforming systems shall be brought into compliance when remodel or renovation work is proposed.

420.3.16 Fan and damper control during fire alarm.

420.3.16.1 During a fire alarm, fan systems and fan equipment serving more than one room shall be stopped to prevent the movement of smoke by mechanical means from the zone in alarm to adjacent smoke zones.

420.3.16.2 Air-handling and fan coil units serving exit access corridors for the zone in alarm shall shut down upon fire alarm.

420.3.16.3 Smoke or fire/smoke dampers shall close upon fire alarm and upon manual shutdown of the associated supply, return or exhaust fan.

420.3.17 Plumbing.

420.3.17.1 All plumbing fixtures provided in spaces shall conform to the requirements of Table 420.3.17.2 of plumbing fixtures and minimum trim.

420.3.17.2 The temperature of hot water supplied to resident and staff use lavatories, showers and bath shall be between $105^{\circ}F(41^{\circ}C)$ and $115^{\circ}F(46^{\circ}C)$ at the discharge end of the fixture.

420.3.17.3 Wall-mounted water closets, lavatories, drinking fountains and hand-washing facilities shall be attached to floor-mounted carriers and shall withstand an applied vertical load of a minimum of 250 pounds (113.39 kg) to the front of the fixture.

420.3.17.4 Grease interceptors shall be located outside of the building.

420.3.17.5 Provide deep seal traps for floor drains in resident showers.

420.3.17.6 Food preparation sinks, pot washing, dishwashers, janitor sinks, floor drains, and cart and can wash drains shall run through the grease trap. Garbage disposers shall not run through the grease trap.

423.11.1 Fire-retardant treated wood. All FRTW must meet the requirements of Section 2303.2.

423.11.2 Inspection access panels shall be provided for annual inspection of the condition of the structure and the connectors.

423.11.3 Evidence of compliance shall be provided.

423.12 Roofing.

423.12.1 Class A materials. All roofing materials shall be labeled Class A per ASTM E108 and shall be certified by a nationally recognized independent testing laboratory. All roofing systems shall be installed within the limitations of the test procedure for surfacing, deck cross slope, and combustibility.

423.12.2 Insulation and moisture protection. Insulation, moisture protection, roofing, thermal requirements, fire-proofing and firestopping shall be designed and constructed in compliance with the the *Florida Building Code* and *Uniform Fire Safety Standards* as adopted by the State Fire Marshal. Cellulose insulation may only be used if it is treated with fire-retardant borate based chemicals; the contractor shall retain bag labels on site for review by building inspector.

423.12.3 Phased installation prohibited. All new installed materials shall be sealed from moisture penetration at the end of each day. The contractor shall provide the architect/engineer (A/E) of record a "final statement of compliance" for the board.

423.12.4 Manufacturer's one-year inspection. The roof shall be inspected by the manufacturer's representative within one year of acceptance by the board.

423.13 Doors and windows.

423.13.1 Doors. All spaces with an occupant load of six or more students, regardless of use, shall have a door opening directly to the exterior, or as required in the *Uniform Fire Safety Standards* as adopted by the State Fire Marshal, in buildings of three stories or less shall have a rescue window opening directly to the exterior, or shall be fully sprinklered. All doors and gates from spaces with an occupant load of six or more students, regardless of use or location, shall swing in the direction of exit travel, shall be of the side hinged type, and shall always be operable from the inside by a single operation and without a key.

423.13.1.1 Doors for steam rooms, locker rooms, shower rooms and group toilet rooms shall swing in the direction of exit travel, and shall always be operable for exiting from the inside.

423.13.1.2 No mirrors, draperies, curtains, equipment, furnishings, decorations, or other objects which may confuse, obstruct, or conceal the exit or the direction of exit shall be placed to obstruct a means of egress.

423.13.2 Recessed. Doors when fully opened shall not extend into the required exit width of corridors, except for door thickness and required hardware. Doors may either be recessed and hinged to swing 90 degrees, or if flush with corridor wall shall contain a view panel and be hinged to swing 180 degrees.

423.13.3 Special function doors. Special function doors, including balanced doors and overhead doors, shall not be used in a means of egress.

423.13.4 Overhead and sliding security grilles. Security grilles shall have an adjacent side-hinged door swinging in the direction of exit and readily opened from the inside.

423.13.5 Gates. Gates used to secure buildings or used for egress shall be side-hinged and readily opened from the side from which egress is to be made without the use of a key or special tool, or shall have a adjacent side hinged door, or doors as required for occupant load, swinging in the direction of exit and readily opened from the inside without a key.

423.13.6 Hardware. Doors and gates shall be equipped with hardware which will allow egress at all times without assistance. No padlock, chain, hasp, lock, deadbolt, or other device shall be installed at any time on any door used for exiting. Doors which by code require closers and other doors subject to wind exposure shall be equipped with closers to prevent slamming and uncontrolled opening. All doors opening into smoke-tight exit access corridors shall be self-closing or automatic closing. Smoke doors in walls used to divide corridors into separate atmospheres shall be provided with push-pull plates and are not required to have positive latching. As an exception to Section 1008.1.8.6, delayed egress locks may be used in media centers, alternative education centers, and exceptional student education centers. Delayed egress locks are prohibited at time-out rooms at all locations.

423.13.7 Safety glazing: Panels and storefronts. In addition to the requirements of Section 2406.3, the following is considered a hazardous location and requires safety glazing: Glazed panels within 48 inches (1219 mm) of a door, excluding transoms or vertical panels above 6 feet 8 inches (2031 mm).

423.13.7.1 All glazing in hazardous locations shall be safety glazing meeting the requirements of the *Florida Building Code, Building*, Section 2406.

423.13.7.2 Large glass panels shall be subdivided by a built-in horizontal member or a permanent chair rail not less than $1\frac{1}{2}$ inches (38 mm) in width, located between 24 and 36 inches (610 and 914 mm) above the floor.

423.13.8 Windows.

423.13.8.1 Natural light and ventilation. Natural light and ventilation requirements for new construction shall be satisfied by windows with operable glazing, providing a net free open area equivalent to 5 percent of the floor area, in all classrooms on the perimeter of buildings, where required by Chapter 1013, *Florida Statutes*. Auxiliary spaces, music rooms, gyms, locker and shower facilities, laboratories requiring special climate control, and large group instructional spaces having a capacity of more than 100 persons need not have operable windows for the purpose of providing natural light and ventilation. Emergency access, emergency rescue, and secondary means of egress windows may be included in the calculation to comply with this requirement.

423.13.8.2 Projecting and awning windows. Projecting and awning windows shall not be located below door head height if in, or adjacent to, a corridor or walkway.

423.13.8.3 Security/storm screens or grills. If a security/storm screen or grille is installed on the outside of an emergency access, rescue or egress window assembly then that security/storm screen or grille together with the emergency rescue window assembly shall be operable from the inside by a single operation without the use of tools to allow for exit under emergency conditions. The emergency rescue window shall be identified by signage, and the release device shall be readily identifiable.

423.14 Special safety requirements.

423.14.1 Master control switch. In addition to the regular main supply cut-off, each laboratory type space (such as biology, industrial, chemistry, physics, home economics, and electronics labs) equipped with unprotected gas cocks, compressed air valves, water or electric services which are easily accessible to students, shall have master control valves or switches with permanently attached handles, located and accessible within 15 feet (4572 mm) of the instructor's station or adjacent to the door within that space to allow for emergency cut-off of services. The cut-offs shall be in a nonlockable place and the location and operation shall be clearly labeled. Valves shall completely shut off with a one-quarter turn. Computer labs are exempted from this requirement. (Also, see "Emergency shut off switches," and "Emergency disconnects" requirements under "Electrical.")

423.14.2 Interior signage. Signage is required in educational and ancillary facilities. Design, construction, installation, and location of interior signage and graphics shall comply with the Florida Building Code and the Uniform Fire Safety Standards as adopted by the State Fire Marshal and the following:

423.14.2.1 Emergency rescue windows: Windows for emergency rescue shall comply with NFPA 101, Florida Edition, as adopted by the *Florida Fire Prevention Code*, shall be operable from the inside by a single operation, and shall be labeled "EMERGENCY RESCUE–KEEP AREA CLEAR." Hinged emergency rescue windows shall swing in the direction of egress.

423.14.2.2 Maximum capacity signs in each space with a capacity of 50 or more occupants. The signs shall be mounted adjacent to the main entrance door.

423.14.2.3 Room name, room number and, if different, FISH inventory numbers shall be provided for each space.

423.14.2.4 A graphic diagram of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space occupied by six or more students. The diagram shall clearly indicate, by contrasting color and number, each route of evacuation.

423.14.2.5 Signs necessary to meet accessibility requirements shall be provided.

423.14.2.6 Hazardous work and storage areas shall be identified by appropriate caution signs.

423.14.3 Other potential hazards. Pipes, ductwork, fans, light fixtures, window projections, protruding sharp corners, or other potential hazards shall not be installed below 6 feet 8 inches (2031 mm) AFF. Audio/visual aids in classrooms may be mounted below 6 feet 8 inches (2031 mm) provided they are marked and padded in accordance with accepted safety standards or have permanent cabinets installed below them.

423.14.4 Storage shelving. Shelving shall not have sharp corners, splinters, or any construction feature that would be hazardous to the occupants. Shelving shall be constructed to carry the loads imposed. Shelving in science, labs, and shop storage rooms, and other places which may contain hazardous materials shall have a $\frac{1}{2}$ inch (12.7 mm) lip on the front edge of each shelf and shall be constructed of noncorrosive material.

423.14.5 Vertical platform lifts and inclined wheelchair lifts. The following standards are in addition to the other requirements of the *Florida Building Code*, Florida law, and federal requirements:

423.14.5.1 Lifts shall not reduce the width of required means of egress.

423.14.5.2 Lifts shall have shielding devices to protect users from the machinery or other hazards and obstructions.

423.14.5.3 Lifts shall be key operated for attendant operation in all facilities housing kindergarten to grade 8.

423.14.5.4 Inclined wheelchair lifts may be installed in facilities provided:

423.14.5.4.1 The platform is equipped with bidirectional ramp sensing to stop travel if obstructions are encountered.

423.14.5.4.2 Guide rails are smooth and continuous with no sharp edges or obstructions, all drive system components contain safety features for protection of users, and cables and pulling devices are shielded.

423.14.6 Color code machinery. Working machinery with component parts shall be color-coded per ANSI Z53.1, *American National Standard Safety Color Code for marking Physical Hazards.* Safety zone lines shall be marked on the floor areas surrounding working machinery.

423.14.7 Anchor equipment. All equipment designed to be permanently mounted shall be securely anchored to its supporting surface.

423.14.8 Interior finishes.

423.14.8.1 Floors. Floors in instructional spaces shall be covered with resilient material or carpet. Floors in gymnasium locker rooms, showers, drying areas, toilet rooms, kitchens, scullerys, food storage areas and can wash areas shall be impervious.

423.14.8.2 Walls. Walls in toilet rooms shall be impervious to a height of at least 4 feet (1219 mm) above the floor. Walls in kitchens, scullerys, can wash areas, shower rooms shall be impervious to a height of at least 6 feet (1829 mm) above the floor. Toilet and shower partitions shall be impervious.

423.14.8.3 Ceilings. Ceilings in group toilet rooms, kitchens, scullerys, can wash areas, showers and locker rooms shall be impervious.

423.15 Mechanical.

423.15.1 Gas and fluid piping.

423.15.1.1 Flammable liquids/gases. Piping systems for flammable liquids or gases shall not be installed in interior corridors or stairwells.

Exception: Piping may be located within corridors provided that they are enclosed in a minimum 1-hour fire-rated enclosure.

423.15.1.2 Piping systems. Piping (fluid system) shall not be run where students can access the pipes, or in areas such as on roofs where they can be damaged by routine or periodic maintenance activities.

423.15.1.3 Main supply valve. The main supply cut-offs for flammable liquids or gases shall shut down upon activation of the fire alarm system. Refer to the automatic shutoff requirements of Section 423.7.6.

423.15.2 Air plenums. Corridors shall not be used as a supply, return, exhaust, relief, or ventilation air plenum. The space between the corridor ceiling and the floor or roof structure above, if used as a plenum, shall be constructed with the ceiling, floor and walls as a minimum 1-hour fire-rated assembly or as a 1-hour fire-rated horizontal wall supported by the corridor walls.

Exception: A smoke-tight corridor with a solid ceiling may be used in a fully sprinklered building.

423.15.3 Residential equipment. In home economics instructional spaces, faculty lounges, and similar areas where small residential-type ranges are installed for staff use or student education, residential-type hoods mechanically exhausted to the outside shall be used. Hood fire suppression systems are not required to be installed.

423.15.4 Toilet rooms shall be continuously ventilated during building occupancy.

Exception: Individual toilet rooms shall be ventilated continuously during building occupancy or ventilation shall turn off with the light switch and run for at least 10 minutes after the light has been turned off.

423.15.5 Chemistry laboratories and science classrooms. HVAC systems in chemistry labs and science classrooms shall be designed and installed to ensure that chemicals originating from the space are not recirculated.

Exception: A high capacity emergency exhaust system providing twenty (20) air changes per hour may be used in chemistry laboratories and science classrooms with fume hoods. Positive ventilation may be provided via doors or windows opening to the exterior. Signs providing operational instructions shall be permanently installed at the emergency exhaust system fan switch and adjacent to the door(s) or window(s) to be opened.

423.15.6 Ventilation air make-up for HVAC systems. Where peak occupancies of less than 3 hours duration occur,

the outdoor air flow may be determined on the basis of average occupancy for school buildings for the duration of operation of the air-conditioning system, provided the average occupancy used is not less than one-half the maximum.

423.16 Plumbing.

423.16.1 Standards. Educational and ancillary facilities shall be provided with toilets, hand washing facilities, and drinking fountains for all occupants, in ratios and accessible as required by the *Florida Building Code*, Florida law, and federal requirements.

Exception: A single unisex toilet room is allowed where provided in child care, pre-kindergarten through grade 3 and ESE classrooms. Unisex toilets shall not be provided in addition to group toilets in assembly occupancies.

423.16.1.1 Assembly occupancies. Toilet facilities for assembly occupancies (i.e. media centers, gymnasums, cafetoriums, and auditoriums) are not required to be in addition to the overall required plumbing fixture count.

423.16.1.2 Location. Student toilets shall be distributed throughout the facility and located on each floor for convenient access and continuous supervision. The path of travel to the nearest toilet facility shall not exceed a distance of 200 feet.

423.16.2 Teacher toilets. In school board facilities, faculty and staff toilets shall be separate from student toilets.

Exception: Separation of faculty/staff and student toilet facilities is not required for community colleges.

423.16.3 Public shelter. Refer to the public shelter design criteria of Section 423.25.

423.16.4 Urinals. Trough urinals shall not be installed in any location.

423.16.5 Floor drains and hose bibbs. All group toilet rooms shall be provided with at least one floor drain and one easily accessible hose bibb. The floor shall be sloped down to the drain. Stall urinals shall not serve as the required floor drains.

423.16.6 Shielding device. The entry to each group toilet room shall be provided with a door, partition, or other shielding device to block from view the occupants in the toilet room. If a door is provided, it shall have a closer and shall swing out in the direction of exit. Exterior entries to toilet rooms shall have outward swinging doors.

423.16.7 Hot water. When hot water is supplied to showers, handwash sinks, lavatories in toilet rooms, a mixing valve shall be installed to control the temperature which shall not exceed 110° F (43°C).

423.16.8 Delayed closing valves. Water supply at toilet room lavatories shall be controlled by delayed-closing valves.

423.16.9 Shower facilities. Showers shall be provided only where required by the district's educational program and, where provided, shall utilize energy saving concepts for hot water as required by Section 1013.44(2), *Florida Statutes*. When provided, shower areas shall comply with the following:

423.16.9.1 Floor finish shall be slip resistant.

423.16.9.2 Floors shall be drained in such a manner that waste water from any shower head will not pass over areas occupied by other bathers.

423.16.9.3 Water shall be heated and the temperature at the shower head shall not exceed $110^{\circ}F(43^{\circ}C)$ nor be less than $95^{\circ}F(35^{\circ}C)$.

423.16.9.4 A master control valve shall be provided to control the shower heads. Showers shall be equipped with flow control devices to limit total flow to a maximum of 3 gpm (-19 L/s) per shower head.

423.16.9.5 Shower heads shall be based on the peak load to be accommodated at one time and provided at the ratio of one shower head for each five students, located a minimum of 30 inches (762 mm) apart.

423.16.10 Kitchens. Kitchens and food service areas shall be provided with toilet and hand washing facilities for employees as required by code, state rule and statute.

423.16.10.1 Toilet rooms shall be completely enclosed, have self-closing doors, and shall open into vestibules with self-closing doors. Toilet rooms shall not open directly into food preparation areas, serving areas, or dining areas. A minimum of one water closet and one lavatory, with hot and cold water, shall be provided in each staff toilet.

423.16.10.2 Floor drains. Floor drains shall be provided in the food serving area, kitchen area, scullery, garbage and rubbish rooms, and can wash area.

423.16.11 Dousing shower and eye wash. Every science room, lab, or shop where instructors and students handle materials or chemicals potentially dangerous to human tissue shall be provided with a dousing shower and eye wash for emergency use, including a floor drain.

423.16.12 Floor drains and plumbing fixtures in equipment rooms. No floor drain or other plumbing fixture shall be installed in a room containing air handling machinery when such room is used as a plenum. When rooms are used as a plenum, equipment drains shall be conveyed through an indirect waste receptor located outside such rooms or other approved point of disposal.

423.17 Electrical.

423.17.1 Emergency lighting. Emergency lighting shall be provided at internal and external means of egress, in student-occupied areas, in group toilets, and main electrical rooms.

423.17.2 Electrical rooms and closets. Main service panels and switches, electrical distribution panels, cabinets, and rooms shall be lockable and not readily accessible to teachers or students.

423.17.3 Spare capacity. Lighting and power panels shall be provided with a minimum of 20-percent spare breakers and a minimum of 10-percent spare capacity in all main panels and switchboards.

423.17.4 Emergency shutoff switches. Every laboratory space which has electrical receptacles at student workstations shall have an emergency shutoff switch within 15 feet (4572 mm) of the instructor's workstation. The emergency shut off switch shall be operable by a single motion and shall interrupt power to all receptacles in the room.

Exception: Emergency shutoff switches are not required in computer laboratories.

423.17.5 Emergency disconnect. Each space equipped with electrically powered machinery accessible to students shall have a minimum of two master emergency disconnect switches at convenient locations within the space to shutoff all power tool outlets, power to student accessible machines and receptacles in the shop. One emergency shutoff or disconnect switch shall be located near the machinery and one emergency shutoff or disconnect switch shall be located near the machinery and one emergency shutoff or disconnect switch shall be located in the instructor's office if there is a clear view of the entire shop area, others may be required and located as determined by the authority having jurisdiction. The emergency disconnect or shutoff switch shall be operable by a single motion.

Exception: Ordinary office machines, computers, sewing machines, potter's wheels, residential cooking equipment in home economics labs and other nonhazardous machines do not require emergency disconnect devices.

423.17.6 Sauna and steam rooms. A "panic" switch to deactivate power to heating equipment shall be provided inside sauna and steam rooms. The panic switch shall also be tied into an alarm or other approved warning device in a supervised space in the area of the sauna and/or steam room. The operation of the switch shall be labeled to indicate the intended function.

423.17.7 Lightning. All facilities in high lightning risk areas shall be evaluated using the *Risk Assessment Guide* in NFPA 780 and other standards which address lightning protection, and shall be protected accordingly.

423.17.8 Ground fault interrupter (GFI) receptacles. GFI receptacles shall be installed as required by NFPA 70 of Chapter 27 and in the following locations:

- 1. All elementary special needs classroom receptacles.
- 2. All building entry vestibule receptacles.
- 3. All mechanical, boiler and electrical rooms receptacles.

423.18 Assembly occupancies in public educational facilities.

423.18.1 Occupant capacity of an assembly occupancy shall be calculated as follows:

423.18.1.1 Auditorium. The number of fixed seats, including accessible seating, in the main seating area plus the stage at 15 net square feet (1.4 m^2) per person, plus dressing rooms at 20 net square feet (2 m^2) per person.

423.18.1.2 Gymnasium/gymnatorium with stage. The number of fixed and telescopic bench-type bleacher seats at 18 linear inches (457 mm) per person, including accessible seating, plus the main court area at 15 gross square feet (1.4 m^2) per person, plus locker rooms at 5 net square

feet $(.5 \text{ m}^2)$ per person, plus stage at 15 net square feet (1.4 m^2) per person, plus dressing rooms at 20 net square feet (2 m^2) per person. Bleachers shall be accessible as required.

423.18.1.3 Dining rooms/cafetorium with stage/multipurpose room. The main floor area at 15 gross square feet (1.4 m^2) per person, plus the stage at 15 net square feet (1.4 m^2) per person, plus dressing rooms at 20 net square feet (2 m^2) per person, plus the kitchen at 100 gross square feet (9 m^2) per person.

423.18.1.4 Classrooms and labs. Exiting capacity for classrooms shall be calculated at 20 net square (2 m^2) feet per occupant. Exiting capacity for laboratories shall be calculated at 50 net square feet (5 m^2) per occupant. If spaces are combined through the use of folding partitions, the capacity and exiting shall be based on the capacity of all the spaces joined.

423.18.1.5 Stadiums. The number of fixed bench-type bleacher seats at 18 linear inches (457 mm) per person, plus accessible seating.

423.18.1.6 Media centers. The reading room and stacks floor area at 36 net square feet (3.3 m^2) per person, plus small group room or area (view and preview) at 5 net square feet (.5 m²) per person.

423.18.1.7 Closed circuit television production, distribution, and control. The main floor area at 15 net square feet (1.4 m^2) per person.

423.18.1.8 Interior courtyards. The interior courtyard area at 15 gross square feet (1.4 m^2) per person. Raised, dedicated landscape areas may be deducted.

423.19 Shade and green houses.

423.19.1 General. Shade/green houses shall be of Type I or II construction (metal frame) capable of withstanding the appropriate wind load.

423.19.2 Unrestricted exiting. The location of the shade/green house shall not hinder exiting from new and/or existing structures.

423.19.3 Required doors. A minimum of two doors remotely located shall be provided. Doors shall be side hinged and shall swing in the direction of egress.

423.19.4 Accessibility. Green houses shall meet accessibility requirements. The accessible walkway shall be connected to doors leading to an accessible route to the permanent structure.

423.19.5 Shade cloth. Shade cloth shall be tear-away fabric securely fastened to the structural frame.

423.19.6 Fire extinguisher. A minimum of one Type 2A-10B:C fire extinguisher shall be provided per shade/green house.

423.19.7 Fire alarm. Fire alarm pull stations shall be located within 200 feet (60 960 mm) of any shade or green house. Fire alarm horns mounted on a permanent building must be audible inside the shade/green house.

423.19.8 Space heaters. Space heaters, when provided, shall be mounted at least 6 feet 8 inches (2031 mm) AFF.

423.20 Storage.

423.20.1 General storage. Storage rooms and closets shall not be located over or under exit stairs and ramps whether interior or exterior. General storage space(s) shall be included in every educational facility for the bulk storage of materials, supplies, equipment, and books. Storage rooms shall be separated from mechanical and electrical spaces. Storage spaces shall be mechanically ventilated and conditioned as appropriate for the type of materials to be stored. Sinks located in general storage rooms shall not be used for custodial services.

423.20.2 Custodial work areas and storage. Provide custodial work areas with well supported shelving for supplies, cleaning, and sanitation materials and an office area including male/female lockers and toilet facilities.

423.20.3 Custodial closets and storage. Custodial closets shall be provided with storage shelving and a service sink supplied with both hot and cold water. They shall be located to serve each instructional floor and wing regardless of floor area, and other areas such as stage, kitchen, gym, auditorium, clinic, offices and shops. The travel distance to the nearest custodial closet shall not exceed 150 feet.

423.20.4 Chemical and hazardous materials storage. In addition to the requirements of the *Florida Building Code* and the *Uniform Fire Safety Standards* as adopted by the State Fire Marshal for separation and protection, chemical and hazardous storage facilities shall also include:

423.20.4.1 Chemical storage. Rooms used for the storage, handling, and disposal of chemicals used in school and community college laboratories shall be vented to the exterior. The ventilation system shall not be connected to the air-conditioning return air system, and the rooms shall be kept at moderate temperatures. Doors shall be lockable from the outside and operable at all times from the inside. Rooms shall be well illuminated. Cabinets shall have shelves with a 1/2 inch (12.7 mm) lip on the front and shall be constructed of noncorrosive material. When vented to the exterior, chemical storage cabinets shall be mechanically vented in accordance with NFPA 30 and NFPA 91.

423.20.4.2 Hazardous materials storage. Buildings and/or rooms used for the storage, handling and disposal of flammable, poisonous, or hazardous materials or liquids, and equipment powered by internal combustion engines and their fuels shall be separated from adjacent spaces by 1-hour fire-rated assemblies. These requirements also apply to completely detached buildings within 60 feet (18 288 mm) of student-occupied facilities. Doors shall have a C Label and open directly to the exterior. Storage buildings and/or rooms shall be mechanically ventilated. Electrical fixtures, switches, heat detectors and outlets installed in flammable storage rooms shall be explosionproof.

423.21 Child care/day care/prekindergarten facilities.

423.21.1 Child care/day care/prekindergarten facilities located on board-owned property shall comply with *Florida Building Code* and the *Uniform Fire Safety Standards* as

adopted by the State Fire Marshal and the specific criteria in this section. Child care/day care/pre-kindergarten facilities requiring a license from another agency may also be required to comply with additional construction requirements imposed by that agency.

423.21.2 Toilet facilities shall meet accessibility requirements and should open into the instructional space. The toilet may be used by both sexes and shall contain a water closet, lavatory and related accessories.

423.21.3 If child care facilities are provided with a bathing area, it shall be within or adjacent to the child care area and shall contain either a shower with hand-held sprayer or a tub. The water temperature shall be controlled by a mixing valve and shall not exceed 110°F (43° C).

423.21.4 Toilet facilities shall have a non-slip impervious floor and 6-foot (1829 mm) impervious wainscot.

423.21.5 Drinking fountain(s) shall be provided for the children and be within close proximity of the child care facility.

423.21.6 A towel and soap dispenser shall be provided at each sink. Hand wash areas for adults shall be provided with warm water; the water temperature shall be controlled by a mixing valve and shall not exceed 110°F (43°C). All electrical receptacles shall be placed out of reach of the children.

423.21.7 When provided, a residential-type kitchen shall include a nonslip floor, a refrigerator, a residential range, a residential-type range hood mechanically exhausted to the outside, and a fire extinguisher located within 15 feet (457 mm) of the range within the same room.

423.21.8 Areas designated for children's sleeping mats, cots or cribs shall include a clearly marked exit passageway.

423.21.9 The child care facility shall not contain any storage of cleaning agents, chemicals, or other hazardous materials in student accessible areas.

423.21.10 Outdoor play areas shall be provided and shall be protected from access to streets or other dangers. The play area shall be fenced or walled to a minimum height of 4 feet (1219 mm) and any latches on maintenance gates shall be secured or beyond the reach of the children.

423.21.11 Shade shall be provided in the play area (a covered play area may be provided).

423.21.12 Play equipment shall be firmly anchored, free of sharp corners or pointed surfaces, and shall have cushioning surfaces such as mats or sand beneath.

423.21.13 The grounds shall be free of undergrowth or harmful plant material.

423.22 Clinics.

423.22.1 Clinics in kindergarten through grade 12 (K-12), vocational-technical centers (VTC), and full service schools shall comply with the general criteria found in the *Florida Building Code* and the *Uniform Fire Safety Standards* as adopted by the State Fire Marshal, as well as the specific criteria found herein. Clinics shall be located and equipped to provide emergency aid to students. Closets and storage cabinets used for medications and bandages shall have locks, and shall be designed to be under constant supervision.

423.22.2 School clinics shall include locked storage, toilet room and shower, and bed space.

423.22.3 Sanitary facilities are required as follows:

423.22.3.1 Elementary school clinics, including kindergarten, shall include at a minimum one accessible toilet room, to serve male and female students, complete with a water closet, lavatory, accessible shower, changing table, and accessories.

423.22.3.2 Secondary and VTC school clinics shall include two accessible toilet rooms complete with water closet, lavatory, accessories and shower.

423.22.3.3 Toilet rooms in clinics shall include both hot and cold water at the showers and all lavatories. The water temperature shall be controlled by a mixing valve and shall not exceed 110°F (43°C).

423.22.3.4 Toilet rooms shall have exhaust fans vented to the exterior.

423.22.3.5 A working counter top with lavatory/sink and hot water shall be provided in each clinic.

423.22.4 The bed area shall be designed to maintain constant visual supervision from the office. Space for student beds shall be provided in each clinic at 50 square feet (5 m^2) per bed. Space for beds in secondary and VTC schools shall be equally divided for male and female students. Beds shall be provided based on student capacity in the following ratios:

423.22.4.1 Up to 500 students-three beds.

423.22.4.2 501 to 1,000 students–four beds.

423.22.4.3 1,001 to 2,000 students-five beds.

423.22.4.4 Over 2,000–six beds.

423.22.5 Full-service school health clinics.

423.22.5.1 Location. Clinics shall be located to provide a direct accessible route from the exterior and from the interior or by a connecting covered walk.

423.22.5.2 Parking. Clinics shall be provided with 10 designated parking spaces immediately adjacent to the clinic, one of which shall be accessible to persons with disabilities.

423.22.5.3 Sanitary facilities. Sanitary facilities are required as follows:

423.22.5.3.1 Full-service school clinics shall include one accessible toilet room for males and one for females, complete with water closet, lavatory, accessories, and shower. Additional toilets may be required for a full-service school clinic depending on occupant load and program.

423.22.5.3.2 Hot and cold water shall be provided at the showers and lavatories. The water temperature shall be controlled by a mixing valve and shall not exceed 110° F (43°C).

423.22.5.3.3 Toilet rooms shall have exhaust fans vented to the exterior.

423.22.5.3.4 A nurses' station shall be provided with a working counter with lavatory/sink and be located so as to maintain visual supervision of the bed area.

423.22.5.4 Locked storage rooms shall be provided for a refrigerator, files, equipment, and supplies.

423.22.5.5 Data outlets shall be provided for computer hook-ups and computer networking and additional electric outlets shall be provided for hearing and vision testing machines.

423.23 Kilns. Kiln rooms and areas shall be provided with adequate exhaust to dispel emitted heat to the exterior, and they shall not be connected to any other exhaust system. Kilns shall not be located near or adjacent to paths of egress or exit and shall be placed in separate rooms when serving students through grade 3. Kiln rooms shall be provided with appropriate smoke/heat detectors connected to the fire alarm system.

423.24 Open plan schools. An open plan building or portion of a building may be subdivided into smaller areas by use of low partitions [maximum 5 feet high (1524 mm)], movable partitions, or movable furnishing, which by location and type do not hinder or obstruct the ability of persons in one area of the plan to be immediately aware of an emergency condition in any other area of the plan. Corridors shall be identified with different color or type of flooring materials, by permanent low partitions or by other means to prevent blockage of the path of egress to exits by partitions or furniture. When open plan schools are partitioned, the work shall conform to the code requirements for new construction. Demountable or movable partitions in open plan classroom areas shall be a maximum of 5 feet (1524 mm) in height and shall terminate a minimum of 5 feet (1524 mm) from any permanent wall. All circulation openings in open plan areas shall be a minimum of 5 feet (1524 mm) wide. Movable furnishings shall not exceed 5 feet (1524 mm) in height and shall have a stable base.

423.25 Public shelter design criteria.

423.25.1 New facilities. New educational facilities for school boards and community college boards, unless specifically exempted by the board with the written concurrence of the applicable local emergency management agency or the Department of Community Affairs (DCA), shall have appropriate areas designed as enhanced hurricane protection areas (EHPAs) in compliance with this section.

Exception: Facilities located, or proposed to be located, in a Category 1, 2, or 3 evacuation zone shall not be subject to these requirements.

423.25.1.1 Enhanced hurricane protection areas (**EHPA**). The EHPA areas shall provide emergency shelter and protection for people for a period of up to 8 hours during a hurricane.

423.25.1.1.1 The EHPA criteria apply only to the specific portions of (K-12) and community college educational facilities that are designated as EHPAs.

423.25.1.2 The EHPAs and related spaces shall serve the primary educational or auxiliary use during non-shelter occupancy.

423.25.2 Site. Factors such as low evacuation demand, size, location, accessibility and storm surge may be considered by the board, with written concurrence of the local emergency management agency or the DCA, in exempting a particular facility.

423.25.2.1 Emergency access. EHPAs shall have at least one route for emergency vehicle access. The emergency route shall be above the 100-year floodplain. This requirement may be waived by the board, with concurrence of the local emergency management agency or the DCA.

423.25.2.2 Landscaping. Landscaping around the EHPAs shall be designed to preserve safety and emergency access. Trees shall not conflict with the functioning of overhead or underground utility lines, or cause laydown or impact hazard to the building envelope.

423.25.2.3 Parking. During an emergency condition, vehicle parking shall be prohibited within 50 feet (15 240 mm) of an EHPA. Designated EHPA parking areas may be unpaved.

423.25.2.4 Signage. Floor plans of the facility, indicating EHPAs, shall be mounted in the emergency manager's office/area.

423.25.3 Design. EHPAs may be above or below ground and may have more than one story, provided the design satisfies the wind load and missile impact criteria. Modular and open-plan buildings may serve as EHPAs provided the design satisfies the wind load and missile impact criteria.

423.25.3.1 Excluded spaces. Spaces such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms, attic and crawl spaces shall not be used as EHPAs.

423.25.3.2 Capacity. Fifty percent of the net square feet of a designated educational facility shall be constructed as EHPAs. The net square feet shall be determined by subtracting from the gross square feet those spaces, such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms, attic and crawl spaces that shall not be used as EHPAs. The board, with concurrence of the applicable local emergency management agency or DCA, may adjust this requirement if it is determined to be in its best interest. The capacity of an EHPA shall be calculated at 20 square feet (2 m²) per occupant (adults and children five years or older).

423.25.3.3 Toilets. Toilet and hand washing facilities should be located within the EHPAs and provided at one toilet and one sink per 40 occupants. These required toilet and hand-washing facilities are not in addition to those required for normal school occupancy and shall be included in the overall facility fixture count.

423.25.3.3.1 Support systems for the toilets, e.g., bladders, portable toilets, water storage tanks, etc., shall be capable of supplying water and containing waste, for the designed capacity of the EHPAs.

423.25.3.3.2 Plumbing and valve systems of "normal" toilets within the EHPAs may be designed for conversion to emergency operation to meet the required demand.

423.25.3.4 Food service. Where feasible, include counter tops for food distribution functions in the EHPAs.

423.25.3.5 Manager's office. An administration office normally used by a school administrator shall be identified as the EHPA manager's office and shall be located within the EHPA. The office shall have provisions for standby power, lighting, communications, main fire alarm control panel and storage for the manager's equipment.

423.25.4 Structural standard for wind loads. At a minimum, EHPAs shall be designed for wind loads in accordance with ASCE 7, *Minimum Design Loads for Buildings and Other Structures, Category III (Essential Buildings)*. Openings shall withstand the impact of wind-borne debris missiles in accordance with the impact and cyclic loading criteria per SBC/SSTD 12. Based on a research document, *Emergency Shelter Design Criteria for Educational Facilities*, by the University of Florida for the DOE, it is highly recommended by the department that the shelter be designed using the map wind speed plus 40 mph, with an importance factor of 1.0.

423.25.4.1 Missile impact criteria. The building enclosure, including walls, roofs, glazed openings, louvers and doors, shall not be perforated or penetrated by a flying object. For walls and roofs, the missile criteria is as provided in SBC/SSTD 12.

423.25.4.1.1 Materials used for walls, roofs, windows, louvers, and doors shall be certified for resistance to missile impact criteria.

423.25.4.1.2 The glazed openings or permanent protective systems over glazed openings shall be designed for cyclic loading.

423.25.4.2 Roofs. Roof decks shall be cast-in-place 4-inch (102 mm) or more, normal weight concrete. Concrete decks shall be waterproof. Systems other than cast-in-place concrete shall have adequate bearing, anchorage against wind uplift, diaphragm action, and resistance to rain that are equivalent to a cast-in-place system.

Exception: Structural precast concrete roofs, composite metal decks with normal weight concrete roofs, or other systems and materials that meet the wind load and missile impact criteria may be used.

423.25.4.2.1 Light weight concrete or insulating concrete may be used on roof decks of EHPAs provided the roof decks are at least 4-inch (102 mm) cast-in-place normal weight concrete or other structural systems of equivalent strength.

423.25.4.2.2 Roof openings (e.g., HVAC fans, ducts, skylights) shall be designed to meet the wind load and missile impact criteria.

423.25.4.2.3 Roof coverings shall be specified and designed according to the latest ASTM and Factory Mutual Standards for materials and wind uplift forces.

Roofs shall be inspected by a licensed engineer/architect and a representative of the roofing manufacturer.

423.25.4.2.4 Roofs shall have adequate slope and drains sized for normal use and shall have emergency overflow scuppers which will accommodate a 2-inch-per-hour (51 mm) rain for 6 hours.

423.25.4.2.5 Parapets shall satisfy the wind load and missile impact criteria; roof overhangs shall resist uplift forces.

423.25.4.3 Windows. All unprotected window assemblies and their anchoring systems shall be designed and installed to meet the wind load and missile impact criteria.

423.25.4.3.1 Windows may be provided with permanent protective systems, provided the protective system is designed and installed to meet the wind load and missile impact criteria and completely covers the window assembly and anchoring system.

423.25.4.3.2 EHPAs shall have mechanical ventilation systems. Ventilation shall be provided at a minimum rate of 2 cfm per square foot of EHPA floor area. The mechanical ventilation system shall be connected to the EHPA's emergency power.

423.25.4.4 Doors. All exterior and interior doors subject to possible wind exposure and/or missile impact shall have doors, frames, anchoring devices, and vision panels designed and installed to resist the wind load and missile impact criteria or such doors, frames, anchoring devices, and vision panels shall be covered with permanent protective systems designed and installed to resist the wind load and missile impact criteria.

423.25.4.5 Exterior envelope. The exterior envelope, louvers over air intakes and vents, and gooseneck type intakes and vents of EHPAs shall be designed and installed to meet the wind load and missile impact criteria.

423.25.4.5.1 HVAC equipment mounted on roofs and anchoring systems shall be designed and installed to meet the wind load criteria.

423.25.4.5.2 Roof mounted HVAC equipment shall have a 12-inch-high (305 mm) curb around the roof opening and be designed to prevent the entry of rain water.

423.25.4.6 Foundations and floor slabs. Foundations shall be designed to resist all appropriate loads and load combinations, including overturning moments due to wind. The floor elevation and necessary life safety and other emergency support systems of EHPAs shall be elevated above the maximum storm surge inundation elevation associated with a Category 4 hurricane event. Storm surge elevations shall be identified by the most current edition of the regional Sea Lake and Overland Surges from Hurricanes (SLOSH) studies and atlases.

423.25.5 Electrical and standby emergency power system. The EHPA shall be provided with a standby emergency electrical power system, per Chapter 27, NFPA 70 Articles 700 and 701, which shall have the capability of being connected to a backup generator or other optional power source.

Where economically feasible, an equivalent photovoltaic system may be provided. The EHPA's emergency systems includes, but are not limited to: (1) an emergency lighting system, (2) illuminated exit signs, (3) fire protection system(s), alarm (campus wide) and sprinkler, and (4) minimum ventilation for health/safety purposes. The fire alarm panel shall be located in the EHPA manager's office. A remote annunciator panel shall be located in or adjacent to the school administrator's office. When generators are installed, the facility housing the generator, permanent or portable, shall be an enclosed area designed to protect the generators from wind and missile impact. Air intakes and exhausts shall be designed and installed to meet the wind load and missile impact criteria. Generators hardened by the manufacturer to withstand the area's design wind and missile impact criteria shall be exempt from the enclosed area criteria requirement.

423.25.5.1 EHPA lighting. Emergency lighting shall be provided within the EHPA area, EHPA manager's office, toilet rooms, main electrical room and generator spaces and shall be at least 10 footcandles (100 lux) of general illumination, which can be reduced to 1/2 footcandle (5 lux) in the sleeping areas during the night.

423.25.5.2 Optional standby circuits. Additional nonlife safety systems, as defined by Chapter 27, NFPA 70 Article 702 (optional standby circuits), may be supplied power, if available, by the Standby Emergency Power System. These systems shall be connected to the Standby Emergency Power System via an electrical subpanel to the Standby Electrical Power System's main electrical panel. This will allow selective or total load shedding of power if required. The fire alarm, emergency lighting and illuminated exit signs throughout the entire campus shall receive first priority to power provided by the Standby Emergency Power System per Chapter 27, NFPA 70 Article 700. The systems listed are not all encompassing but are in order of priority. Local officials may request additional non-life safety systems they deem necessary for health, welfare and safety of the public during occupancy:

- 1. Remainder of the school's campus security lighting (building and site).
- 2. Additional ventilation systems within the EHPA, including heat.
- 3. Intercom system.
- 4. Food storage equipment.
- 5. Additional electric receptacles, other than those required by Section 423.25.5.3.

423.25.5.3 Receptacle outlets. A minimum of four electrical outlets, served with power from the standby circuits, shall be provided in the EHPA manager's office.

423.25.6 Inspections. EHPAs shall be considered "threshold buildings" in accordance with Section 553.71(7), *Florida Statutes*, and shall comply with Sections 553.79(5), 553.79(7), and 553.79(8), *Florida Statutes*.

423.25.6.1 Construction of EHPAs shall be inspected during the construction process by certified building code

inspectors or the design architect/engineer(s) certified pursuant to Part XII Chapter 468, *Florida Statutes* and threshold inspectors for compliance with applicable rules and laws.

423.25.6.2 The emergency electrical systems shall be inspected during the construction process by certified electrical inspector or Florida-registered professional engineers certified pursuant to Part XII Chapter 468, *Florida Statutes*, skilled in electrical design.

423.25.6.3 EHPAs shall be inspected and recertified for compliance with the structural requirements of this section every five years by a Florida-registered professional engineer skilled in structural design. If any structural system, as specified in this section, is damaged or replaced, the recertification shall be obtained prior to the beginning of the next hurricane season.

423.25.6.4 All shutter systems, roofs, overflow scuppers, and structural systems of EHPAs shall be inspected and maintained annually prior to hurricane season and after a major event. All emergency generators shall be inspected under load conditions including activation of the fire alarms, emergency lights as per applicable equipment codes and NFPA standards, and including mechanical systems and receptacles connected to the emergency power.

423.26 Time-out rooms.

423.26.1 Locking an individual inside a space without a means of opening the door from within that space is contrary to the exiting philosophy of the *Florida Building Code* and the *Uniform Fire Safety Standards* as adopted by the State Fire Marshal for educational facilities. The educational program which requires containment of the out-of-control student can be accommodated within this context only if the following are met:

423.26.2 Electromagnetic locking device. When a time-out room is to be locked, an electromagnetic locking device may be used and shall have the following features:

423.26.2.1 The lock shall remain engaged only when a push button mounted outside the time-out room adjacent to the door frame, or other hand held device, is continuously depressed by hand. Upon release of pressure, the door shall unlock. The locking device shall be designed so that it cannot be engaged by leverage of an inanimate object or in any other manner except by constant human contact.

423.26.2.2 The push button, or similar device, shall be recessed from the face of the unit housing, or in some other way designed to prevent taping or wedging the button in the engaged mode.

423.26.2.3 The device shall have an interface relay with the fire alarm system and shall automatically release upon activation of the fire alarm.

423.26.2.4 The locking device shall automatically disengage in the event of a power failure.

423.26.2.5 Timers shall not be used on the locking device.

423.26.3 Door requirements. The door shall have only a push plate exposed on the interior of the room.

423.26.3.1 The door shall swing out of the room and shall be equipped with a fully concealed track type closer.

423.26.3.2 A vision panel shall be provided in the door, and it shall be no larger than 144 square inches $(.1 \text{ m}^2)$. The view panel shall consist of a clear $^{1}/_{4}$ -inch-thick (6 mm) unbreakable plastic panel flush with the inside face of the door on the inside of the room. The panel shall be positioned in the door so that a staff member may continuously keep the student under surveillance.

423.26.3.3 The door frame and jamb/head reveal on the inside shall be minimal. If provided, a flat metal threshold shall be used.

423.26.4 Finishes. The floor and walls shall be durable, vandal-resistant materials. The ceiling shall be of a solid and moisture-resistant material. There shall be no projections or protrusions from the walls, ceiling, or floor. All surfaces shall be smooth and no electrical outlets, switches, plumbing clean-outs or similar items shall be inside the room. The room shall not contain anything that can be set on fire, torn, shredded or otherwise used for self-harm.

423.26.5 Minimum size. The room shall be designed for a single occupant only and shall be a minimum of 6 feet by 6 feet (1828 mm by 1828 mm).

423.26.6 Lighting. The room shall have a recessed vandalproof light fixture in the ceiling capable of being dimmed. The light switch shall be located outside the room adjacent to the door jamb.

423.26.7 HVAC required. Time-out rooms shall be mechanically heated and cooled. Registers shall be ceiling mounted and vandalproof.

423.27 New relocatable buildings.

423.27.1 Relocatables. The terms "relocatable" and "portable" are interchangeable and both terms are used to describe buildings which are constructed to the same building codes as permanent public school buildings, except they are designed to be moved. These buildings may be manufactured in a plant, constructed on site, may be made of demountable components, and may be combined. All new relocatable or portable classrooms shall be designed and constructed in compliance with the Florida Building Code, the Uniform Fire Safety Standards as adopted by the State Fire Marshal and the Department of Community Affairs rules for factory-built school buildings (see Section 428). The requirements for new relocatables contained herein are in addition to the minimum requirements of the Florida Building Code and the Uniform Fire Safety Standards as adopted by the State Fire Marshal. New relocatables which do not comply with the building codes, fire codes and these standards shall not be used as classrooms or for any other student occupancy. For code requirements and other standards applicable to relocatables constructed prior to this code, which may be Type V (wood) relocatables, see Existing Relocatables, Volume 1, Section 5(2), State Requirements for Educational Facilities as referenced in the Uniform Fire Safety Standards as adopted by the State Fire Marshal.

423.27.1.1 Factory-built school shelter means any site-assembled or factory-built school building that is designed to be portable, relocatable, demountable or reconstructable and that complies with the provisions for enhanced hurricane protection areas, as required by the applicable code (see Section 423.25).

423.27.2 Design, plan approval, construction. Regardless of cost or fund source, whether used for classroom, auxiliary or ancillary space, whether leased, purchased, contracted, or constructed by the school board or community college board, plans and documents for relocatables, portables and modular schools shall be prepared by Florida registered design professionals and submitted to the authority having jurisdiction for review and approval for compliance with Florida laws, rules, building and life safety codes. The buildings shall be constructed and inspected by Florida construction industry licensing laws.

423.27.2.1 District-wide foundation plans. District-wide foundation plans for tie down and wind resistance for each type of relocatable and each type of known soil condition in the district, shall be prepared and reviewed at the time of the design and shall be required as a part of the approval of any relocatable. These documents shall be kept on file in the district, with an additional copy in each relocatable filed together with current annual local fire inspection reports, as required by law. The foundation plans shall be reviewed and updated when necessary for compliance with current code for subsequent installations of the relocatable. Relocatables which do not meet the requirements of code for tie down and wind resistance shall not be occupied.

423.27.2.2 DOT Requirements. Relocatable units designed to be moved on state roads shall comply with the maximum unit height, length and width requirements of the DOT.

423.27.2.3 Inventory/construction date signage. A FISH inventory room number and the date of construction shall be noted on an inventory sign peranently affixed outside, beside or above the door, on all relocatables owned or leased by a district.

423.27.3 Construction type. All new relocatables constructed, purchased or otherwise acquired by a board shall be noncombustible Type I, II or IV construction.

423.27.4 Accessibility. All relocatables constructed, purchased or otherwise acquired by a board after the effective date of these standards shall comply with the Americans with Disabilities Act as modified by Chapter 553, *Florida Statutes*, Chapter 11 of the *Florida Building Code*, Building Relocatables intended for use at facilities housing up to grades 5 or 6, shall also conform to the federal criteria *Accessibility Standards for Children's Environments*, which is available from the U.S. Architectural and Transportation Barriers Compliance Board.

423.27.5 Site standards/site plan. Relocatables placed on educational plant sites shall comply with federal and state laws and rules relating to the placement of structures on sites, as well as building code, fire code site requirements.

423.27.5.1 Floodplain. Compliance with floodplain standards is required for the initial and subsequent installation of public educational relocatable units. The finished floor shall be 12 inches (305 mm) above base flood elevation, the structure shall be designed to meet the *Florida Building Code* and anchored to resist buoyant forces.

423.27.5.2 Covered walks and technology. New relocatables and "modular schools" acquired by a board which are intended for long term use, shall be connected from exit door to the core facilities by accessible covered walkways, and shall contain wiring and computer technologies which connect to the facility's technology, communications and fire alarms infrastructure.

Exceptions:

- 1. Covered walks and public address systems are not required in community college facilities.
- 2. Temporary relocatables constructed after the date of this standard shall meet all construction requirements of this code, except that covered walks may be installed. The term "temporary relocatable" means relocatables which are used for less than three years to provide temporary housing while permanent replacement classrooms and related facilities are under construction, renovation or remodeling. The term "temporary relocatable" does not apply to relocatables which have been located on a school site for more than two years and used for classrooms or for student occupancy, where there is no identifiable permanent facility which is under construction, being remodeled, or renovated to house the students.

423.27.5.3 Separation of units. Type I, II or IV, (noncombustible) relocatable units shall be separated as required by the *Florida Building Code* and the school site plan.

423.27.6 Structure. Relocatable structures shall be positively anchored and designed to comply with *Florida Building Code* requirements.

423.27.7 Fire-retardant-treated wood (FRTW). Only FRTW which does not contain ammonium phosphates, sulfates, or halides may be used in the roof structure of Type II construction, as authorized by other sections of the *Florida Building Code*. FRTW shall comply with the specific requirements found elsewhere in these public educational facilities requirements. Contractors shall provide evidence of compliance to inspectors. Inspection access panels shall be provided to facilitate initial and annual inspections for general condition assessment of FRTW and connectors.

423.27.8 Doors. Exit doors shall swing in the direction of exit travel.

423.27.8.1 Classroom locksets. Each door shall be equipped with a lockset, which is readily opened from the side from which egress is to be made at all times, a threshold, heavy duty hinges, and closer to control door closing. Each door shall have a view panel, with minimum dimensions of 8 inches by 42 inches (1067 mm) and a maximum

of 1,296 square inches (.84 m^2), of ¹/₄ inch (6 mm) tempered or safety glass installed with the bottom edge of the panel at 30 inches (762 mm) AFF. Each exterior door shall be protected from the elements by a roof overhang.

423.27.8.2 Roofed platform. All exterior doors shall open onto a minimum 5 foot by 5 foot (1524 mm by 1524 mm) roofed platform with handrails, which is level with the interior floor.

423.27.9 Operable windows. Classrooms shall have operable windows equal to at least 5 percent of the floor area of the unit where required by Section 1013.44, *Florida Statutes*. Exterior doors may be included in computing the required 5 percent. Awning, casement, or projecting windows shall not be placed in walls with adjacent walks, ramps, steps or platforms.

423.27.9.1 Rescue. Windows for emergency rescue shall comply with NFPA 101, Florida edition as adopted by the *Florida Fire Prevention Code*, shall be operable from the inside by a single operation and shall be labeled "EMER-GENCY RESCUE–KEEP AREA CLEAR."

423.27.10 Finishes. Finishes in relocatable units shall comply with the following:

423.27.10.1 Interior walls and ceilings. Interior wall and ceiling finishes in classrooms and other student use spaces shall be Class A or B as defined in NFPA 101, Florida edition as adopted by the *Florida Fire Prevention Code*. Corridor finishes shall be Class A. Formaldehyde levels shall not exceed the minimum HUD standards for manufactured housing.

423.27.10.2 Floors. Floors shall be covered with resilient material, carpet, or other finished product. Carpet in class-rooms shall be tested and certified by the manufacturer as passing the Radiant Panel Test Class II. Carpet in corridors shall be tested and certified by the manufacturer as passing the Radiant Panel Test Class I.

423.27.10.3 Toilet rooms, showers and bathing facilities. Partitions and walls separating group toilet rooms shall be extended to the bottom of the roof deck.

423.27.10.3.1 Toilet room floors and base shall be finished with impervious nonslip materials. Toilet room walls shall be finished with impervious materials which shall be extended to a minimum height of 6 feet (1828 mm).

423.27.10.3.2 Ceilings shall be of solid-type moisture-resistant materials.

423.27.11 Fire extinguishers. At least one appropriate fire extinguisher shall be provided in each relocatable classroom unit and in each classroom of a multiclassroom building.

423.27.12 Document storage. Provision shall be made to secure foundation plans and to post the annual fire inspection report within each relocatable unit.

423.27.13 Time-out rooms. Time-out rooms are not recommended but, when provided, shall comply with the specific requirements for time-out rooms found elsewhere in these public educational facilities code requirements.

423.27.14 Child care/day care units. Standard classroom units intended to house birth to age 3 children, including Teenage Parent Programs (TAP), shall meet the additional criteria under the title of *Child Care/Day Care/Prekindergarten Facilities* for permanent buildings contained in these public educational facilities requirements, as well as the following:

423.27.14.1 All TAP spaces where residential kitchens are provided shall have two doors exiting directly to the outside and remotely located from each other. Areas designated for children's sleeping mats, cots or cribs, shall have a clearly marked exit passageway.

423.27.15 Illumination required. Illumination in classroom units shall be designed to provide an average maintained 50 footcandles (500 lux) at desk top.

423.27.15.1 Emergency lighting. Each classroom unit shall be equipped with emergency lighting.

423.27.15.2 Exterior lighting. Exterior lighting shall be provided as required elsewhere in these public educational facilities code requirements.

423.27.15.3 Exit lighting. Exit lights shall be provided as required by the *Uniform Fire Safety Standards* adopted by the State Fire Marshal.

423.27.16 Air conditioning, heating and ventilation. Relocatable facilities shall meet *Florida Building Code* requirements.

423.27.17 Technology. Relocatables shall contain wiring and computer technology appropriate for the programs to be housed.

423.27.18 Fire safety requirements. New relocatables shall be provided with fire alarm devices meeting the code requirements for permanent educational facilities and shall be connected to the facility's main fire alarm system as required by code.

423.27.19 Inspection of units during construction. Boards shall provide for the inspection of relocatables during construction, as required by the *Florida Building Code*, as authorized by statute.

423.27.20 Inspection of units prior to occupancy. Prior to occupancy new relocatables shall be inspected and approved for compliance to the *Florida Building Code*. New units shall have foundation plans provided and secured, in the relocatable along with the local fire inspector report. Certification of such inspection shall remain on file with the district. Inventory/date of construction signage shall be affixed to the relocatable. Where FRTW is used inspection access panels shall be provided and within easy reach to facilitate inspection for general condition assessment of FRTW and connectors.

SECTION 424 SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

424.1 Public swimming pools and bathing places. Public swimming pools and bathing places shall comply with the design and construction standards of this section.

NOTE: Other administrative and programmatic provisions may apply. See Department of Health (DOH) Rule 64E-9, *Florida Administrative Code* and Chapter 514, *Florida Statutes*.

"Bathing load" means the maximum number of persons allowed in the pool or bathing place at one time.

"Collector tank" means a reservoir, with a minimum of 2.25 square feet water (0.2 m^2) surface area open to the atmosphere, from which the recirculation or feature pump takes suction, which receives the gravity flow from the main drain line and surface overflow system or feature water source line, and that is cleanable.

"Department" means Department of Health.

"Effective barrier" A barrier which consists of a building, or equivalent structure, plus a 48-inch (1219 mm) minimum height fence on the remaining sides or a continuous 48-inch (1219 mm) minimum height fence. All access through the barrier must have one or more of the following safety features: alarm, key lock or self-locking doors and gates. Safety covers that comply with the American Society for Test Materials standard F1346-91 (2003) may also be considered as an effective barrier.

"D.E." is the Diatomaceous Earth that is used as a filter aid in D.E.-type filters. For the purpose of this rule, it also includes alternative filter aids that have been approved under NSF/ANSI Standard 50-2007, and accepted by the filter manufacturer.

"Interactive water features" means a structure designed to allow for recreational activities with recirculated, filtered, and treated water; but having minimal standing water. Water from the interactive fountain type features is collected by gravity below grade in a collector tank or sump. The water is filtered, disinfected and then pumped to the feature spray discharge heads.

"Modification" means any act which changes or alters the original characteristics of the pool as approved. For example, changes in the recirculation systems, decking, treatment systems, disinfection system and pool shape are modifications.

"Marking" or **"Markings"** refers to the placement and installation of visual marking cues to help patrons identify step, bench and swimout outlines, slope break location, depth designations and NO ENTRY and NO DIVING warnings. When markings are specified by code to be dark the term "dark" shall mean a Munsell Color Value from zero to four.

"Perimeter overflow gutter" means a level trough or ledge around the inside perimeter of the pool containing drains to clean the pool water surface.

"Plunge pool" means the receiving body of water located at the terminus of a recreational water slide.

"Pool floor" means the interior pool bottom surface which consists of that area from a horizontal plane up to a maximum of a 45-degree slope.

"Pool wall" means the interior pool side surfaces which consist of that area from a vertical plane to a 45-degree slope.

"Pool turnover" means the circulation of the entire pool volume through the filter system. Pool volume shall be determined from the design water level which is the normal operating water level; for gutter-type pools it is the horizontal plane of the upper lip of the gutter and for skimmer pools it is the centerline of the skimmer opening.

"Precoat pot" means a container with a valved connection to the suction side of the recirculation pump of a pressure diatomaceous earth (D.E.) type filter system used for coating the filter with D. E. powder or NSF/ANSI Standard 50-2007 and manufacturer approved substitute filter aid.

A "public swimming pool" or "public pool" means a watertight structure of concrete, masonry, or other approved materials which is located either indoors or outdoors, used for bathing or swimming by humans, and filled with a filtered and disinfected water supply, together with buildings, appurtenances, and equipment used in connection therewith. A public swimming pool or public pool shall mean a conventional pool, spa-type pool, wading pool, special purpose pool, or water recreation attraction, to which admission may be gained with or without payment of a fee and includes, but is not limited to, pools operated by or serving camps, churches, cities, counties, day care centers, group home facilities for eight or more clients, health spas, institutions, parks, state agencies, schools, subdivisions, or the cooperative living-type projects of five or more living units, such as apartments, boardinghouses, hotels, mobile home parks, motels, recreational vehicle parks, and townhouses. The term does not include a swimming pool located on the grounds of a private residence.

"Recirculation system" means the system of piping and mechanics designed to remove the water from the pool then filter, disinfect and return it to the pool.

"Slip resistant" means having a textured surface which is not conducive to slipping under contact of bare feet unlike glazed tile or masonry terrazzo and nontextured plastic materials. manufactured surface products shall be designated by the manufacturer as suitable for walking surfaces in wet areas.

"Spa pool" means a pool used in conjunction with high-velocity air or water.

"Special purpose pool" means a public pool used exclusively for a specific, supervised purpose, including springboard or platform diving training, SCUBA diving instruction, and aquatic programs for persons with disabilities, preschool or kindergarten children.

"Swimming pool slide" is a slide designed by its manufacturer to discharge over the sidewall of a swimming pool.

"Swim spa" is a pool used in conjunction with a directional flow of water against which one swims.

"Wading pool" means a shallow pool designed to be used by children.

"Water recreation attraction" means a facility with design and operational features that provide patron recreational activity and purposefully involves immersion of the body partially or totally in the water. Water recreation attractions include water slides, river rides, water course rides, water activity pools, interactive water features, wave pools and any additional pool within the boundaries of the attraction.

"Water activity pool" means a water recreation attraction which has water-related activities such as rope ladders, rope swings, cargo nets and other similar activities.

"Water slides" means a water recreation attraction ride which is characterized by having trough-like or tubular flumes or chutes.

"Water Theme Park" means a complex with controlled access, a fenced and gated attraction where guests enter through a limited number of entrances upon purchase of a ticket. These facilities are permanent and consist of multiple water recreation attractions. Lifeguards are present during all operating hours.

"Water therapy facilities," as that term is used in Section 514.0115, Item 1, *Florida Statutes*, are pools used exclusively for water therapy to treat a diagnosed injury, illness or medical condition, wherin the therapy is provided under the direct supervision of a Florida licensed physical therapist, occupational therapist or athletic trainer; pursuant to prescription by a physician or a physician's assistant (PA) licensed pursuant to Chapters 458 or 459, *Florida Statutes.*, a podiatrist licensed pursuant to Chapter 461, *Florida Statutes.*, or an advanced registered nurse practioner (ARNP) licensed pursuant to Chapter 464, *Florida Statutes*; and the prescribing physician, PA, podiatrist or ARNP authorizes a plan of treatment justifying use of the pool for health care purposes.

"Wade pool" means a water recreation attraction ride which is characterized by having trough-like or tubular flumes or chutes.

"Wave pool" means a water recreation attraction that is characterized by wave action.

"Wet deck area" means the 4-foot-wide (1219 mm) unobstructed pool deck area around the outside of the pool water perimeter, curb, ladders, handrails, diving boards, diving towers, or pool slides, waterfalls, water features, starting blocks, planters or lifeguard chairs.

"Zero depth entry pool" means a pool where the pool floor continues to slope upward to a point where it meets the surface of the water and the pool deck.

424.1.1 Sizing. The bathing load for conventional swimming pools, wading pools, interactive water features, water activity pools less than 24 inches (610 mm) deep and special purpose pools shall be computed on the basis of one person per 5 gpm (.32 L/s) of recirculation flow. The bathing load for spa type pools shall be based on one person per each 10 square feet (.9 m²) of surface area. The filtration system for swimming pools shall be capable of meeting all other requirements of these rules while providing a flowrate of at least 1 gpm (.06 L/s) for each living unit at transient facilities and 3 /₄ gpm (.04 L/s) at nontransient facilities. Recreational vehicle sites, campsites and boat slips designated for live-aboards shall be considered a transient living unit. For properties with multiple pools, this

requirement includes the cumulative total gpm of all swimming pools, excluding spas, wading pools and interactive water features. All other types of projects shall be sized according to the anticipated bathing load and proposed uses. For the purpose of determining minimum pool size only, the pool turnover period used cannot be less than 3 hours.

424.1.2 Swimming pool construction standards.

424.1.2.1 Pool structure. Pools shall be constructed of concrete or other impervious and structurally rigid material. All pools shall be watertight, free from structural cracks and shall have a nontoxic smooth and slip-resistant finish. All materials shall be installed in accordance with manufacturer's specifications unless such specifications violate Chapter 64E-9, *Florida Administrative Code*, rule requirements or the approval criteria of NSF/ANSI Standard 50 or NSF/ANSI Standard 60.

(a) Floors and walls shall be white or pastel in color and shall have the characteristics of reflecting rather than absorbing light. Tile used in less than 5 feet (1524 mm) of water must be slip resistant. A minimum 4-inch (102 mm) tile line, each tile a minimum size of 1 inch (25 mm) on all sides, shall be installed at the water line, but shall not exceed 12 inches (305 mm) in height if a dark color is used. Gutter type pools may substitute 2-inch (51 mm) tile, each a minimum size of 1 inch (25 mm) on all sides, along the pool wall edge of the gutter lip.

(b) One-inch (25 mm) square tile may be used if the licensed contractor provides a signed written certification to the approving department engineer that the adhesive used on the one-inch (25 mm) square tile has a manufacturer's tested shear strength of at least 250 psi (1724 kPa) and the manufacturer has specified the adhesive for use underwater to adhere the type of tile used [vitreous (glass) or ceramic]. Tiles shall not have sharp edges exposed that could cause bather injury.

424.1.2.2 Dimensions.

424.1.2.2.1 Dimensional standards. Dimensional standards for competition type pools shall be those published by the National Collegiate Athletic Association, 1990; Federation Internationale de Natation Amateur (FINA), 1998-2000 Handbook; 1998-1999 Official Rules of Diving & Code Regulation of United States Diving Inc.; 1998 United States Swimming Rules and Regulations, and National Federation of State High School Associations, 1997-1998, which are incorporated by reference in this code.

424.1.2.2.2 Walls and corners. All pool walls shall have a clearance of 15 feet (4572 mm) perpendicular to the wall (as measured at design water level from gutter lip to gutter lip, or on skimmer pools, from vertical wall to vertical wall). Offset steps spa coves, spa pools and wading pools are exempt from this clearance requirement. Where interior steps protrude into the pool resulting in less than 15 feet (4572 mm) of clearance from any wall, such protrusion shall not exceed 6 feet (1828 mm) on any perpendicular line from a tangent to any pool wall from

which the steps emanate. The upper part of pool walls in areas 5 feet deep or less shall be within 5 degrees (4572 mm) vertical for a minimum depth of $2^{1}/_{2}$ feet (762 mm) from which point the wall may join the floor with a maximum radius equal to the difference between the pool depth and $2^{1}/_{2}$ feet. The upper part of pool walls in areas over 5 feet deep shall be within 5 degrees vertical for a minimum depth equal to the pool water depth minus $2^{1}/_{2}$ feet (762 mm) from which point the wall may join the floor with a maximum radius of $2^{1}/_{2}$ feet (762 mm). Corners shall be a minimum 90-degree angle. The corner intersections of walls which protrude or angle into the pool water area shall be rounded with a minimum radius of 2 inches (51 mm). This radius shall be continued through the top of the gutter edge; chamfering is allowed, pool coping shall not overhang into the pool more than 1¹/₂ inches (38 mm).

424.1.2.2.3 Pool floor slope and slope transition. The radius of curvature between the floor and walls is excluded from these requirements. multiple floor levels in pools are prohibited.

424.1.2.2.3.1 Floor slope shall be uniform. The floor slope shall be a maximum 1 unit vertical in 10 units horizontal and a minimum of 1 unit vertical in 40 units horizontal in areas 5 feet (1524 mm) deep or less. The floor slope shall be a maximum 1 unit vertical in 3 units horizontal in areas more than 5 feet (1524 mm) deep.

424.1.2.2.3.2 Any transition in floor slope shall occur at a minimum of 5 feet (1524 mm) of water depth. A slope transition must have a 2 to 6 inch (51 to 152 mm) wide dark contrasting tile marking across the bottom and must extend up both sides of the pool at the transition point. The marking shall be continuous except for recessing grouting. A slope transition must have a safety line mounted by use of recessed cup anchors, 2 feet (610 mm) before the contrasting marking, towards the shallow end. The safety line shall have visible floats at maximum 7-foot (2134 mm) intervals.

424.1.2.2.4 Pool depths. The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.

424.1.2.3 Markings.

424.1.2.3.1 Depth and markings. Depth and markings shall meet the following criteria:

- 1. The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.
- 2. Permanent depth markings followed by the appropriate full or abbreviated words "FEET," "FT," or "INCHES," "IN," shall be installed in minimum 4-inch-high (102 mm) numbers and letters on a contrasting background. Depth markers shall indicate the actual pool depth, within 3 inches (76 mm), at normal operating water level when measured 3 feet (914 m³) from the pool wall. Symmetrical pool designs with the

deep point at the center may be allowed provided a dual marking system is used which indicates the depth at the wall and at the deep point.

- 3. At a minimum, the markings shall be located on both sides of the pool at the shallow end, slope break, deep end wall and deep point (if located more than five feet from the deep end wall). Depth markings shall be legible from inside the pool and also from the pool deck. The maximum perimeter distance between depth markings is 25 feet (7620 mm). Pool size and geometry may necessitate additional depth marking placements about all sides of the pool to meet this requirement.
- 4. When a curb is provided, the depth markings shall be installed on the inside and outside or top of the pool curb. When a pool curb is not provided, the depth markings shall be located on the inside vertical wall at or above the water level and on the edge of the deck within 2 feet (610 mm) of the pool water. When open type gutter designs are utilized, depth markers shall be located on the back of the gutter wall.
- 5. When deck level perimeter overflow systems are utilized, additional depth marking signs shall be posted nearby or placed on adjacent fencing or walls and the size shall be increased so they are recognizable from inside the swimming pool. Alternatively, tile depth markers may be placed at the top of the pool wall just under the water level. Depth markers placed on the pool deck shall be within 3 feet (914 mm) of the water.
- 6. Those areas of the pool that are not part of an approved diving bowl shall have dark contrasting tile, 4-inch-high (102 mm) "NO DIVING" markings installed along the perimeter of the pool on the top of the pool curb or deck within 2 feet (610 mm) of the pool water with a maximum perimeter distance of 25 feet (7620 mm) between markings. A 6-inch (152 mm) tile with a 4-inch (102 mm) or larger red, international "NO DIVING" symbol may be substituted for the "NO DIVING" markings.
- 7. All markings shall be tile, except that pools constructed of fiberglass, thermoplastic or stainless steel may substitute other type markings when it can be shown that said markings are permanent and will not fade over time. This exemption does not extend to concrete pools that are coated with fiberglass. Tile alternative examples include stone or manufactured plaques with engraved or sandblasted numbers and characters with permanent paint. Permanent appliqués may be used for fiberglass, thermoplastics or stainless steel pools. All markings installed on horizontal surfaces shall have a slip-resistant finish. Markings shall be flush with the surrounding area where placed and recessed if necessary to provide a

smooth finish that will avoid creation of an injury hazard to bathers. Pools that are not conducive to tile can employ other equivalent markings as stated above.

424.1.2.3.2 Designs or logos. Any design or logo on the pool floor or walls shall be such that it will not hinder the detection of a human in distress, algae, sediment, or other objects in the pool.

424.1.2.3.3 Lane markings. Pools that are not intended to be utilized for officially sanctioned competition may install lap lane markings provided they meet the following criteria: the markings must be 2 to 6 inches (51 to 152 mm) wide, they must terminate 5 feet (1524 mm) from the end wall in a "T" with the "T" bar at least 18 inches (1524 mm) long, they must be placed at 7-foot (2134 mm) intervals on center and be no closer than 4 feet (1219 mm) from any side wall, steps or other obstructions. Floating rope lines associated with lap lanes must not obstruct the entrance or exit from the pool and are prohibited when the pool is open for general use.

424.1.2.3.4 Targets. Pools that are not intended for officially sanctioned competition may have a 2 to 6 inch (51 to 152 mm) wide 18-inch by 18-inch (457 mm by 457 mm) targets (+) installed on the pool wall.

424.1.2.4 Color. Pool floors and walls shall be white or light pastel in color and shall have the characteristic of reflecting rather than absorbing light.

Exception: A dark color may be used if (1) a tile line [minimum 4 inches (102 mm), maximum 12 inches (305 mm)] is installed at the water line or (2) if 2-inch (51 mm) tile is installed along the pool wall edge of the gutter lip for gutter type pools.

424.1.2.5 Access. All pools shall have a means of access every 75 feet (22 860 mm) of pool perimeter with a minimum of two, located so as to serve both ends of the pool. In addition, an access point shall be provided at the deep portion, if the deep portion is not at one end of the pool. When the deep portion of the pool is over 30 feet (9144 mm) wide both sides of this area shall have a means of access. Access shall consist of ladders, stairs, recessed treads or swimouts and may be used in combination. All treads shall have a slip-resistant surface.

424.1.2.5.1 Ladders. Ladders shall be of the cross-braced type and shall be constructed of corrosion-resistant materials and be securely anchored into the pool deck. Clearance between the ladder and pool wall shall be between 3 to 6 inches (76 mm to 152 mm). Ladders shall extend at least 28 inches (711 mm) and no more than 40 inches (1016 mm) above the pool deck. Ladder bottom braces shall have intact end caps or bumpers that rest firmly against the pool wall. The top rung of the ladder shall be at or below the water level on open gutter pools and not more than 12 inches (305 mm) below the deck or curb top on all other type pools.

424.1.2.5.2 Recessed treads. Recessed treads shall be installed flush with the wall and shall be a minimum five inches wide, 10 inches (254 mm) long, with a maximum vertical distance of 12 inches (305 mm) between treads.

424.1.2.5.3 Stairs. Stairs shall have a minimum tread width of 10 inches (254 mm) and a maximum width of 48 inches (1219 mm) for a minimum tread length of 24 inches (610 mm) and a maximum riser height of 10 inches (254 mm). Treads and risers between the top and bottom treads shall be uniform to within $\frac{1}{2}$ inch (12.7 mm) in width and height. The riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front $\frac{3}{4}$ to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (51mm) of the riser shall be tile, dark in color, contrasting with the interior of the pool. Tile shall be slip resistant. Bullnose tile that is slip resistant may be used when the $^{3}/_{4}$ inch (19 mm) segment is placed on the tread or horizontal surface and the 2-inch (51 mm) segment is placed on the riser or vertical surface. Where the gutter is used as the top step, the tile on the gutter for the width of the steps shall be slip resistant. Vinyl liner and fiberglass pools may use other material for the step edge marking, provided the material is permanent, permanently secured, dark in color, nonfading and slip resistant.

424.1.2.5.4 Swimouts. Swimouts shall extend 18 to 24 inches (610 mm) back from the pool wall, shall be 4 to 5 feet (1219 mm to 1524 mm) wide, shall be a maximum of 12 inches (305 mm) below the deck, unless stairs are provided in the swimout, and shall be located only in areas of the pool greater than 5 feet (1524 mm) deep. Pools that do not utilize a continuous perimeter overflow system must provide a wall return inlet in the swimout for circulation. A permanent dark contrasting colored band of tile shall be installed at the intersection of the pool wall and the swimout and must extend 2 inches (51 mm) on the horizontal and vertical surfaces. Tile must be slip resistant. Bullnose tile may be substituted and installed in accordance with Section 424.1.2.5.3 above.

424.1.2.5.5 Handrails and grabrails. Handrails shall be provided for all stairs, shall be anchored in the bottom step and the deck. Where "figure 4" deckmounted type handrails are used, they shall be anchored in the deck and extend laterally to any point vertically above the bottom step. Grabrails must be mounted in the pool deck at each side of recessed steps. Handrails and grabrails shall extend between 28 and 40 inches (711 mm and 1016 mm) above the step edge and deck.

424.1.2.5.6 Disabled access. Permanent or portable steps, ramps, handrails, lifts or other devices designed to accommodate handicapped individuals in swimming pools may be provided. Lifts mounted into the pool deck shall have a minimum four-foot-wide (1219 mm) deck behind the lift mount.

424.1.2.6 Obstructions. The pool water area shall be unobstructed by any type structure unless justified by engineering design as a part of the recirculation system. Engineering design and material specifications shall show that such structures will not endanger the pool patron, can be maintained in a sanitary condition and will not create a problem for sanitary maintenance of any part of the pool, pool water, or pool facilities. Structures in accord with the above shall not be located in a diving bowl area or within 15 feet (4572 mm) of any pool wall.

Exceptions:

- 1. Stairs, ladders and ramps, necessary for entrance/exit from the pool are not considered obstructions.
- 2. Underwater seat benches may be installed in areas less than five feet (1524 mm) deep. Bench seats must be 14 to 18 inches (356 to 457 mm) wide and must have a dark contrasting tile marking on the seat edge extending two inches (51 mm) on the horizontal and vertical surface. Tile shall be slip resistant. Bullnose tile may be substituted and installed in accordance with Section 424.1.2.5.3. Vinyl liner, stainless steel and fiberglass pools may use other material for the bench edge marking as detailed in Section 424.1.2.3.1, Item 7, above, provided the material is permanently secured, dark in color, nonfading and slip resistant. Benches shall not protrude into the 15-foot (4572 mm) clearance requirement of Section 424.1.2.6.

424.1.2.7 Diving areas. Diving facilities shall meet the minimum requirements of the FINA dimensions for diving facilities in accordance with the 2005-2009 FINA Handbook and include the following

- 1. Diving boards or platforms with heights of less than the established standard shall meet the dimensional requirements of the next greater height.
- 2 Diving boards, platforms and ladders shall have a nonabsorbent, slip-resistant finish and be of sufficient strength to safely carry the anticipated loads. Diving equipment one meter and greater shall have guard rails which extend to the edge of the pool wall. All diving boards over 21 inches (533 mm) from the deck shall be provided with a ladder. Diving boards or platforms shall not be installed on curved walls where the wall enters into the defined rectangular diving area specified in this section. Adjacent platform and diving boards shall be parallel.
- 3. The location of pool ladders shall be such that the distance from the ladder to any point on a diving board or platform centerline is not less than the plummet to side wall dimension (b) indicated in

the FINA standards. Trampoline-type diving facilities are prohibited.

4. Diving targets may be installed in accordance with FINA standards.

424.1.3 Pool appurtenances.

424.1.3.1 Decks and walkways.

424.1.3.1.1 Pool wet decks shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish. Wet deck area finishes shall be designed for such use and shall be installed in accordance with the manufacturer's specifications. Wooden decks and walkways are prohibited.

424.1.3.1.2 Pool wet decks shall be uniformly sloped at a minimum of 2 percent to a maximum of 4 percent away from the pool or to deck drains to prevent standing water. Textured deck finishes that provide pitting and crevices of more than $^{3}/_{16}$ inch (4.8 mm) deep that accumulate soil are prohibited. If settling or weathering occurs that would cause standing water, the original slopes shall be restored or corrective drains installed. When a curb is provided, the deck shall not be more than 10 inches (254 mm) below the top of the curb.

424.1.3.1.3 Pool wet decks shall have a minimum unobstructed width of four feet (1219 mm) around the perimeter of the pool, pool curb, ladders, handrails, diving boards, diving towers and slides.

424.1.3.1.4 Traffic barriers shall be provided as needed so that parked vehicles do not extend over the deck area.

424.1.3.1.5 Walkways shall be provided between the pool and the sanitary facilities, and shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish for the first 15 feet (4572 mm) of the walkway measured from the nearest pool water's edge. A hose bibb with a vacuum breaker shall be provided to allow the deck to be washed down with potable water.

424.1.3.1.6 Ten percent of the deck along the pool perimeter may be obstructed. Obstructions shall have a wet deck area behind or through them, with the near edge of the walk within 15 feet (4572 mm) of the water except approved slide obstructions shall have the near edge of the walk within 35 feet (10 668 mm) of the water. These obstructions must be protected by a barrier or must be designed to discourage patron access. When an obstruction exists in multiple areas around the pool the minimum distance between obstructions shall be 4 feet (1219 mm).

424.1.3.1.7 Food or drink service facilities shall not be located within 12 feet (3658 mm) of the water's edge.

424.1.3.1.8 The vertical clearance above the pool deck shall be at least 7 feet (2137 mm).

424.1.3.1.9 All public pools shall be surrounded by a minimum 48 inch (1219 mm) high fence or other approved substantial barrier. The fence shall be continuous around the perimeter of the pool area that is not

otherwise blocked or obstructed by adjacent buildings or structures and shall adjoin with itself or abut to the adjacent members. Access through the barrier or fence from dwelling units, such as homes, apartments, motel rooms and hotel rooms, shall be through self-closing, self-latching lockable gates of 48 inch (1219 mm) minimal height from the floor or ground with the latch located a minimum of 54 inches (1372 mm) from the bottom of the gate or at least 3 inches (76 mm) below the top of the gate on the pool side. If the self-closing, self-latching gate is also self-locking and is operated by a key lock, electronic opener or integral combination lock, then the operable parts of such locks or openers shall be 34 inches minimum (864 mm) and 48 inches maximum (1219 mm) above the finished floor or ground. Gates shall open outward away from the pool area. A latched, lockable gate shall be placed in the fence within ten feet (3048 mm) of the closest point between the pool and the equipment area for service access.

Instead of a fence, permanent natural or man-made features such as bulkheads, canals, lakes, navigable waterways, etc., adjacent to a pool may be permitted as a barrier when approved. When evaluating such barrier features, the applicable governing body may perform onsite inspections, and review evidence, such as surveys, aerial photographs, water management agency standards and specifications, and any other similar documentation to verify at minimum, the following: the barrier feature is not subject to natural changes, deviations or alterations and is capable of providing an equivalent level of protection as that provided by a structure, and the barrier feature clearly impedes, prohibits or restricts access to the pool.

Screened pool enclosures must be hardened on the bottom three feet (914 mm). Fencing consideration shall be given to the U.S. Consumer Product Safety Commission (CPSC) Publication, No. 362, March 2005, guidelines available from CPSC.gov; or Sections 424.2.17.1.1 through 424.2.17.1.8. Safety covers that comply with ASTM F 1346-91 (Reapproved 2003), titled *Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs,* and available from ASTM.org, do not satisfy this requirement.

424.1.3.2 Bridges and overhead obstructions. Bridges and overhead obstructions over the pool shall be designed so they will not introduce any contamination to the pool water. The minimum height of the bridge or obstruction shall be at least 8 feet (2438 mm) from the bottom of the pool and at least 4 feet (1219 mm) above the surface of the pool. Minimum 42-inch-high (1067 mm) handrails shall be provided along each side of the bridge. The walking surfaces shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish. Pool coping shall not overhang into the pool more than 1½ inches (38 mm).

424.1.4 Electrical systems.

424.1.4.1 Electrical equipment and wiring. Electrical equipment wiring and installation, including the grounding of pool components shall conform with Chapter 27 of the *Florida Building Code, Building.*

424.1.4.2 Lighting. Artificial lighting shall be provided at all swimming pools which are to be used at night or which do not have adequate natural lighting so that all portions of the pool, including the bottom, may be readily seen without glare.

424.1.4.2.1 Outdoor pool lighting. Lighting shall provide a minimum of 3 footcandles (30 lux) of illumination at the pool water surface and the pool wet deck surface. Underwater lighting shall be a minimum of 1/2 watt per square foot of pool water surface area.

424.1.4.2.2 Indoor pool lighting. Lighting shall provide a minimum of 10 foot candles of illumination at the pool water surface and the pool wet deck surface. Underwater lighting shall be a minimum of 8/10 watt per square foot of pool surface area.

424.1.4.2.3 Underwater lighting. Underwater lighting shall utilize transformers and low-voltage circuits with each underwater light being grounded. The maximum voltage for each light shall be 15 volts and the maximum incandescent lamp size shall be 300 watts. The location of the underwater lights shall be such that the underwater illumination is as uniform as possible and shall not be less than 18 inches (457 mm) below the normal operating water level determined by the centerline of the skimmer or top lip of the gutter. All underwater lights which depend upon submersion for safe operation shall have protection from overheating when not submerged. Underwater lighting requirements can be waived when the overhead lighting provides at least 15 footcandles (150 lux) of illumination at the pool water surface and pool wet deck surface. Alternative lighting systems which use 15 volts or less, or use no electricity in the pool or on the pool deck, such as LED (light emitting diode) fiber-optic systems, may be utilized if the applicant demonstrates to reasonable certainty that the system development has advanced to the point where the department is convinced that the pool illumination is equal to the requirements in Sections 424.1.4.2.1 and 424.1.4.2.2 above.

424.1.4.2.4 Overhead wiring. Overhead service wiring shall not pass within an area extending a distance of 10 feet (3048 mm) horizontally away from the inside edge of the pool walls, diving structures, observation stands, towers or platforms. Allowances for overhead conductor clearances to pools that meet the safety standards in the *National Electrical Code* may be used instead. Electrical equipment wiring and installation including the grounding of pool components shall comply with Chapter 27 of the *Florida Building Code, Building.*

424.1.5 Equipment area or rooms.

424.1.5.1 Equipment. Equipment designated by the manufacturer for outdoor use may be located in an equipment area, all other equipment must be located in an equipment room or enclosure. Plastic pipe subject to a period of prolonged sunlight exposure must be coated to protect it from ultraviolet light degradation. An equipment area shall be surrounded with a fence at least 4 feet (1219 mm) high on all sides not confined by a building or equivalent structure. A self-closing and self-latching gate with a permanent locking device shall be provided if necessary for access. An equipment room shall be protected on at least three sides and overhead. Any fence or gate installed shall use members spacing that shall not allow passage of a 4-inch (102 mm) diameter sphere. The fourth side may be a gate, fence, or open if otherwise protected from unauthorized entrance. An equipment enclosure shall be lockable or otherwise protected from unauthorized access.

424.1.5.2 Indoor equipment. Equipment not designated by the manufacturer for outdoor use shall be located in an equipment room. An equipment room shall be protected on at least three sides and overhead. The fourth side may be a gate, fence or open if otherwise protected from unauthorized entrance.

424.1.5.3 Materials. The equipment enclosure, area or room floor shall be of concrete or other nonabsorbent material having a smooth slip-resistant finish and shall have positive drainage, including a sump pump if necessary. Ancillary equipment, such as a heater, not contained in an equipment enclosure or room shall necessitate an equipment area as described above.

424.1.5.4 Ventilation. Equipment rooms shall have either forced draft or cross ventilation. All below-grade equipment rooms shall have a stairway access with forced draft ventilation or a fully louvered door and powered intake within 6 inches (152 mm) of the floor. Where stairway access is not necessary to carry heavy items into the below grade room or vault, a "ship's ladder" may be used if specified by the design engineer who must consider anticipated workload including equipment removal; and the ladder slope, tread height and width; and construction material of the ladder.

424.1.5.5 Access. The opening to an equipment room or area shall be a minimum 3 feet by 6 feet (914 mm by 1829 mm) and shall provide easy access to the equipment.

424.1.5.6 Size. The size of the equipment enclosure, room or area shall provide working space to perform routine operations. Clearance shall be provided for all equipment as prescribed by the manufacturer to allow normal maintenance operation and removal without disturbing other piping or equipment. In rooms with fixed ceilings, the minimum height shall be 7 feet (2137 mm).

424.1.5.7 Lighting. Equipment rooms or areas shall be lighted to provide 30 footcandles (300 lux) of illumination at floor level.

*		PUBL	TABLE 4	424.1.6.1 REQUIRED FIXTURE C	OUNT	
			MEN'S RESTROOM		WOMEN'S	RESTROOM
	SIZE OF POOL	Urinals	wc	Lavatory	wc	Lavatory
	0 - 2,500 sq. ft.	1	1	1	1	1
	2,501 - 5,000 sq. ft.	2	1	1	5	1
	5,001 - 7,500 sq. ft.	2	2	2	6	2
*	7,501 - 10,000 sq. ft.	3	2	3	8	3

For SI: 1 square foot = 0.0929 m^2 .

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An additional set of fixtures shall be provided in the men's restroom for every 7,500 square feet or major fraction thereof for pools greater than 10,000 square feet. Women's restrooms shall have a ratio of three to two water closets provided for women as the combined total of water closets and urinals provided for men. Lavatory counts shall be equal.

424.1.5.8 Storage. Equipment enclosures, rooms or areas shall not be used for storage of chemicals emitting corrosive fumes or for storage of other items to the extent that entrance to the room for inspection or operation of the equipment is impaired.

424.1.5.9 Hose bibbs. A hose bibb with vacuum breaker shall be located in the equipment room or area.

424.1.6 Plumbing systems.

424.1.6.1 Sanitary facilities. Swimming pools with a bathing load of 20 persons or less may utilize a unisex restroom. Pools with bathing loads of 40 persons or less may utilize two unisex restrooms or meet the requirements of Table 424.1.6.1. Unisex restrooms shall meet all the requirements for materials, drainage and signage as indicated in Sections 424.1.6.1.1 through 424.1.6.1.4. Each shall include a water closet, a diaper change table, a urinal and a lavatory. Pools with a bathing load larger than 40 persons shall provide separate sanitary facilities labeled for each sex. The entry doors of all restrooms shall be located within a 200-foot (60 960 mm) walking distance of the nearest water's edge of each pool served by the facilities.

Exception: Where a swimming pool serves only a designated group of residential dwelling units and not the general public, poolside sanitary facilities are not required if all living units are within a 200-foot (60 960 mm) horizontal radius of the nearest water's edge, are not over three stories in height unless serviced by an elevator, and are each equipped with private sanitary facilities.

424.1.6.1.1 Required fixtures. Fixtures shall be provided as indicated on Table 424.1.6.1. The fixture count on this chart is deemed to be adequate for the pool and pool deck area that is up to three times the area of the pool surface provided. When multiple fixture sets are required and separate facilities are provided for each sex, the fixtures used in ancillary family-style restrooms can be used to meet the requirements of this section.

One diaper changing table shall be provided at each restroom. Diaper changing tables are not required at restrooms where all pools served are restricted to adult use only. Swim diapers are recommended for use by children that are not toilet trained. Persons that are ill with diarrhea cannot enter the pool.

424.1.6.1.2 Outside access. Outside access to facilities shall be provided for bathers at outdoor pools. Where the restrooms are located within an adjacent building and the restroom doors do not open to the outside, the restroom doors shall be within 50 feet (15 240 mm) of the building's exterior door. If the restrooms are not visible from any portion of the pool deck, signs shall be posted showing directions to the facilities. Directions shall be legible from any portion of the pool deck; letters shall be a minimum of 1 inch (25 mm) high.

424.1.6.1.3 Sanitary facility floors. Floors of sanitary facilities shall be constructed of concrete or other nonabsorbent materials, shall have a smooth, slip-resistant finish, and shall slope to floor drains. Carpets, duckboards and footbaths are prohibited. The intersection between the floor and walls shall be covered where either floor or wall is not made of waterproof materials such as tile or vinyl.

424.1.6.1.4 Hose bibb. A hose bibb with vacuum breaker shall be provided in or within 25 feet (7620 mm) of each restroom to allow for ease of cleaning.

424.1.6.2 Rinse shower. A minimum of one rinse shower shall be provided on the pool deck of all outdoor pools within 20 feet (60 960 mm) of the nearest pool water's edge.

424.1.6.3 Cross-connection prevention. An atmospheric break or approved back flow prevention device shall be provided in each pool water supply line that is connected to a public water supply. Vacuum breakers shall be installed on all hose bibbs.

424.1.6.4 Plastic pipes. Plastic pipe subject to a period of prolonged sunlight exposure shall be coated to protect it from ultraviolet light degradation.

424.1.6.5 Recirculation and treatment systems.

424.1.6.5.1 Equipment testing. Recirculation and treatment equipment such as filters, recessed automatic surface skimmers, ionizers, ozone generators, disinfection feeders and chlorine generators shall be tested and approved using the NSF/ANSI Standard

50, Circulation System Components and Related Materials for Swimming Pool, Spas/Hot Tubs, dated April 2007, which is incorporated by reference.

424.1.6.5.2 Volume. The recirculation system shall be designed to provide a minimum of four turnovers of the pool volume per day. Pools that are less than 1,000 square feet (93 m^3) at health clubs shall be required to provide eight turnovers per day.

424.1.6.5.3 System design. The design pattern of recirculation flow shall be 100 percent through the main drain piping and 100 percent through the perimeter overflow system or 60 percent through the skimmer system.

424.1.6.5.3.1 Perimeter overflow gutters. The lip of the gutter shall be uniformly level with a maximum tolerance of $\frac{1}{4}$ inch (6 mm) between the high and low areas. The bottom of the gutter shall be level or slope to the drains. The spacing between drains shall not exceed 10 feet (3048 mm) for 2-inch (51 mm) drains or 15 feet (4572 mm) for $2^{1}/_{2}$ -inch (64 mm) drains, unless hydraulically justified by the design engineer. Gutters may be eliminated along pool edges for no more than 15 feet (4572 mm) and this shall not exceed 10 percent of the perimeter (at least 90 percent of the perimeter shall be guttered). In areas where gutters are eliminated, handholds shall be provided within 9 inches (229 mm) of the water surface. Handhold design shall be approved by the department prior to construction.

424.1.6.5.3.1.1 Either recessed type or open type gutters shall be used. Special designs can be approved provided they are within limits of sound engineering practice. Recessed type gutters shall be at least 4 inches (102 mm) deep and 4 inches (102 mm) wide. No part of the recessed gutter shall be visible from a position directly above the gutter sighting vertically down the edge of the deck or curb. Open-type gutters shall be at least 6 inches (150 mm) deep and 12 inches (305 mm) wide. The gutter shall slope 2 inches (51 mm), +/-1/4 inch (+/-6 mm), from the lip to the drains. The gutter drains shall be located at the deepest part of the gutter.

424.1.6.5.3.1.2 All gutter systems shall discharge into a collector tank.

424.1.6.5.3.1.3 The gutter lip shall be tiled with a minimum of 2-inch (51 mm) tile on the pool wall, each a minimum size of 1 inch (25 mm) on all sides. The back vertical wall of the gutter shall be tiled with glazed tile.

Exception: Stainless steel gutter systems when it can be shown that the surfaces at the waterline and back of the gutter are easily cleanable.

424.1.6.5.3.2 Recessed automatic surface skimmers. Recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet (93 m³) or less excluding offsetstairs and swimouts and the width of the pool is not over 20 feet (6096 mm).

424.1.6.5.3.2.1 Volume. The recessed automatic surface skimmer piping system shall be designed to carry 60 percent of the pool total design flow rate with each skimmer carrying a minimum 30 gpm (2 L/s). One skimmer for every 400 square feet (37 m²) or fraction thereof of pool water surface area shall be provided.

424.1.6.5.3.2.2 Location. Prevailing wind direction and the pool outline shall be considered by the designer in the selection of skimmer locations. The location of skimmers shall be such that the interference of adjacent inlets and skimmers is minimized. Recessed automatic surface skimmers shall be installed so that there is no protrusion into the pool water area. The deck or curb shall provide for a handhold around the entire pool perimeter and shall not be located more than 9 inches (229 mm) above the mid point of the opening of the skimmer.

424.1.6.5.3.2.3 Equalizers. Recessed automatic surface skimmers shall be installed with an equalizer valve and an equalizer line when the skimmer piping system is connected directly to pump suction. If installed, the equalizer valve shall be a spring loaded vertical check valve which will not allow direct suction on the equalizer line. Float valves are prohibited. The equalizer line inlet shall be installed at least 1 foot (305 mm) below the normal pool water level and the equalizer line inlet shall be protected by an ASME/ANSI A112.19.8 compliant cover/grate. The equalizer line shall be sized to handle the expected flow with a 2-inch (51 mm) minimum line size.

424.1.6.5.3.2.4 Wall-inlet fitting. A wall-inlet fitting shall be provided directly across from each skimmer.

424.1.6.5.3.2.5 Waterline tile. A minimum 6inch (152 mm) water line tile shall be provided on all pools with automatic skimmer systems, each a minimum size of 1 inch (25 mm) on all sides. Glazed tile that is smooth and easily cleanable shall be utilized.

424.1.6.5.4 Pumps. If the pump or suction piping is located above the water level of the pool, the pump shall be self-priming. Pumps that take suction prior to filtration shall be equipped with a hair and lint strainer. The recirculation pump shall be selected to provide the required recirculation flow against a minimum total dynamic head of 60 feet (18 288 mm) unless hydraulically justified by the design engineer. Vacuum D.E. filter system pumps shall provide at least 50 feet (15 240 mm)
of total dynamic head. Should the total dynamic head required not be appropriate for a given project, the design engineer shall provide an alternative.

424.1.6.5.5 Filters. Filters sized to handle the required recirculation flow shall be provided.

424.1.6.5.5.1 Filter capacities. The maximum filtration rate in gallons per minute per square foot of filter area shall be: 15 [20 if so approved using the procedure stated in Section 424.1.6.5.1 for high rate sand filters, 3 for rapid sand filters, 0.075 for pleated cartridge filters and 2 for Diatomaceous Earth (D.E.) type filters].

424.1.6.5.5.2 Filter appurtenances.

424.1.6.5.5.2.1 Pressure filter systems. Pressure filter systems shall be equipped with an air relief valve, influent and effluent pressure gauges with minimum face size of 2 inches (51 mm) reading 0-60 psi (0-414 kPa), and a sight glass when a backwash line is required.

424.1.6.5.5.2.2 Vacuum filter systems. Vacuum filter systems shall be equipped with a vacuum gauge which has a 2-inch (51 mm) face and reads from 0-30 inches of mercury.

424.1.6.5.5.2.3 D.E. systems. A precoat pot or collector tank shall be provided for D.E.-type systems.

424.1.6.5.5.3 Filter tanks and elements. The filter area shall be determined on the basis of effective filtering surfaces with no allowance given for areas of impaired filtration, such as broad supports, folds, or portions which may bridge. D.E.-type filter elements shall have a minimum 1-inch (25 mm) clear spacing between elements up to a 4 square foot (0.4 m^2) effective area. The spacing between filter elements shall increase $\frac{1}{8}$ inch (3 mm) for each additional square foot of filter area or fraction thereof above an effective filter area of 4 square feet (0.4 m^2) . All cartridges used in public pool filters shall be permanently marked with the manufacturer's name, pore size and area in square feet of filter material. All cartridges with end caps shall have the permanent markings on one end cap. Vacuum filter tanks shall have coved intersections between the wall and the floor and the tank floor shall slope to the filter tank drain. The D.E.-type filter tank and elements shall be installed such that the recirculation flow draw down does not expose the elements to the atmosphere whenever only the main drain valve is open or only the surface overflow gutter system valve is open.

424.1.6.5.6 Piping. All plastic pipe used in the recirculation system shall be imprinted with the manufacturer's name and the NSF-pw logo for potable water applications. Size, schedule and type of pipe shall be included on the drawings. Plastic pipe subject to a period of prolonged sunlight exposure shall be coated to protect it from ultraviolet light degradation.

424.1.6.5.7 Valves. Return lines, main drain lines, and surface overflow system lines, shall each have proportioning valves.

424.1.6.5.8 Flow velocity. Pressure piping shall not exceed 8 feet per second (2438 mm/s), except that precoat lines with higher velocities may be used when necessary for agitation purposes. The flow velocity in suction piping shall not exceed 6 feet per second (1829 mm/s) except that flow velocities up to 10 feet per second (3048 mm/s) in filter assembly headers will be acceptable. Main drain systems and surface overflow systems which discharge to collector tanks shall be sized with a maximum flow velocity of 3 feet per second (914 mm/s). The filter and vacuuming system shall have the necessary valves and piping to allow filtering to pool, vacuuming to waste, vacuuming to filter, complete drainage of the filter tank, backwashing for sand and pressure D.E.-type filters and precoat recirculation for D.E.-type filters.

424.1.6.5.9 Inlets. All inlets shall be adjustable with wall type inlets being directionally adjustable and floor type inlets having a means of flow adjustment. Floor inlets shall be designed and installed such that they do not protrude above the pool floor and all inlets shall be designed and installed so as not to constitute sharp edges or protrusions hazardous to pool bathers. Floor inlets for vinyl liner and fiberglass pools, shall be smooth with no sharp edges, and shall not extend more than $3/_8$ inches (9.5 mm) above the pool floor. Wall inlets shall be installed a minimum of 12 inches (305 mm) below the normal operating water level unless precluded by the pool depth or intended for a specific acceptable purpose.

424.1.6.5.9.1 Pools 30 feet (9144 mm) in width or less, with wall inlets only shall have enough inlets such that the inlet spacing does not exceed 20 feet (6096 mm) based on the pool water perimeter.

424.1.6.5.9.2 Pools 30 feet (9144 mm) in width or less with floor inlets only shall have a number of inlets provided such that the spacing between adjacent inlets does not exceed 20 feet (6096 mm) and the spacing between inlets and adjacent walls does not exceed 10 feet (3048 mm).

424.1.6.5.9.3 A combination of wall and floor inlets may be used in pools 30 feet (9144 mm) in width or less only if requirements of Section 424.1.6.5.9.1 or Section 424.1.6.5.9.2 are fully met.

424.1.6.5.9.4 Pools greater than 30 feet (9144 mm) in width shall have either floor inlets only, or a combination of floor inlets and wall inlets. Pools with floor inlets only shall have a number of floor inlets provided such that the spacing between adjacent inlets does not exceed 20 feet (6096 mm) and the spacing between inlets and an adjacent wall does not exceed 10 feet (3048 mm).

424.1.6.5.9.5 Pools greater than 30 feet (9144 mm) in width with a combination of wall and floor inlets shall have the number of wall inlets such that the maximum spacing between the wall inlets is 20 feet (6096 mm) and floor inlets are provided for the pool water area beyond a 15 feet (4572 mm) perpendicular distance from all walls. The number of floor inlets shall be such that the spacing between adjacent inlets does not exceed 20 feet (6096 mm) and the distance from a floor inlet and an adjacent wall does not exceed 25 feet (7620 mm). Floor inlets shall be designed and installed such that they do not protrude more than $\frac{5}{8}$ inch (16 mm) above the pool floor and all inlets shall be designed and installed so as not to constitute sharp edges or protrusions hazardous to pool bathers.

424.1.6.5.9.6 The flow rate through each inlet shall not exceed 15 gpm (1 L/s).

424.1.6.5.10 Main drain outlets. All pools shall be provided with an outlet at the deepest point.

424.1.6.5.10.1 The depth at the outlet shall not deviate more than 3 inches (76 mm) from the side wall.

424.1.6.5.10.2 Outlets shall be covered by a secured grating which requires the use of a tool to remove and whose open area is such that the maximum velocity of water passing through the openings does not exceed $1^{1}/_{2}$ feet per second (457 mm/s) at 100 percent of the design recirculation flow. Main drain covers/grates shall comply with the requirements of ASME/ANSI A112.19.8-2007 and the water velocity of this section.

424.1.6.5.10.3 Multiple outlets, equally spaced from the pool side walls and from each other, shall be installed in pools where the deep portion of the pool is greater than 30 feet (9144 mm) in width.

424.1.6.5.10.4 If the area is subject to high ground water, the pool shall be designed to withstand hydraulic uplift or shall be provided with hydrostatic relief devices.

424.1.6.5.10.5 The main drain outlet shall be connected to a collector tank. The capacity of the collector tank shall be at least 1 minute of the recirculated flow unless justified by the design engineer. Vacuum filter tanks are considered collector tanks.

424.1.6.5.11 Water makeup control. An automatic and manual water makeup control shall be provided to maintain the water level at the lip of the overflow gutter or at the mouth of the recessed automatic surface skimmers and shall discharge through an air gap into a fill pipe or collector tank. Over the rim fill spouts are prohibited.

424.1.6.5.12 Cleaning system. A portable or plumbed in vacuum cleaning system shall be pro-

vided. All vacuum pumps shall be equipped with hair and lint strainers. When the system is plumbed in, the vacuum fittings shall be located to allow cleaning the pool with a 50-foot (15 240 mm) maximum length of hose. Vacuum fittings shall be mounted approximately 12 inches (305 mm) below the water level, flush with the pool walls, and shall be provided with a spring loaded safety cover or flush plug cover which shall be in place at all times when the pool is not being vacuumed. Bag-type cleaners, which operate as ejectors on potable water supply pressure, shall be protected by a vacuum breaker. Cleaning devices shall not be used while the pool is open to bathers.

424.1.6.5.13 Rate of flow indicators. A rate of flow indicator, reading in gpm, shall be installed on the return line. The rate of flow indicator shall be properly sized for the design flow rate and shall be capable of measuring from one-half to at least one-and-one-half times the design flow rate. The clearances upstream and downstream from the rate of flow indicator shall comply with manufacturer's installation specifications.

424.1.6.5.14 Heaters. Pool heaters shall comply with nationally recognized standards acceptable to the department and to the design engineer. Pools equipped with heaters shall have a fixed thermometer mounted in the pool recirculation line downstream from the heater outlet. Thermometers mounted on heater outlets do not meet this requirement. A sketch of any proposed heater installation including valves, thermometer, pipe sizes, and material specifications shall be included in the application for permit prior to installation. Piping and influent, effluent and bypass valves which allow isolation or removal of the heater from the system shall be provided. materials used in solar and other heaters shall be nontoxic and acceptable for use with potable water. Heaters shall not prevent the attainment of the required turnover rate.

424.1.6.5.15 Pool waste water disposal. Pool waste water shall be discharged through an air gap; disposal shall be to sanitary sewers, storm sewers, drainfields, or by other means, in accordance with local requirements including obtaining all necessary permits. Disposal of water from pools using D.E. powder shall be accomplished through separation tanks which are equipped with air bleed valves, bottom drain lines, and isolation valves, or through a settling tank with final disposal being acceptable to local authorities. D.E. separator tanks shall have a capacity as rated by the manufacturer, equal to the square footage of the filter system. All lines shall be sized to handle the expected flow. There shall not be a direct physical connection between any drain from a pool or recirculation system and a sewer line.

424.1.6.5.16 Addition of chemicals. Disinfection and 1-800-555-1212 adjustment shall be added to the pool recirculation flow using automatic feeders meeting the requirement of ANSI/NSF 50-2007. All chemicals shall be fed into the return line after the

pump, heater and filters unless the feeder was designed by the manufacturer and approved by the NSF to feed to the collector tank or to the suction side of the pump.

424.1.6.5.16.1 Gas chlorination. When gas chlorination is utilized, the chlorinator shall be capable of continuously feeding a chlorine dosage of 6 mg/L to the recirculated flow of the filtration system. The application point for chlorine shall be located in the return line downstream of the filter, recirculation pump, heater, and flow meter, and as far as possible from the pool.

424.1.6.5.16.1.1 Gas chlorinators shall be located in above-grade rooms and in areas which are inaccessible to unauthorized persons.

424.1.6.5.16.1.1.1 Chlorine rooms shall have: continuous forced draft ventilation capable of a minimum of one air change per minute with an exhaust at floor level to the outside, a minimum of 30 footcandles (300 lux) of illumination with the switch located outside and the door shall open out and shall not be located adjacent to the filter room entrance or the pool deck. A shatterproof gas-tight inspection window shall be provided.

424.1.6.5.16.1.1.2 Chlorine areas shall have a roof and shall be enclosed by a chain-link type fence at least 6 feet (1829 mm) high to allow ventilation and prevent vandalism.

424.1.6.5.16.1.2 When booster pumps are used with the chlorinator, the pump shall use recirculated pool water supplied via the recirculation filtration system. The booster pump shall be electrically interlocked with the recirculation pump to prevent the feeding of chlorine when the recirculation pump is not operating.

424.1.6.5.16.1.3 A means of weighing chlorine containers shall be provided. When 150-pound (68 kg) cylinders are used, platform type scales shall be provided and shall be capable of weighing a minimum of two full cylinders at one time. The elevation of the scale platform shall be within 2 inches (51 mm) of the adjacent floor level, and the facilities shall be constructed to allow easy placement of full cylinders on the scales.

424.1.6.5.16.2 Hypohalogenation and electro-lytic chlorine generators. The hypohalogenation type feeder and electrolytic chlorine generators shall be adjustable from 0 to full range. A rate of flow indicator is required on erosion type feeders. The feeders shall be capable of continuously feeding a dosage of 6 mg/L to the minimum required turnover flow rate of the filtration systems. Solution feeders shall be capable of feeding the above dosage using a 10-percent sodium hypochlorite solution, or 5-percent calcium hypochlorite solution, whichever disinfectant is to be utilized at this facility. To prevent the disinfectant from siphoning or feeding directly into the pool or pool piping under any type failure of the recirculation equipment, an electrical interlock with the recirculation pump shall be incorporated into the system for electrically operated feeders. The minimum size of the solution reservoirs shall be at least 50 percent of the maximum daily capacity of the feeder. The solution reservoirs shall be marked to indicate contents.

424.1.6.5.16.3 Feeders for PH adjustment. Feeders for PH adjustment shall be provided on all pools, except spa pools of less than 100 square feet (9 m^2) of pool water surface area and pools utilizing erosion type chlorinators feeding chlorinated isocyanurates. PH adjustment feeders shall be positive displacement type, shall be adjustable from 0 to full range, and shall have an electrical interlock with the circulation pump to prevent discharge when the recirculation pump is not operating. When soda ash is used for PH adjustment, the maximum concentration of soda ash solution to be fed shall not exceed $\frac{1}{2}$ -pound (.2 kg) soda ash per gallon of water. Feeders for soda ash shall be capable of feeding a minimum of 3 gallons (11 L) of the above soda ash solution per pound of gas chlorination capacity. The minimum size of the solution reservoirs shall not be less than 50 percent of the maximum daily capacity of the feeder. The solution reservoirs shall be marked to indicate the type of contents.

424.1.6.5.16.4 Ozone generating equipment. Ozone generating equipment may be used for supplemental water treatment on public swimming pools subject to the conditions of this section.

424.1.6.5.16.4.1 Ozone generating equipment electrical components and wiring shall comply with the requirements of the Chapter 27 of the *Florida Building Code, Building* and the manufacturer shall provide a certificate of conformance. The process equipment shall be provided with an effective means to alert the user when a component of this equipment is not operating.

424.1.6.5.16.4.2 Ozone generating equipment shall meet the NSF/ANSI Standard 50.

424.1.6.5.16.4.3 The concentration of ozone in the return line to the pool shall not exceed 0.1 mg/L.

424.1.6.5.16.4.4 The injection point for ozone generating equipment shall be located in the pool return line after the filtration and heating equipment, prior to the halogen injection point, and as far as possible from the nearest pool return inlet with a minimum distance of 4 feet

(1219 mm). Injection methods shall include a mixer, contact chamber, or other means of efficiently mixing the ozone with the recirculated water. The injection and mixing equipment shall not prevent the attainment of the required turnover rate of the recirculation system. Ozone generating equipment shall be equipped with a check valve between the generator and the injection point. Ozone generating equipment shall be equipped with an air flow m and a means to control the flow.

424.1.6.5.16.4.5 Ventilation requirements. Ozone generating equipment shall be installed in equipment rooms with either forced draft or cross draft ventilation. Below-grade equipment rooms with ozone generators shall have forced draft ventilation and all equipment rooms with forced draft ventilation shall have the fan control switch located outside the equipment room door. The exhaust fan intake for forced draft ventilation and at least one vent grille for cross draft ventilation shall be located at floor level.

424.1.6.5.16.4.6 A self-contained breathing apparatus designed and rated by its manufacturer for use in ozone contaminated air shall be provided when ozone generator installations are capable of exceeding the maximum pool water ozone contact concentration of 0.1 milligram per liter. The self-contained breathing apparatus shall be available at all times and shall be used at times when the maintenance or service personnel have determined that the equipment room ozone concentration exceeds 10 mg/L. Ozone generator installations which require the self-contained breathing apparatus shall also be provided with Draeger-type detector tube equipment which is capable of detecting ozone levels of 10 mg/L and greater.

Exception: In lieu of the self-contained breathing apparatus an ozone detector capable of detecting 1 mg/L may be used. Said detector shall be capable of stopping the production of ozone, venting the room and sounding an alarm once ozone is detected.

424.1.6.5.16.5 Ionization units may be used as supplemental water treatment on public pools subject to the condition of this section.

424.1.6.5.16.5.1 Ionization equipment and electrical components and wiring shall comply with the requirements of Chapter 27 of the *Florida Building Code, Building* and the manufacturer shall provide a certification of conformance.

424.1.6.5.16.5.2 Ionization equipment shall meet the NSF/ANSI Standard 50, *Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs,* or equivalent,

shall meet UL standards and shall be electrically interlocked with recirculation pump.

424.1.6.5.16.6 Ultraviolet (UV) light disinfectant equipment may be used as supplemental water treatment on public pools (and additional treatment on IWF's) subject to the conditions of this paragraph and manufacturer's specifications. UV is encouraged to be used to eliminate or reduce chlorine-resistant pathogens, especially the protozoan *Cryptosporidium*.

- 1. UV equipment and electrical components and wiring shall comply with the requirements of the *National Electrical Code* and the manufacturer shall provide a certification of conformance to the department.
- 2. UV equipment shall meet UL standards and shall be electrically interlocked with recirculation pump(s) on all pools and with feature pumps(s) on an IWF such that when the UV equipment fails to produce the required dosage as measured by an automated sensor, the feature pump(s) are disabled so the water features do not operate.
- 3. UV equipment shall be validated by a capable party that it delivers the required and predicted UV dose at the validated flow, lamp power and water UV transmittance conditions, and has complied with all professional practices summarized in the USEPA Ultraviolet Disinfectant Guidance Manual dated November 2006, which is publication number EPA 815-R-06-007 available from the department at http://www.floridashealth.org/Environment/water/swim/index.html or at http://www.epa.gov/safewater/disinfection/1t2/pdfs/guide_1t2_uvguidance.pdf.
- 4. UV equipment shall constantly produce a validated dosage of at least 40 mJ/cm² (milliJoules per square centimeter) at the end of lamp life.
- 5. The UV equipment shall not be located in a side stream flow and shall be located to treat all water returning to the pool or water features.

424.1.7 Wading pools.

424.1.7.1 General. Wading pools shall meet the requirements of Sections 424.1.1 through 424.1.6.5, unless otherwise indicated. Wading pools and associated piping shall not be physically connected to any other swimming pools and have no minimum width dimensions requirements.

424.1.7.2 Depths. Wading pools shall have a maximum of 2 feet (610 mm). The depth at the perimeter of the pool shall be uniform and shall not exceed 12 inches (305 mm). However, where department-approved zero depth entry designs are used, this uniform depth requirement must be met only on the remainder of the pool outside the

zero depth entry portion. The pool floor shall not be more than 12 inches (305 mm) below the deck unless steps and handrails are provided. Depth and "NO DIVING" markers are not required on wading pools.

424.1.7.3 Recirculation. Wading pools shall have a minimum of one turnover every hour. Lines from main drains shall discharge into a collector tank.

424.1.7.3.1 Skimmer equalizer lines when required shall be plumbed into the main drain installed in the pool floor with a grate covering.

424.1.7.3.2 The grate cover shall be sized so as not to allow the flow to exceed $1^{1}/_{2}$ feet per second (457 mm/s) when the equalizer line is operating.

424.1.7.4 Inlets. Wading pools with 20 feet (6096 mm) or less of perimeter shall have a minimum of two equally spaced adjustable inlets.

424.1.7.5 Emergency drainage. All wading pools shall have drainage to waste without a cross connection through a quick opening valve to facilitate emptying the wading pool should accidental bowel or other discharge occur.

424.1.7.6 Vacuuming. Wading pools with 200 square feet (19 mm) or more of pool water surface area shall have provisions for vacuuming.

424.1.7.7 Wading pool decks. When adjacent to swimming pools, wading pools shall be separated from the swimming pool by barrier or a fence of a minimum of 48 inches (1219 mm) in height with self-latching and self-closing gates. When adjacent to areas less than one foot (305 mm) deep of zero depth entry pools, the fence or effective barrier is required if the water edges are less than 40 feet (12 192 mm) apart. Wading pools shall have a minimum 10-foot (3048 mm) wide deck around at least 50 percent of their perimeter with the remainder of the perimeter deck being at least 4 feet (1219 mm) wide. There shall be at least 10 feet (3048 mm) between adjacent swimming pools and wading pools.

424.1.7.8 Lighting. Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use.

424.1.8 Spa pools.

424.1.8.1 General. Spa pools shall meet the requirements of Sections 424.1.1 through 424.1.6.5, unless specifically indicated otherwise.

424.1.8.2 Color, pattern, finish. The color, pattern or finish of the pool interior shall not obscure the existence or presence of objects or surfaces within the pool.

424.1.8.3 Water depths. Spa type pools shall have a minimum water depth of $2^{1}/_{2}$ feet (762 mm) and a maximum water depth of 4 feet (1219 mm), except that swim spa pools may have a maximum water depth of 5 feet (1524 mm). Depth markers and "NO DIVING" markers are not required on spa-type pools with 200 square feet (19 m²) or less of water surface area.

424.1.8.4 Steps and handrails. Steps or ladders shall be provided and shall be located to provide adequate entrance to and exit from the pool. The number of sets of steps or ladders required shall be on the basis of one for each 75 feet (22 860 mm), or major fraction thereof, of pool perimeter. Step sets for spa type pools with more than 200 square feet of pool water surface area shall comply with Section 424.1.2.5. Step sets for spa-type pools with 200 square feet (19 m^2) or less of pool water surface area shall comply with the following: Step treads shall have a minimum width of 10 inches (254 mm) for a minimum continuous tread length of 12 inches (305 mm). Step riser heights shall not exceed 12 inches (305 mm). Intermediate treads and risers between the top and bottom treads and risers shall be uniform in width and height, respectively. Contrasting markings on the leading edges of the submerged benches and the intersections of the treads and risers are required to be installed in accordance with Section 424.1.2.5.

424.1.8.4.1 Handrails shall be provided for all sets of steps and shall be anchored in the bottom step and in the deck. Handrails shall be located to provide maximum access to the steps and handrails shall extend 28 inches (711 mm) above the pool deck.

424.1.8.4.2 Where "figure 4" handrails are used, they shall be anchored in the deck and shall extend laterally to any point vertically above the bottom step. Handrails shall be located to provide maximum access to the steps and handrails shall extend 28 inches (711 mm) above the pool deck.

424.1.8.5 Decks. Decks shall have a minimum 4-foot-wide (1219 mm) unobstructed width around the entire pool perimeter except that pools of less than 120 square feet (11 m²) of pool water surface area shall have a minimum 4-foot-wide (1219 mm)unobstructed continuous deck around a minimum of 50 percent of the pool perimeter. Decks less than 4 feet (1219 mm) wide shall have barriers to prevent their use. Decks shall not be more than 10 inches (254 mm) below the top of the pool. For pools of 120 square feet (11 m²) or greater, 10 percent of the deck along the pool perimeter may be obstructed.

424.1.8.6 Therapy or jet systems.

424.1.8.6.1 The return lines of spa-type therapy or jet systems shall be independent of the recirculation-filtration and heating systems.

424.1.8.6.2 Therapy or jet pumps shall take suction from the collector tank. Collector tank sizing shall take this additional gallonage into consideration.

424.1.8.7 Filtration system inlets. Spa-type pools with less than 20 feet (6096 mm) of perimeter shall have a minimum of two equally spaced adjustable inlets.

424.1.8.8 Filtration recirculation. Spa-type pools shall have a minimum of one turnover every 30 minutes. The piping, fittings, and hydraulic requirements shall be in accordance with Section 424.1.6.5. All recirculation lines to and from the pool shall be individually valved

with proportional flow-type valves in order to control the recirculation flow.

424.1.8.9 Vacuuming. Spa-type pools of over 200 square feet (19 m^2) of pool water surface area shall have provisions for vacuuming.

424.1.8.10 Combination spas/pools. When spa pools are part of a conventional swimming pool, the spa pool area shall be offset from the main pool area with the same water depth as the main pool area. The spa pool shall meet all the spa pool requirements of this chapter, and the deck area at the spa shall be protected by connected 30-inch-high (762 mm) stanchions. The deck perimeter at the offset spa area shall not exceed 15 percent of the entire swimming pool perimeter. All benches shall have contrasting markings on the leading edges of the intersection of the bench seats. If tile is used, it shall be slip resistant.

424.1.8.11 Portable and wooden spa pools. Portable and wooden-type spa pools are prohibited.

424.1.9 Water recreation attractions and specialized pools.

424.1.9.1 General. Water recreation attraction projects shall be designed and constructed within the limits of sound engineering practice. In addition to the requirements of this section, compliance is required with Sections 424.1.1 through 424.1.6.5 of this chapter depending upon the pool design and function. Additionally, all pools listed in this section shall have a 2-hour turnover rate unless otherwise noted.

424.1.9.2 Water slides.

424.1.9.2.1 Water slide plunge pool. Plunge pools shall be constructed of concrete or other structurally rigid impervious materials with a nontoxic, smooth and slip resistant finish. The plunge pool design shall meet the criteria of Sections 424.1.9.2.1.1 through 424.1.9.2.1.7.

424.1.9.2.1.1 Plunge pool water depth. The minimum plunge pool operating water depth at the slide flume terminus shall be 3 feet (914 mm). This depth shall be maintained for a minimum distance of 10 feet (3048 mm) in front of the slide terminus from which point the plunge pool floor may have a constant upward slope to allow a minimum water depth of 2 feet (51 mm) at the base of the steps. The floor slope shall not exceed 1 in 10. The plunge pool water depth shall be commensurate with safety and the ease of exit from the plunge pool.

424.1.9.2.1.2 Plunge pool dimension. The plunge pool dimension between any slide flume exit or terminus and the opposite side of the plunge pool shall be a minimum of 20 feet (6096 mm) excluding steps.

424.1.9.2.1.3 Slide flume terminus.

424.1.9.2.1.3.1 The slide flume terminus shall be designed by the design engineer who can demonstrate to the department's satisfaction

that riders will be adequately slowed prior to discharge so as to prevent injury or harm to the rider upon impact with the plunge pool water. The slide terminus shall be flush with the pool wall and located at or below the pool water level.

424.1.9.2.1.3.2 The minimum distance between any plunge pool side wall and the outer edge of any slide terminus shall be 5 feet (1524 mm). The minimum distance between adjacent slide flumes shall be 6 feet (18 288 mm).

424.1.9.2.1.3.3 A minimum length of slide flume of 10 feet (3048 mm) shall be perpendicular to the plunge pool wall at the exit end of the flumes.

424.1.9.2.1.4 Plunge pool main drains. The plunge pool shall have a minimum of one main drain with separate piping and valve to the filtration system collector tank. The velocity through the openings of the main drain grate shall not exceed $1^{1}/_{2}$ feet per second (457 mm/s) at the design flow rate of the recirculation pump. The main drain piping shall be sized to handle 100 percent of the design flow rate of the filtration system with a maximum flow velocity of 3 feet (914 mm) per second.

424.1.9.2.1.5 Plunge pool floor slope. The plunge pool floor shall slope to the main drains and the slope shall not exceed 1 in 10.

424.1.9.2.1.6 Plunge pool decks.

424.1.9.2.1.6.1 Width. The minimum width of plunge pool decks along the exit side shall be 10 feet (3048 mm).

424.1.9.2.1.6.2 Slopes. All plunge pool decks shall slope to the plunge pool or pump reservoir or to deck drains which discharge to waste, or other acceptable means. All slopes shall be between 2- and 4-percent grade.

424.1.9.2.2 Run out lanes.

424.1.9.2.2.1 Run out lanes may be utilized in lieu of a plunge pool system, provided they are constructed to the slide manufacturers specifications and are approved by the design engineer of record.

424.1.9.2.2. Five-foot-wide (1524 mm) walk-ways shall be provided adjacent to run out lanes.

424.1.9.2.2.3 Minimum water level indicator markings shall be provided on both sides of the run out trough to ensure adequate water for the safe slowing of pool patrons.

424.1.9.2.2.4 Water park personnel shall be provided at the top of the slides and at the run out.

424.1.9.2.3 Pump reservoirs. Pump reservoirs shall be made of concrete or other impervious material with a smooth slip-resistant finish. Pump reservoirs shall be for the slide pump intakes, but where properly

sized may also be used as a collector tank for the filter system. Pump reservoir designs shall meet the criteria of Sections 424.1.9.2.3.1 through 424.1.9.2.3.5.

424.1.9.2.3.1 Pump reservoir volume. The minimum reservoir volume shall be equal to 2 minutes of the combined flow rate in gallons per minute of all filter and slide pumps.

424.1.9.2.3.2 Pump reservoir security. Pump reservoirs shall be accessible only to authorized individuals.

424.1.9.2.3.3 Pump reservoir maintenance accessibility. Access decks shall be provided for the reservoir such that all areas are accessible for vacuuming, skimming, and maintenance. The decks shall have a minimum width of 3 feet (914 mm) and shall have a minimum slope of 3:10 away from the reservoir.

424.1.9.2.3.4 Pump reservoir slide pump intakes. The slide pump intakes shall be located in the pump reservoir and shall be designed to allow cleaning without danger of operator entrapment.

424.1.9.2.3.5 Pump reservoir main drains. The pump reservoir shall have a minimum of one main drain with separate piping and valve to the filtration system collector tank and the velocity through the openings of the main drain grates shall not exceed $1\frac{1}{2}$ feet per second (457 mm/s) at the design flow rate of the filtration system pump. The main drain piping shall be sized to handle 100 percent of design flow rate of the filtration system pump with a maximum flow velocity of 3 feet per second (914 mm/s).

424.1.9.2.3.6 The pump reservoir shall be fed by main drains within the plunge pool itself (either in the floor or side wall). They shall have the maximum flow velocity of 1½ feet per second (457 mm/s) through the main drain grating and 3 feet per second (3962 mm/s) through the reservoir piping.

424.1.9.2.4 Slide pump check valves. Slide pumps shall have check valves on all discharge lines.

424.1.9.2.5 Perimeter overflow gutters or skimmers. Plunge pools and pump reservoirs shall have perimeter overflow gutter system or skimmer which shall be an integral part of the filtration system.

424.1.9.2.5.1 Perimeter overflow gutter systems. Perimeter overflow gutter systems shall meet the requirements of Section 424.1.6.5.3.1 except that gutters are not required directly under slide flumes or along the weirs which separate plunge pools and pump reservoirs.

424.1.9.2.5.2 Surface skimmers. Surface skimmers may be used in lieu of perimeter overflow gutters and shall be appropriately spaced and located according to the structural design. Unless an overflow gutter system is used, surface skimmers.

mers shall be provided in the plunge pool and in the pump reservoir and the skimmer system shall be designed to carry 60 percent of the filtration system design flow rate with each skimmer carrying a minimum 30 gpm (2 L/s). All surface skimmers shall meet the requirements for NSF commercial approval as set forth in NSF/ANSI Standard 50, *Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs*, which is incorporated by reference in these rules, including an equalizer valve in the skimmer and an equalizer line to the pool wall on systems with direct connection to pump suction.

424.1.9.2.6 Water slide recirculation-filtration equipment.

424.1.9.2.6.1 Recirculation rate. The recirculation-filtration system of water slides shall recirculate and filter a water volume equal to the total water volume of the facility in a period of 3 hours or less.

424.1.9.2.6.2 Filter areas. minimum filter area requirements shall be twice the filter areas specified for the recirculation rates stipulated in Section 424.1.6.5.5.1. The filtration system shall be capable of returning the pool water turbidity to 5/10 NTU within 8 hours or less after peak bather load.

424.1.9.2.6.3 Hair and lint strainer. Any filtration system pump which takes suction directly from the plunge pool and reservoir shall have a minimum 8-inch (208 mm) diameter hair and lint strainer on the suction side of the pump.

424.1.9.2.7 Disinfection. The disinfection equipment shall be capable of feeding 12 mg/L of halogen to the continuous recirculation flow of the filtration system.

424.1.9.2.8 Slide design and construction is the responsibility of a professional engineer licensed in Florida and the applicant.

424.1.9.2.9 A lockable gate shall be provided at the stair or ladder entrance to the slide.

424.1.9.2.10 Upon construction completion, a professional engineer licensed in Florida shall certify that the slide was constructed in accordance with the manufacturer's specifications and is structurally sound.

424.1.9.3 Water activity pools.

424.1.9.3.1 Water activity pools shall be designed and constructed within the limits of sound engineering practice. The design engineer may consult with the department prior to preparation and submission of engineering plans and specifications for water activity pools.

424.1.9.3.2 Water activity pools shall be constructed of concrete or other structurally rigid impervious materials with a nontoxic, smooth and slip-resistant finish. These pools shall be of such shape and design as to be operated and maintained in a safe and sanitary manner.

424.1.9.3.3 The recirculation-filtration system of water activity pools shall achieve a minimum of one turnover every 2 hours for water activity pools over 2 feet (610 mm) deep, and in 1 hour for these pools that are 2 feet (610 mm) deep or less.

424.1.9.3.4 Those portions of the activity pool where the water depth will not allow for the proper installation of underwater lighting, shall be provided with 6 foot-candles (60 lux) of lighting on the deck and water surface.

424.1.9.3.5 Fence requirements shall be in accordance with Section 424.1.7.7.

424.1.9.3.6 Play features with an overhead clearance of less than 4 feet (1219 mm) shall be blocked or barricaded to preclude children becoming entrapped.

424.1.9.4 Wave pools.

424.1.9.4.1 Wave pools shall be designed and constructed within the limits of sound engineering practice.

424.1.9.4.2 Wave pools shall be constructed of concrete or other impervious materials with a smooth slip-resistant finish. These pools shall be of such shape and design as to be operated and maintained in a safe and sanitary manner.

424.1.9.4.3 The recirculation-filtration system of wave pools shall be capable of a minimum of one turnover every 3 hours.

424.1.9.4.4 Floors shall be sloped in accordance with the manufacturer's or design engineer's specifications; however, they shall not exceed the slope limits of Section 424.1.2.2.3.

424.1.9.5 River rides.

424.1.9.5.1 River rides shall be constructed within the limits of sound engineering practice.

424.1.9.5.2 River rides shall be constructed on concrete or other impervious materials with a nontoxic, smooth and slip-resistant finish. These rides shall be of such shape and design as to be operated in a safe and sanitary manner.

424.1.9.5.3 The recirculation-filtration system of the river ride shall be capable of a minimum of one turn-over every 3 hours.

424.1.9.5.4 The maximum water depth of the river ride shall not exceed 3 feet (914 mm) unless justified to the department's satisfaction by the design engineer.

424.1.9.5.5 Decking shall be provided at the entrance and exit points as necessary to provide safe patron access but shall not be smaller than 10 feet (3048 mm) in width and length. Additional decking along the ride course is not required except that decking shall be required at lifeguard locations and emergency exit points.

424.1.9.5.6 Access and exit shall be provided at the start and end of the ride and additional exit locations shall be located along the ride course as necessary to provide for the safety of the patrons.

Propulsion jets shall be installed in the walls of the river ride. In the alternative, propulsion jets may be installed in the floor if they are covered by a grate that will inhibit entrapment or injury of the pool patrons' feet or limbs.

424.1.9.6 Zero depth entry pools.

424.1.9.6.1 Zero depth entry pools shall have a continuous floor slope from the water edge to the deep end.

424.1.9.6.2 The deck level perimeter overflow system with grate shall be provided at the waters edge across the entire zero depth portion of the pool.

424.1.9.6.3 The pool deck may slope toward the pool for no more than 5 feet (1524 mm), as measured from the overflow system grate outward. Beyond this area the deck shall slope away from the pool in accordance with Section 424.1.2.2.3.

424.1.9.6.4 "No-Entry, Shallow Water" signs shall be provided along the pool wall edge where the water depth is less than 3 feet (914 mm) deep. No-entry signs shall be slip-resistant, shall have 4-inch-high (102 mm) letters, shall be located within 2 feet (610 mm) of the pool edge and shall be spaced no more than 15 feet (4572 mm) apart.

424.1.9.6.5 Additional inlets shall be provided in areas of less than 18 inches (457 mm) deep. The numbers and location shall be such as to double the flow rate into this area.

424.1.9.6.6 The recirculation-filtration system shall be of a minimum of one turnover every 2 hours in the area of the pool that is 3 feet (914 mm) deep or less. In the remainder of the pool where the depth is greater than 3 feet (914 mm), the system shall have a maximum 6 hour turnover rate. The design plans submitted by the applicant shall provide the volume of water in the pool area of 3 feet (914 mm) depth and less, the volume of water in the pool area greater than 3 feet (914 mm) in depth and the total volume in the pool for determination of minimum circulation flow. The volume calculations shall provide verification that the correct volume of water is used to determine the minimum flow at the 2-hour and the 6-hour flow requirements.

424.1.9.6.7 Those portions of the zero depth entry pool, where the water depth will not allow for the proper installation of underwater lighting, shall be provided with 6 foot-candles (60 lux) of lighting on the deck and the water.

424.1.9.6.8 Play structures in a zero depth entry area [in depth 0-3 feet (0 to 914 mm)] may be within 15 feet (4572 mm) of the pool walls, but shall comply with sound engineering requirements for the safety of pool patrons.

424.1.9.7 Special purpose pools.

424.1.9.7.1 General. Special purpose pool projects may deviate from the requirements of other sections of these rules provided the design and construction are within the limits of sound engineering practice. Only those deviations necessary to accommodate the special usage shall be allowed and all other aspects of the pool shall comply with the requirements of this section and with Section 424.1.2.

424.1.9.7.2 A special purpose pool may incorporate ledges which do not overhang into the pool.

424.1.9.8 Interactive water features (IWFs).

424.1.9.8.1 Waters discharged from all fountain or spray features shall not pond on the feature floor but shall flow by gravity through a main drain fitting to a below or collection system which discharges to a collector tank. The minimum size of the collector tank shall be equal to the volume of 2 minutes of the combined flow of all feature pumps and the filter pump. Smaller tanks may be utilized if hydraulically justified by the design engineer. Adequate access shall be provided to the sump or collector tank. Stairs or a ladder shall be provided as needed to ensure safe entry into the tank.

424.1.9.8.2 An automatic skimmer system shall be provided in the collector tank. A variable height skimmer may be used or a custom surface skimmer device may be substituted if deemed appropriate by both the design engineer and the department.

424.1.9.8.3 Chemical feeders shall be in accordance with Section 424.1.6.5; except that the disinfection feeder shall be capable of feeding 12 ppm of free chlorine to the filter return piping (based upon a hypothetical 30-minute turnover of the contained volume within the system).

424.1.9.8.4 If night operation is proposed, 6 footcandles (60 lux) of light shall be provided on the pool deck and the water feature area. Lighting that may be exposed to the feature pool water shall not exceed 15 volts, shall be installed in accordance with manufacturer's specifications and be approved for such use by UL or NSF.

424.1.9.8.5 All electrical work shall comply with Chapter 27 of the *Florida Building Code, Building.*

424.1.9.8.6 Hydraulics.

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424.1.9.8.6.1 The filter system shall filter and chemically treat all water that is returned to the spray features. The filter system shall draft from the collector tank and return filtered and treated water directly to the spray features. Excess water not required by the spray features shall be returned to the collector tank.

424.1.9.8.6.2 The water feature pump shall draft from the collector tank.

424.1.9.8.6.3 Alternatively, the contained volume of the system may be filtered and chemically treated based upon a 30-minute turnover of the contained

volume with 100 percent returned to the collector tank by manifold piping. If this alternative is chosen, all water returned to the spray feature(s) must also be treated with an Ultraviolet (UV) light disinfection equipment to accomplish protozoan destruction in accordance with sound engineering and the requirements of Section 424.1.6.5.16.6. This alternative must have the ability to feed 6 mg/L free chlorine to the feature water as it is returned to the spray feature. The UV disinfection equipment shall be electrically interconnected such that whenever it fails to produce the required UV dosage, the water spray features pump(s) and flow will be immediately stopped.

424.1.9.8.6.4 The flow rate through the feature nozzles of the water features shall be such as not to harm the patrons and shall not exceed 20 feet per second (6096 mm/s) unless justified by the design engineer and by the fountain system manufacturer.

424.1.9.8.6.5 An automatic water level controller shall be provided.

424.1.9.8.6.6 An overfill waste line with air gap shall * be provided.

424.1.9.8.6.7 A means of vacuuming and completely draining the tank(s) shall be provided.

424.1.9.8.6.8 Where the filter system described in Section 424.1.9.8.6.1 is utilized, a second filter system and disinfection system shall be provided to treat the water in the collector tank when the feature/filter pump is not in operation. Said system shall be capable of filtering the total volume of water in the collector tank in 30 minutes and the disinfection system shall be capable of providing 12 mg/L of disinfectant to this flow rate.

424.1.9.8.6.9 IWFs shall be fenced in the same fashion as wading pools as noted in Section 424.1.7.7. Where the IWF is at least 50 feet (15 240 mm) from all other pools and is not designed to have any standing water, fencing requirements should be carefully considered by the applicant to control usage, but are not required by rule.

424.1.9.8.6.10 A minimum 4-foot-wide (1219 mm) wet deck area shall be provided around all IWFs. The wet deck shall meet the requirements of Section 424.1.2.2.3; however, up to 50 percent of the perimeter may be obstructed.

424.1.9.8.6.11 IWFs shall be constructed of concrete or other impervious and structurally rigid material.

424.1.9.8.6.12 Floor slopes of an IWF shall be a maximum 1 foot (305 mm) vertical in 10 feet (3048 mm) horizontal and a minimum of 1 foot (305 mm) vertical in 50 feet (15 240 mm) horizontal.

424.1.9.8.7 Water theme parks shall meet all other aspects of these rules for the features provided.

424.1.9.8.7.1 Rules and regulations for water theme parks shall be posted in minimum 1-inch (305 mm)

letters at each entrance to the park and shall contain the following:

- 1. No food, drink, glass or animals in or on the pool decks.
- 2. Park operating hours ____A.M. to ___P.M.
- 3. Shower before entering.
- 4. Do not swallow the pool water.

424.1.9.8.7.2 Showers shall be provided at or near the entrance (queue line) to a water recreation attraction.

424.1.9.8.7.3 Water theme parks are exempt from the fencing requirements of Section 424.1.3.1.9, except that pools designed for small children shall be fenced when located within 50 feet (15 240 mm) of a pool with water depths of 3 feet (914 mm) or more.

424.1.9.8.7.4 Sanitary facilities within a water theme park shall be as near to the water recreation attractions as prudent to ensure patron use, but not over 200 feet (60 960 mm) walking distance from any exit of a water attraction.

424.1.10 Modifications.

424.1.10.1 Modifications. Modifications include nonequivalent changes or additions to the recirculation system, treatment equipment, physical structure or appurtenances. Replacement of the pool or spa shell is considered to be construction of a new facility and shall be processed as such. The installation of new decking is not considered a modification if it is installed in conformance with Section 424.1.3.1, and deck markings are upgraded in accordance with Section 424.1.2.3. Resurfacing the pool interior to original nontoxic, slip-resistant and smooth specifications or equivalent replacement of equipment are not considered modifications. However, the following items shall be addressed during resurfacing projects:

424.1.10.1.1 The lip of the gutter must be leveled to within ¹/₄ inch (6.4 mm) between the highest and lowest point and the downward slope from the lip to the drain must be maintained as originally designed or increased, but shall not exceed new construction standards.

424.1.10.1.2 Tile step markings must be installed meeting the requirements of Section 424.1.2.5.3.

424.1.10.1.3 Where applicable the slope break marking must be installed meeting the requirements of Section 424.1.2.2.3.2 and safety line must be installed 2 feet (610 mm) before the marking.

424.1.10.1.4 Depth markers and NO DIVING markers must be installed in accordance with Section 424.1.2.3.

424.1.10.1.5 The pool ladder must have a 3 to 6 inch (76 to 152 mm) clearance from the pool wall. New cross-braced ladder(s) shall be installed in place of noncross-braced ladder(s) in conformance with Section 424.1.2.5.1 during a pool resurfacing.

424.1.10.1.6 Should resurfacing works affect the step riser heights, no riser shall exceed 12 inches (305 mm) and the intermediate risers shall be made uniform.

424.1.10.1.7 When fiberglass is used to resurface a pool any existing tile shall not be covered by the fiberglass finish.

424.1.10.1.8 The applicable governing body shall be notified in writing of any proposed pool resurfacing or upgrades to decking at least 10 days prior to commencement. The notification shall include an itemized list of all proposed work that is to be performed, the license number of the contractor selected and shall indicate that all work will meet the requirements of this section.

424.1.10.1.9 Recessed treads that protrude from the pool wall shall be removed and replaced with a cross-braced ladder or reconstructed to meet the requirements of Section 424.1.2.5.2.

424.1.10.2 The painting of pools shall not be considered a modification provided the following conditions are met:

- 1. Only paints designated by the manufacturer as pool paints are used.
- 2. All step stripes, slope break markers and safety line, and depth and NO DIVING markings shall be provided to comply with the applicable provision(s) this section.

424.1.10.3 The installation of copper or copper/silver ionization units and ozone generators capable of producing less than a pool water ozone contact concentration of 0.1 milligrams per liter (mg/L) shall not be considered a pool modification provided compliance when the following is met:

- 1. The ionization or ozone generator unit complies with paragraph 64E-9.007(16)(e), *Florida Administrative Code*.
- 2. The manufacturer provides one set of signed and sealed engineering drawings indicating the following:
 - a. The unit does not interfere with the design flow rate.
 - b. The unit and the typical installation meet the requirements of the *National Electrical Code*.
 - c. A copper test kit and information regarding the maximum allowed copper and silver level and the minimum required chlorine level shall be available to the pool owner.
 - d. The unit shall meet the requirements of the NSF/ANSI Standard 50.
- 3. At least 7 days before the time of installation, the installer will provide a photocopy of the above drawings and a letter of intent identifying the pool on which the unit is to be installed.
- 4. Upon completion of the installation, a professional engineer or electrician licensed in the state of Florida shall provide a letter to the county

health department, indicating the unit was properly installed in accordance with the typical drawings, the *National Electrical Code* and local codes.

424.2 Private swimming pools.

424.2.1 Definitions-general.

424.2.1.1 Tense, gender and number. For the purpose of this code, certain abbreviations, terms, phrases, words, and their derivatives shall be construed as set forth in this section. Words used in the present tense include the future. Words in the masculine gender include the feminine and neuter. Words in the feminine and neuter gender include the masculine. The singular number includes the plural and the plural number includes the singular.

424.2.1.2 Words not defined. Words not defined herein shall have the meanings stated in the *Florida Building Code, Building; Florida Building Code, Mechanical; Florida Building Code, Plumbing; Florida Building Code, Fuel Gas;* or *Florida Fire Prevention Code.* Words not defined in the *Florida Building Code* shall have the meanings stated in the *Webster's Ninth New Collegiate Dictionary,* as revised.

424.2.2 Definitions.

ABOVE-GROUND/ON-GROUND POOL. See "Swimming pool."

ADMINISTRATIVE AUTHORITY. The individual official, board, department or agency established and authorized by a state, county, city or other political subdivision created by law to administer and enforce the provisions of the swimming pool code as adopted or amended.

APPROVED. Accepted or acceptable under an applicable specification stated or cited in this code, or accepted as suitable for the proposed use under procedures and power of the administrative authority.

APPROVED SAFETY COVER. A manually or power-applied safety pool cover that meets all of the performance standards of ASTM International in compliance with ASTM F 1346.

APPROVED TESTING AGENCY. An organization primarily established for the purpose of testing to approved standards and approved by the administrative authority.

BACKWASH PIPING. See "Filter waste discharge piping."

BARRIER. A fence, dwelling wall or nondwelling wall or any combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool, especially access from the residence or from the yard outside the barrier.

BODY FEED. Filter aid fed into a diatomite-type filter throughout the filtering cycle.

CARTRIDGE FILTER. A filter using cartridge type filter elements.

CHEMICAL PIPING. Piping which conveys concentrated chemical solutions from a feeding apparatus to the circulation piping.

CIRCULATION PIPING SYSTEM. Piping between the pool structure and the mechanical equipment. Usually includes suction piping, face piping and return piping.

COMBINATION VALVE. A multipart valve intended to perform more than one function.

DESIGN HEAD. Total head requirement of the circulation system at the design rate of flow.

DIATOIMTE (DIATOAMCEOUS EARTH). A type of filter aid.

DIATOIMTE TYPE FILTER. A filter designed to be used with filter aid.

DIRECT ACCESS FROM THE HOME. Any opening which discharges into the "perimeter" of the pool or any opening in an exterior dwelling wall, or interior wall (for indoor pools) which faces the pool.

EXIT ALARM. A device that makes audible, continuous alarm sounds when any door or window which permits access from the residence to any pool that is without an intervening enclosure is opened or left ajar.

FACE PIPING. Piping, with all valves and fittings, which is used to connect the filter system together as a unit.

FILTER. Any apparatus by which water is clarified.

FILTER AID. A nonpermanent type of filter medium or aid such as diatomite, alum, etc.

FILTER CARTRIDGE. A disposable or renewable filter element which generally employs no filter aid.

FILTER ELEMENT. That part of a filter which retains the filter medium.

FILTER MEDIUM. Fine material which entraps the suspended particles and removes them from the water.

FILTER RATE. Average rate of flow per square foot of filter area.

FILTER ROCK. Specially graded rock and gravel used to support filter sand.

FILTER SAND. A specially graded type of permanent filter medium.

FILTER SEPTUM. That part of the filter element in a diatomite type filter upon which a cake of diatomite or other nonpermanent filter aid may be deposited.

FILTER WASTE DISCHARGE PIPING. Piping that conducts waste water from a filter to a drainage system. Connection to drainage system is made through an air gap or other approved methods.

FRESH WATER. Those waters having a specific conductivity less than a solution containing 6,000 ppm of sodium chloride.

HIGH RATE SAND FILTER. A sand filter designed for flows in excess of 5 gpm (.3 L/s) per square foot.

HOT TUB. See "Swimming pool."

INGROUND POOL. See "Swimming pool."

INLET FITTING. Fitting or fixture through which circulated water enters the pool.

MAIN SUCTION OUTLET. Outlet at the deep portion of the pool through which the main flow of water leaves the pool when being drained or circulated.

MESH SAFETY BARRIER. A combination of materials, including fabric, posts, and other hardware to form a barrier around a swimming pool.

MEDICALLY FRAIL ELDERLY PERSON. Means any person who is at least 65 years of age and has a medical problem that affects balance, vision, or judgment, including but not limited to a heart condition, diabetes, or Alzheimer's disease or any related disorder.

POOL. See "Swimming pool."

POOL DEPTHS. The distance between the floor of pool and the maximum operating water level.

POOL PERIMETER. A pool perimeter is defined by the limits of the pool deck, its surrounding area including yard area on same property, and any dwelling or nondwelling wall or any combination thereof which completely surrounds the pool.

POOL PLUMBING. All chemical, circulation, filter waste discharge piping, deck drainage and water filling system.

PORTABLE POOL. A prefabricated pool which may be erected at the point of intended use and which may be subsequently disassembled and recrected at a new location. Generally installed on the surface of the ground and without excavation.

PRECOAT. In a diatomite-type filter, the initial coating or filter aid placed on the filter septum at the start of the filter cycle.

RAPID SAND FILTER. A filter designed to be used with sand as the filter medium and for flows not to exceed 5 gpm (.3 L/s) per square foot.

RECEPTOR. An approved plumbing fixture or device of such material, shape and capacity as to adequately receive the discharge from indirect waste piping, so constructed and located as to be readily cleaned.

RESIDENTIAL. Situated on the premises of a detached one- or two-family dwelling or a one-family townhouse not more than three stories high.

RETURN PIPING. That portion of the circulation piping which extends from the outlet side of the filters to the pool.

SALINE WATER. Those waters having a specific conductivity in excess of a solution containing 6,000 ppm of sodium chloride.

SEPARATION TANK. A device used to clarify filter rinse or waste water; sometimes called a "reclamation tank."

SKIM FILTER. A surface skimmer combined with a vacuum diatomite filter.

SPA, NONPORTABLE. See "Swimming pool."

SPA, PORTABLE. Nonpermanent structure intended for recreational bathing, in which all controls and water heating

and water circulating equipment are an integral part of the product and which is cord-connected and not permanently electrically wired.

SUCTION PIPING. That portion of the circulation piping located between the pool structure and the inlet side of the pump and usually includes main outlet piping, skimmer piping, vacuum piping and surge tank piping.

SURFACE SKIMMER. A device generally located in the pool wall which skims the pool surface by drawing pool water over a self-adjusting weir.

SWIMMING POOL, PRIVATE. Any structure, located in a residential area, that is intended for swimming or recreational bathing and contains water over 24 inches (610 mm) deep including but not limited to inground, aboveground, and onground swimming pools, hot tubs, and nonportable spas.

SWIMMING POOL, INDOOR. A swimming pool which is totally contained within a structure and surrounded on all four sides by walls of said structure.

SWIMMING POOL, OUTDOOR. Any swimming pool which is not an indoor pool.

SWIMMING POOL, PUBLIC. A watertight structure of concrete, masonry, fiberglass, stainless steel or plastic which is located either indoors or outdoors, used for bathing or swimming by humans, and filled with a filtered and disinfected water supply, together with buildings, appurtenances and equipment used in connection therewith. A public swimming pool or public pool shall mean a conventional pool, spa-type pool, wading pool, special purpose pool or water recreation attraction, to which admission may be gained with or without payment of a fee and includes, pools operated by or serving camps, churches, cities, counties, day care centers, group home facilities for eight or more clients, health spas, institutions, parks, state agencies, schools, subdivisions; or the cooperative living-type projects of five or more living units, such as apartments, boarding houses, hotels, mobile home parks, motels, recreational vehicle parks and townhouses.

SWIMMING POOL, RESIDENTIAL. See "Swimming pool, private."

TURNOVER TIME. The time in hours required for the circulation system to filter and recirculate a volume of water equal to the pool volume.

VACUUM FITTING. A fitting in the pool which is used as a convenient outlet for connecting the underwater suction cleaning equipment.

VACUUM PIPING. The piping from the suction side of a pump connected to a vacuum fitting located at the pool and below the water level.

WASTE PIPING. See "Filter waste discharge piping."

WIDTH AND/OR LENGTH. Actual water dimension taken from wall to wall at the maximum operating water level.

YOUNG CHILD. Any person under the age of 6 years.

424.2.3 Mechanical requirements. Unless otherwise specified in this code, all piping, equipment and materials used in

the process piping system of swimming pools that are built in place shall conform to the *Florida Building Code, Plumbing*.

424.2.4 Approvals.

424.2.4.1 Compliance. All materials, piping, valves, equipment or appliances entering into the construction of swimming pools or portions thereof shall be of a type complying with this code or of a type recommended and approved by a nationally recognized testing agency or conforming to other recognized standards acceptable to the administrative authority.

424.2.4.2 Items not covered. For any items not specifically covered in these requirements, the administrative authority is hereby authorized to require that all equipment, materials, methods of construction and design features shall be proven to function adequately, effectively and without excessive maintenance and operational difficulties.

424.2.4.3 Applicant responsibility. It shall be the responsibility of the applicant to provide such data, tests or other adequate proof that the device, material or product will satisfactorily perform the function for which it is intended, before such item shall be approved or accepted for tests.

424.2.5 Alternate materials and methods of construction.

424.2.5.1 Approval and authorization. The provisions of this code are not intended to prevent the use of any alternate material, method of construction, appliance or equipment, provided any such alternate has been first approved and its use authorized by the administrative authority.

424.2.5.2 Required tests. When there is insufficient evidence to substantiate claims for alternates, the administrative authority may require tests, as proof of compliance, to be made by an approved agency at the expense of the applicant.

424.2.6 Private swimming pools.

424.2.6.1 Conformance standard. Design, construction and workmanship shall be in conformity with the requirements of ANSI/NSPI 3, ANSI/NSPI 4, ANSI/NSPI 5, ANSI/NSPI 6, and ANSI/APSP 7.

424.2.6.2 Required equipment. Every swimming pool shall be equipped complete with approved mechanical equipment consisting of filter, pump, piping valves and component parts.

Exception: Pools with a supply of fresh water equivalent to the volume of the pool in the specified turnover time will be allowed.

424.2.6.3 Water velocity. Pool piping shall be designed so the water velocity will not exceed 10 feet per second (mm/s) for pressure piping and 8 feet per second (mm/s) for suction piping, except that the water velocity shall not exceed 8 feet per second (3048 mm/s) in copper tubing. Main suction outlet velocity must comply with ANSI/APSP 7.

Exception: Jet inlet fittings shall not be deemed subject to this requirement.

424.2.6.4 Piping to heater. Water flow through the heater, any bypass plumbing installed, any back-siphoning protection, and the use of heat sinks shall be done in accordance with the manufacturer's recommendations.

424.2.6.5 Piping installation. All piping materials shall be installed in strict accordance with the manufacturer's installation standards.

Exception: Primer and glue on exposed above-ground piping not required to be colored.

424.2.6.6 Entrapment protection for suction outlets shall be installed in accordance with requirements of ANSI/APSP 7.

424.2.7 Pumps.

424.2.7.1 Strainer. Pool circulating pumps shall be equipped on the inlet side with an approved type hair and lint strainer when used with a pressure filter.

424.2.7.2 Installation. Pumps shall be installed in accordance with manufacturer recommendations.

424.2.7.3 Capacity. Pumps shall have design capacity at the following heads.

- 1. Pressure diatomaceous earth-At least 60 feet (18 288 mm).
- 2. Vacuum D.E.–20-inch (508 mm) vacuum on the suction side and 40 feet (1219 mm) total head.
- 3. Rapid sand-At least 45 feet (13 716 mm).
- 4. High rate sand-At least 60 feet (18 288 mm).

424.2.7.4 Materials. Pump impellers, shafts, wear rings and other working parts shall be of corrosion-resistant materials.

424.2.8 Valves.

424.2.8.1 General. Valves shall be made of materials that are approved in the *Florida Building Code, Plumbing*. Valves located under concrete slabs shall be set in a pit having a least dimension of five pipe diams with a minimum of at least 10 inches (254 mm) and fitted with a suitable cover. All valves shall be located where they will be readily accessible for maintenance and removal.

424.2.8.2 Full-way (gate) valves. Full-way valves shall be installed to insure proper functioning of the filtration and piping system. When the pump is located below the overflow rim of the pool, a valve shall be installed on the discharge outlet and the suction line.

424.2.8.3 Check valves. Where check valves are installed they shall be of the swing, spring or vertical check patterns.

424.2.8.4 Combination valves. Combination valves shall be installed per the manufacturer's installation instructions.

424.2.9 Water supply. Unless an approved type of filling system is installed, any water supply which in the judgment of the administrative authority may be used to fill the pool, shall be equipped with backflow protection. No over the rim

fill spout shall be accepted unless located under a diving board, or properly guarded.

424.2.10 Waste water disposal.

424.2.10.1 Connection limitations. Direct or indirect connections shall not be made between any storm drain, sewer, drainage system, seepage pit underground leaching pit, or subsoil drainage line, and any line connected to a swimming pool unless approved by the administrative authority.

424.2.10.2 Disposal through public sewer. When the waste water from a swimming pool is to be disposed of through a public sewer, a 3-inch (76 mm) P-trap shall be installed on the lower terminus of the building drain and the tall piece from the trap shall extend a minimum of 3 inches (76 mm) above finished grade and below finished floor grade. This trap need not be vented. The connection between the filter waste discharge piping and the P-trap shall be made by means of an indirect connection.

424.2.10.3 Deviations. Plans and specifications for any deviation from the above manner of installation shall first be approved by the administrative authority before any portion of any such system is installed. When waste water disposal is to seepage pit installation, it shall be installed in accordance with the approval granted by the administrative authority.

424.2.11 Separation tank. A separation tank of an approved type may be used in lieu of the aforementioned means of waste water disposal when connected as a reclamation system.

424.2.12 Tests.

424.2.12.1 Pressure test. All pool piping shall be tested and proved tight to the satisfaction of the administrative authority, under a static water or air pressure test of not less than 35 psi (241 kPa) for 15 minutes.

Exception: Circulating pumps need not be tested as required in this section.

424.2.12.2 Drain and waste piping. All drain and waste piping shall be tested by filling with water to the point of overflow and all joints shall be tight.

424.2.13 Drain piping.

424.2.13.1 Slope to discharge. Drain piping serving gravity overflow gutter drains and deck drains shall be installed to provide continuous grade to point of discharge.

424.2.13.2 Joints and connections. Joints and connections shall be made as required by the *Florida Building Code, Plumbing.*

424.2.14 Water heating equipment.

424.2.14.1 Labels. Swimming pool water heating equipment shall conform to the design, construction and installation requirements in accordance with accepted engineering practices and shall bear the label of a recognized testing agency, and shall include a consideration of

combustion air, venting and gas supply requirements for water heaters.

424.2.14.2 Water retention. If a heater is not equipped or designed for an approved permanent bypass or antisiphon device, an approved permanent bypass or antisiphon device shall be installed to provide a positive means of retaining water in the heater when the pump is not in operation.

424.2.14.3 Pit drainage. When the heater is installed in a pit, the pit shall be provided with approved drainage facilities.

424.2.14.4 Connections. All water heating equipment shall be installed with flanges or union connection adjacent to the heater.

424.2.14.5 Relief valve. When water heating equipment which is installed in a closed system has a valve between the appliance and the pool, a pressure relief valve shall be installed on the discharge side of the water heating equipment. For units up to and including 200,000 Btu/hour input, the relief valve shall be rated by the American Gas Association.

424.2.15 Gas piping. Gas piping shall comply with the *Florida Building Code, Fuel Gas.*

424.2.16 Electrical. Electrical wiring and equipment shall comply with Chapter 27 of the *Florida Building Code*, *Building*.

424.2.17 Residential swimming barrier requirement. Residential swimming pools shall comply with Sections 424.2.17.1 through 424.2.17.3.

Exception: A swimming pool with an approved safety pool cover complying with ASTM F 1346.

424.2.17.1 Outdoor swimming pools. Outdoor swimming pools shall be provided with a barrier complying with Sections 424.2.17.1.1 through 424.2.17.1.14.

424.2.17.1.1 The top of the barrier shall be at least 48 inches (1219 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade the barrier may be at ground level or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).

424.2.17.1.2 The barrier may not have any gaps, openings, indentations, protrusions, or structural components that could allow a young child to crawl under, squeeze through, or climb over the barrier as herein described below. One end of a removable child barrier shall not be removable without the aid of tools. Openings in any barrier shall not allow passage of a 4-inch diameter (102 mm) sphere.

424.2.17.1.3 Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

424.2.17.1.4 Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 134 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 134 inches (44 mm) in width.

424.2.17.1.5 Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1³/₄ inches (44 mm) in width.

424.2.17.1.6 Maximum mesh size for chain link fences shall be a $2\frac{1}{4}$ inch (57 mm) square unless the fence is provided with slats fastened at the top or bottom which reduce the openings to no more than $1\frac{3}{4}$ inches (44 mm).

424.2.17.1.7 Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be no more than 1³/₄ inches (44 mm).

424.2.17.1.8 Access gates, when provided, shall be self-closing and shall comply with the requirements of Sections 424.2.17.1.1 through 424.2.17.1.7 and shall be equipped with a self-latching locking device located on the pool side of the gate. Where the device release is located no less than 54 inches (1372 mm) from the bottom of the gate, the device release mechanism may be located on either side of the gate and so placed that it cannot be reached by a young child over the top or through any opening or gap from the outside. Gates that provide access to the swimming pool must open outward away from the pool. The gates and barrier shall have no opening greater than $\frac{1}{2}$ inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

424.2.17.1.9 Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:

1. All doors and windows providing direct access from the home to the pool shall be equipped with an exit alarm complying with UL 2017 that has a minimum sound pressure rating of 85 dB A at 10 feet (3048 mm). The exit alarm shall produce a continuous audible warning when the door and its screen are opened. The alarm shall sound immediately after the door is opened and be capable of being heard throughout the house during normal household activities. The alarm shall be equipped with a manual means to temporarily deactivate the alarm for a single opening. Such deactivation shall last no more than 15 seconds. The deactivation switch shall be located at least 54 inches (1372 mm) above the threshold of the door. Separate alarms are not required for each door or window if sensors wired to a central alarm sound when contact is broken at any opening.

Exceptions:

- a. Screened or protected windows having a bottom sill height of 48 inches (1219 mm) or more measured from the interior finished floor at the pool access level.
- b. Windows facing the pool on floor above the first story.
- c. Screened or protected pass-through kitchen windows 42 inches (1067 mm) or higher with a counter beneath.
- 2. All doors providing direct access from the home to the pool must be equipped with a self-closing, self-latching device with positive mechanical latching/locking installed a minimum of 54 inches (1372 mm) above the threshold, which is approved by the authority having jurisdiction.

424.2.17.1.10 Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, the ladder or steps either shall be capable of being secured, locked or removed to prevent access, or the ladder or steps shall be surrounded by a barrier which meets the requirements of Sections 424.2.17.1.1 through 424.2.17.1.9 and Sections 424.2.17.1.12 through 424.2.17.1.14. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

424.2.17.1.11 Standard screen enclosures which meet the requirements of Section 424.2.17 may be utilized as part of or all of the "barrier" and shall be considered a "nondwelling" wall. Removable child barriers shall have one end of the barrier nonremovable without the aid of tools.

424.2.17.1.12 The barrier must be placed around the perimeter of the pool and must be separate from any fence, wall, or other enclosure surrounding the yard unless the fence, wall, or other enclosure or portion thereof is situated on the perimeter of the pool, is being used as part of the barrier, and meets the barrier requirements of this section.

424.2.17.1.13 Removable child barriers must be placed sufficiently away from the water's edge to prevent a young child or medically frail elderly person who may manage to penetrate the barrier from immediately falling into the water. Sufficiently away from

the water's edge shall mean no less than 20 inches (508 mm) from the barrier to the water's edge. Dwelling or nondwelling walls including screen enclosures, when used as part or all of the barrier and meeting the other barrier requirements, may be as close to the water's edge as permitted by this code.

424.2.17.1.14 A wall of a dwelling may serve as part of the barrier if it does not contain any door or window that opens to provide direct access from the home to the swimming pool.

424.2.17.1.15 A mesh safety barrier meeting the requirements of Section 424.2.17 and the following minimum requirements shall be considered a barrier as defined in this section:

- 1. Individual component vertical support posts shall be capable of resisting a minimum of 52 pounds (24 kg) of horizontal force prior to breakage when measured at a 36 inch (914 mm) height above grade. Vertical posts of the child safety barrier shall extend a minimum of 3 inches (76 mm) below deck level and shall be spaced no greater than 36 inches (914 mm) apart.
- 2. The mesh utilized in the barrier shall have a minimum tensile strength according to ASTM D 5034 of 100 lbf, and a minimum ball burst strength according to ASTM D 3787 of 150 lbf. The mesh shall not be capable of deformation such that a 1/4-inch (6.4 mm) round object could not pass through the mesh. The mesh shall receive a descriptive performance rating of no less than "trace discoloration" or "slight discoloration" when tested according to ASTM G 53, *Weatherability, 1,200 hours*.
- 3. When using a molding strip to attach the mesh to the vertical posts, this strip shall contain, at a minimum, #8 by ½ inch (12.7 mm) screws with a minimum of two screws at the top and two at the bottom with the remaining screws spaced a maximum of 6 inches (152 mm) apart on center.
- 4. Patio deck sleeves (vertical post receptacles) placed inside the patio surface shall be of a nonconductive material.
- 5. A latching device shall attach each barrier section at a height no lower than 45 inches (1143 mm) above grade. Common latching devices that include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye-type latch incorporating a spring actuated retaining lever (commonly referred to as a safety gate hook).
- 6. The bottom of the mesh safety barrier shall not be more than 1 inch (25 mm) above the deck or installed surface (grade).

424.2.17.1.16 Adjacent waterways. Permanent natural or permanent man-made features such as bulk-

heads, canals, lakes, navigable waterways, etc., adjacent to a public or private swimming pool or spa may be permitted as a barrier when approved by the authority having jurisdiction. When evaluating such barrier features, the authority may perform on-site inspections and review evidence such as surveys, aerial photographs, water management agency standards and specifications, and any other similar documentation to verify, at a minimum, the following:

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

424.2.17.2 Indoor swimming pools. All walls surrounding indoor swimming pools shall comply with Section 424.2.17.1.9.

424.2.17.3 Prohibited locations. A barrier may not be located in a way that allows any permanent structure, equipment, or window that opens to provide access from the home to the swimming pool.

424.2.18 Ladders and steps. All pools whether public or private shall be provided with a ladder or steps in the shallow end where water depth exceeds 24 inches (610 mm). In private pools where water depth exceeds 5 feet (1524 mm) there shall be ladders, stairs or underwater benches/ swim-outs in the deep end. Where manufactured diving equipment is to be used, benches or swim-outs shall be recessed or located in a corner.

Exception: In private pools having more than one shallow end, only one set of steps are required. A bench, swimout or ladder may be used at all additional shallow ends in lieu of an additional set of steps.

424.2.19 Final inspection. Final electrical, and barrier code, inspection shall be completed prior to filling the pool with water.

Exception: Vinyl liner and fiberglass pools are required to be filled with water upon installation.

424.2.20 Filters. Components shall have sufficient capacity to provide a complete turnover of pool water in 12 hours or less.

424.2.20.1 Sand filters.

424.2.20.1.1 Approved types. Rapid sand filters [flow up to 5 gpm per square foot (.3L/s)] shall be constructed in accordance with approved standards. Where high rate sand filters [flow in excess of 5 gpm per square foot (.3 L/s)] are used, they shall be of an approved type. The circulation system and backwash piping shall be adequate for proper backwashing of said filter and shall provide backwash flow rates of at least 12 gpm per square foot (.8 L/s) or rapid sand filters or 15 gpm per square foot (.9 L/s) for high rate sand filters.

424.2.20.1.2 Instructions. Every filter system shall be provided with written operating instructions.

424.2.20.1.3 Filter system equipment. On pressure-type filters, a means shall be provided to permit the release of internal pressure. A filter incorporating an automatic internal air release as its principal means of air release shall have lids which provide a slow and safe release of pressure as part of its design. A separation tank used in conjunction with a filter tank shall have as part of its design a manual means of air release or a lid which provides a slow and safe release of pressure as it is opened.

424.2.20.2 Diatomite type filters.

424.2.20.2.1 Design. Diatomite-type filters shall be designed for operation under either pressure or vacuum. The design capacity for both pressure and vacuum filters shall not exceed 2 gpm per square foot (.13 L/s) of effective filter area.

424.2.20.2.2 Filter aid. Provision shall be made to introduce filter aid into the filter in such a way as to evenly precoat the filter septum.

424.2.21 Pool fittings.

424.2.21.1 Approved type. Pool fittings shall be of an approved type and design as to be appropriate for the specific application.

424.2.21.2 Skimmers. Approved surface skimmers are required and shall be installed in strict accordance with the manufacturer's installation instructions. Skimmers shall be installed on the basis of one per 800 square feet (74 m^2) of surface area or fraction thereof, and shall be designed for a flow rate of at least 25 gpm (94L/m) per skimmer.

424.2.21.3 main outlet. An approved main outlet, when provided, shall be located on a wall or floor at or near the deepest point in the pool for emptying or circulation, or both, of the water in the pool.

424.2.21.4 Hydrostatic relief device. In areas of anticipated water table an approved hydrostatic relief device shall be installed.

Exception: Plastic liner pools (where there is no structural bottom to the pool).

424.2.21.5 Inlet fittings. Approved manufactured inlet fittings for the return of recirculated pool water shall be provided on the basis of at least one per 300 square feet (28 m^2) of surface area. Such inlet fittings shall be designed and constructed to insure an adequate seal to the pool structure and shall incorporate a convenient means of sealing for pressure testing of the pool circulation piping. Where more than one inlet is required, the shortest distance between any two required inlets shall be at least 10 feet (3048 mm).

424.2.22 Equipment foundations and enclosures. All pool motors and equipment shall be installed in compliance with the manufacturer's recommendations. All heating and electrical equipment, unless approved for outdoor installation, shall be adequately protected against the weather or installed within a building.

424.2.23 Accessibility and clearances. Equipment shall be so installed as to provide ready accessibility for cleaning, operating, maintenance and servicing.

SECTION 425 PUBLIC LODGING ESTABLISHMENTS

425.1 Scope. Public lodging establishments shall comply with the following design and construction standards.

Note: Other administrative and programmatic provisions may apply. See Department of Business and Professional Regulations (DBPR) Rules 61C-1 and 61C-3, *Florida Administrative Code* and Chapter 509, *Florida Statutes*.

425.2 Definitions.

PUBLIC LODGING ESTABLISHMENT. See Section 509.013, *Florida Statutes*.

425.3 General sanitation and safety requirements. The following general requirements and standards shall be met by all public lodging establishments:

425.3.1 Water, plumbing and waste. Except as specifically provided in this code, standards for water, plumbing and waste shall be governed by Chapter 5 of 1999 Food Code and Chapter 509 Part I, *Florida Statutes*. For the purposes of this section, the term "food establishment" as referenced in the Food Code shall apply to all public lodging establishments as defined in Chapter 509, *Florida Statutes*.

425.3.2 Public bathrooms.

425.3.2.1 Each public lodging establishment shall be provided with adequate and conveniently located bathroom facilities for its employees and guests in accordance with provisions of this section and the *Florida Building Code, Plumbing.* Public access to toilet facilities shall not be permitted through food preparation, storage, or ware washing areas. Bathroom fixtures shall be of readily cleanable sanitary design.

425.3.2.2 Public bathrooms shall be completely enclosed and shall have tight-fitting, self-closing doors or have entrances and exits constructed in such a manner as to ensure privacy of occupants. Such doors shall not be left open except during cleaning or maintenance.

425.3.2.3 Resort condominiums, nontransient establishments and resort dwellings are exempt from the provisions of this section.

425.3.3 Vermin control. Effective control measures shall be taken to protect against the entrance into the establishment, and the breeding or presence on the premises of rodents, flies, roaches and other vermin. All buildings shall be effectively rodentproofed. All windows used for ventilation must be screened, except when effective means of vermin control are used. Screening material shall not be less than 16 mesh to the inch or equivalent, tightfitting and free of breaks.

425.3.4 Fire safety. All fire safety, protection and prevention equipment must be installed, approved, maintained and used in accordance with Chapter 509, *Florida Statutes*, Chapter 69A-3 Fire Prevention–General Prevention Code, *Florida Administrative Codes*.

425.3.4.1 Specialized smoke detectors. Specialized smoke detectors for the deaf and hearing-impaired shall be made available upon request by guests in transient public lodging establishments without charge. Failure of the operator to inform any employee charged with registering guests of the location of such detector constitutes failure to make such detectors available.

425.3.5 Electrical wiring. To prevent fire or injury, defective electrical wiring shall be replaced and wiring shall be kept in good repair. Only a wall switch or approved pull cord shall be permitted in bathrooms. Electrical wiring shall be in accordance with the provisions of Chapter 27 of the *Florida Building Code, Building*.

425.3.6 Heating and ventilation. The heating and ventilation system shall be kept in good repair or be installed to maintain a minimum of 68°F (20°C) throughout the building.

425.3.7 Gas appliances. All appliances, including water heaters using gas, shall be properly vented as required by the *Florida Building Code, Fuel Gas.*

425.4 Sanitation and safety requirements.

425.4.1 Guest bathrooms.

425.4.1.1 Connecting bathrooms shall provide toilets with open-front seats. Guest and private bathrooms shall provide toilets. Guest, private, and connecting bathrooms shall provide lavatories and shower enclosures with hot and cold running water under pressure.

425.4.1.2 Each transient public lodging establishment shall maintain one public bathroom with a minimum of a toilet, lavatory, and shower enclosure for each sex on every floor for every 15 guests rooming on that floor not having access to private or connecting bathrooms.

425.4.2 Ice storage bins. Ice storage bins shall be drained through an air gap in accordance with the provisions of the *Florida Building Code, Plumbing.*

425.4.3 Locks. A locking device shall be provided in accordance with the *Florida Fire Prevention Code*. Public lodging establishments as defined in rule 61C-1.002(4)(a), *Florida Statutes*, shall have at least one approved locking device which does not include a sliding chain or hook-and-eye type device, on all outside and connecting doors which cannot be opened by a nonmaster guest room key.

SECTION 426 PUBLIC FOOD SERVICE ESTABLISHMENTS

426.1 Scope. Public food service establishments or food establishments shall comply with design and construction standards as described in the Food Code, Chapter 509 Part I or Chapter 500, *Florida Statutes*, as applicable.

Note: Other administrative and programmatic provisions may apply. See Department of Business and Professional Regulation (DBPR) Rule 61C-4, *Florida Administrative Code* Chapter 500 and Chapter 509, *Florida Statutes*.

426.2 Definitions.

PUBLIC FOOD SERVICE ESTABLISHMENTS. See Section 509.013, *Florida Statutes*.

FOOD ESTABLISHMENTS. See Section 500.03, *Florida Statutes*.

426.3 General sanitation and safety requirements. The following general requirements and standards shall be met by all food service establishments:

426.3.1 Water, plumbing, and waste. Except as specifically provided in this section, standards for water, plumbing and waste shall be governed by Chapter 5, Food Code, herein adopted by reference.

426.3.1.1 Grease interceptors shall be designed and installed in accordance with the *Florida Building Code*, *Plumbing*.

426.3.2 Public bathrooms.

426.3.2.1 Food service establishment shall be provided with adequate and conveniently located bathroom facilities for its employees and guests in accordance with provisions of the *Florida Building Code, Plumbing*. Public access to toilet facilities shall not be permitted through food preparation, storage, or ware washing areas. Bathroom fixtures shall be of readily cleanable sanitary design.

426.3.2.2 Public bathrooms shall be completely enclosed and shall have tight-fitting, self closing doors or, in public lodging establishments or bathrooms located outside a public food service, have entrances and exits constructed in such a manner as to ensure privacy of occupants.

426.3.3 Vermin control. Effective control measures shall be taken to protect against the entrance into the establishment, and the breeding or presence on the premises of rodents, flies, roaches and other vermin. All buildings shall be effectively rodentproofed. All windows used for ventilation must be screened, except when effective means of vermin control are used. Screening material shall not be less than 16 mesh to the inch or equivalent, tightfitting and free of breaks.

426.3.4 Fire safety. All fire safety, protection and prevention equipment must be installed, approved, maintained and used in accordance with Chapter 509, *Florida Statutes*, Chapter 69A-55, *Uniform Fire Safety Standards for Public Food Service Establishments*, FAC, and the *Uniform Fire Safety Standards* as adopted by the State Fire Marshal.

426.3.5 Electrical wiring. To prevent fire or injury, defective electrical wiring shall be replaced and wiring shall be kept in good repair. Only a wall switch or approved pull cord shall be permitted in bathrooms. Electrical wiring shall be in accordance with the provisions of *Florida Building Code*, *Building*, Chapter 27.

426.3.6 Gas appliances.

426.3.6.1 All appliances, including water heaters using gas, shall be properly vented in accordance with the *Florida Building Code, Fuel Gas.* All appliances shall have a nationally recognized testing laboratory seal such as AGA or UL seal.

426.3.6.2 Heating appliances shall be properly sized in Btu input for room air space. Proper sizing of heating

appliances shall be determined in accordance with the provisions of the *Florida Building Code, Fuel Gas.*

426.4 Sanitation and safety requirements.

426.4.1 Bathroom facilities. All bathrooms shall be of easy and convenient access to both patrons and employees and shall be located on the same floor of the premises served. For the purpose of this section, the same floor includes any intermediate levels between the floor and ceiling of any room or space not to exceed a vertical height of 8 feet (2438 mm). Public food service establishments whose occupancy is incidental to another occupancy may utilize public restrooms provided on the same floor. The travel distance may vary where adequate directional signs are provided and the number of fixtures is deemed satisfactory by the applicable plumbing authority. Each public food service establishment shall maintain a minimum of one public bathroom for each sex, properly designated, except as provided herein:

426.4.1.1 Places serving food or drink on a take-out, carry-out or delivery basis only which provide no seating shall be required to provide a minimum of one bathroom accessible to the public.

426.4.1.2 Arcades, malls, or flea markets containing public food service establishments which offer no seating within the public food service establishment may have centrally located bathroom facilities accessible to patrons of the establishments in the arcade, mall, or flea market provided such bathroom facilities are within 300 feet (91 440 mm) of each establishment.

426.4.1.3 Public food service establishments located within theme parks and entertainment complexes may utilize centrally located bathroom facilities accessible to patrons of the establishments in the theme park or entertainment complex provided such bathroom facilities are reasonably accessible. For purposes of this section, reasonably accessible means within 300 feet (91 440 mm) of each establishment.

426.4.1.4 Public food service establishments which seat 10 persons or less shall be required to provide a minimum of one bathroom accessible to the public.

426.4.1.5 Public food service establishments located within a public lodging establishment shall be permitted to utilize public bathrooms located within the public lodging establishment, provided such bathrooms are available for use by the patrons of the public food service establishment during all hours of operation, are within 300 feet (91 440 mm) of the public food service establishment, and are located on the same floor as the public food service establishment. For purposes of this section, the same floor includes any intermediate levels between the floor and ceiling of any room or space without restriction as to vertical height.

SECTION 427 MENTAL HEALTH PROGRAMS

427.1 Public mental health crisis stabilization units and short-term residential treatment programs.

427.1.1 Scope. Crisis stabilization units and short-term residential treatment units shall comply with the design and construction standards in this section.

Note: Other administrative and programmatic provisions may apply. See Department of Children and Family Services (DCFS) Rule 65E-12, *Florida Administrative Code*, and Chapter 394, *Florida Statutes*.

427.1.2 Definitions.

CRISIS STABILIZATION UNIT (CSU). A state-supported mental health service or program and is a short-term alternative to inpatient psychiatric hospitalization and an integrated part of a designated public receiving facility under the authority of Chapter 394, *Florida Statutes.* A CSU provides brief intensive services for individuals who are presented as acutely mentally ill on a 24-hour-a-day, seven-day-a-week basis, under the licensing authority of the department of Children and Families and the Agency for Health Care Administration. The purpose of a CSU is emergency psychiatric reception, psychiatric examination, to stabilize and redirect people to the most appropriate and least restrictive treatment settings consistent with their needs.

SHORT-TERM RESIDENTIAL TREATMENT PRO-GRAM (SRT). A state-supported acute care 24-hour-a-day, seven-day-a-week residential alternative service, generally of 90 days or less, and which is an integrated part of a designated public receiving facility and receives state mental health funds under the authority of chapter 394, Florida Statutes. The purpose of an SRT is to provide less acute intensive short-term treatment to individuals who have previously been admitted to either a hospital or CSU and have been transferred to the SRT as being temporarily in need of a 24-hour-a-day structured therapeutic setting in a less restrictive, but longer-stay alternative to hospitalization.

427.1.3 Facility standards for facilities licensed prior to or on July 14, 1993.

427.1.3.1 Building construction requirements.

427.1.3.1.1 Construction, additions, refurbishing, renovations, and alterations to existing facilities shall comply with the following codes and standards:

- 1. The building codes described in the *Florida Building Code*;
- 2. The fire codes contained in Chapter 69A-44, "Minimum Fire Safety Standards for Residential Alcohol and Drug Abuse Treatment and Prevention Programs, Mental Health Residential Treatment Facilities and Crisis Stabilization Units," *Florida Administrative Code*, as described in the NFPA 101, Chapters 18 and 19, Special Definitions, as adopted by the *Florida Fire Prevention Code*, as applicable to limited health care facilities, which is included by reference in Chapter 59A-3, *Florida Administrative Code*.

427.1.3.2 Minimum physical plant requirements. Each CSU and SRT shall conform to the requirements of Sections 427.1.3.2.1 through 427.1.3.2.12. **427.1.3.2.1** In multiple occupancy bedrooms or sleeping areas there shall be a minimum of 60 square feet (6 m^2) per bed and no less than a 30-inch (762 mm) separation between beds. Bedrooms shall be limited to a maximum of four occupants.

427.1.3.2.2 The minimum size of a single occupant bedroom shall be 55 square feet (5 m^2) .

427.1.3.2.3 Each CSU shall have at least one seclusion room and another room which may be used as a seclusion room. Each SRT shall have a seclusion room. Seclusion rooms shall be a minimum of 55 square feet (5 m^2) . If a restraint bed is utilized it shall have access around it and be bolted to the floor. Seclusion rooms shall minimally include a mattress. Ceilings shall be solid, and all lighting fixtures shall be tamperproof, and power receptacles are not permitted in the room.

427.1.3.2.4 The facility shall have at least one water fountain readily accessible for the use of persons receiving services.

427.1.3.2.5 The facility shall have a minimum ratio of one shower for each eight individuals and one toilet and lavatory for each six individuals. Individual shower stalls and dressing areas shall be provided. The use of gang showers is prohibited. Access to a bathroom shall not be through another person's room.

427.1.3.2.6 The facility shall have a locked area for personal possessions being held for safekeeping. Individual shelves or other similar dividers shall be provided in the locked area for the storage of personal possessions. The facility shall have written policies and procedures to ensure reasonable access to personal possessions.

427.1.3.2.7 Each facility shall have a fenced outside recreation area with a minimum fence height of no less than 6 feet (1829 mm) suitable for impeding elopements.

427.1.3.2.8 External windows shall have security screens or equivalent protection.

427.1.3.2.9 The facility shall provide an appropriate separate nontreatment area to serve as a general reception area with accommodations for such activities as receiving visitors. This reception area shall be separated from the treatment area by a locked doorway.

427.1.3.2.10 When a CSU is collocated with another program, as provided for in Section 65E-12.106(23), *Florida Administrative Code*, the following minimum facility requirements shall be met.

Collocation means the operation of CSU and SRT, or CSU and substance abuse detoxification services from a common nurses' station without treatment system integration. It may result in the administration of those services by the same organization and the sharing of common services, such as housekeeping, maintenance and professional services.

- 1. A CSU shall be separated and secured by locked doors, used by persons receiving services, from the SRT and detoxification units.
- 2. Whenever a CSU is collocated with an SRT or substance abuse detoxification unit there shall be no compromise in CSU standards. In all instances, whenever there is a conflict between CSU rules and SRT, alcohol or drug abuse rules, the more restrictive rules shall apply.

427.1.3.2.11 All CSUs shall be locked facilities and, to the maximum extent practical, provide a locked perimeter around a living unit and fenced exercise area within which individuals can reside 24 hours-a-day in an environment designed to minimize potential for injury. Where this is not possible, operational compensation shall be made as follows:

- 1. Each person receiving services shall be provided a minimum of 175 square feet (16 m²) of usable client space within the CSU. Useable client space is the sum, in gross square feet, of all rooms, interior wall to interior wall, that are part of a CSU and SRT facility. mechanical and electrical rooms, administrative and staff offices, screening areas, nurses' stations, visitor and reception areas, crawl space and attic space are excluded. Bedrooms shall be spacious and attractive, and activity rooms or space shall be provided.
- 2. CSU facilities shall be locked to provide reasonable control over access to and egress from the unit, recreational area, and emergency reception areas. When individuals are moved to other areas, the pathways shall also be locked or have adequate control provisions to prevent elopement. Such controlled passageways shall include access to the emergency reception area, unit proper, off unit doorways, and recreational areas.
- 3. All unit door locks shall employ a common key for rapid access in emergency situations with quick releasing or single-turn mechanisms.

427.1.3.2.12 Food preparation areas for 13 or more persons shall comply with the provisions of Chapter 64E-11, *Florida Administrative Code*, "Food Hygiene."

427.1.3.3 Health and sanitation.

427.1.3.3.1 Appropriate health and sanitation inspections shall be obtained before occupying any new physical facility or addition. A report of the most recent inspections must be on file and accessible to authorized individuals.

427.1.3.3.2 Hot and cold running water under pressure shall be readily available in all washing, bathing and food preparation areas. Hot water in areas used by persons being served shall be at least 100°F (38°C) but not exceed 120°F (49°C).

427.1.3.4 Seclusion room. Each CSU shall have at least one seclusion room located in the CSU facility. Addi-

tional space shall be available that can be used either as a seclusion room or bedroom, as need dictates. Policies and procedures shall be developed on handling emergency situations that require seclusion. Each SRT shall have a seclusion room.

427.1.4 Minimum construction standards for CSU and SRT facilities initially licensed after July 14, 1993.

427.1.4.1 Construction requirements.

427.1.4.1.1 New facility construction. New facility construction and additions, refurbishing, renovations and alterations to existing facilities shall comply with the following codes and standards:

- 1. The building codes described in the *Florida Building Code*.
- 2. The fire codes contained in Chapter 69A-44, "Minimum Fire Safety Standards for Residential Alcohol and Drug Abuse Treatment and Prevention Programs, Mental Health Residential Treatment Facilities and Crisis Stabilization Units," *Florida Administrative Code*, as described in the NFPA 101, Chapters 12 and 13, "Special Definitions," as adopted by the *Florida Fire Prevention Code*, as applicable to limited health care facilities, which is included by reference in Chapter 59A-3, *Florida Administrative Code*.
- 3. The accessibility requirements of Chapter 11 of the *Florida Building Code, Building.*

427.1.4.1.2 Plumbing. All plumbing shall comply with the requirements of the *Florida Building Code*, *Plumbing*.

427.1.4.1.3 Inspections and certificate of occupancy. Appropriate health and sanitation inspections and a certificate of occupancy shall be obtained before occupying any new facility or addition. A report of the most recent inspections must be on file and accessible to authorized individuals.

427.1.4.1.4 Sprinklers. No unsprinklered building classification as defined in the *Florida Building Code*, *Building*, is allowed. All facilities shall be protected throughout by an approved automatic sprinkler and smoke detection system to include a smoke detector in every bedroom. Provision shall be made for automatic emergency forces notification.

427.1.4.1.5 Surge protection. Surge protection in compliance with the *National Electric Code*, Article 280, as incorporated by reference in Chapter 27 of the *Florida Building Code*, *Building*, shall be installed to protect each service entrance equipment and have integral visual indication of surge protector failure. Additional surge protection shall be provided for all low-voltage and power connections to all electronic equipment and other life safety systems equipment such as fire alarm, telephone, and nurse call. Protection shall be in accordance with appropriate IEEE standards for the type of equipment being protected.

427.1.4.2 Overall functional design.

427.1.4.2.1 The CSU or SRT shall be designed to provide a locked perimeter around a living unit and fenced exercise area within which individuals can reside 24 hours a day in an environment designed to minimize potential for injury. The CSU or SRT structure shall be single story ground level facility. These facilities shall have separate off-unit reception and administration areas which may also be locked. Service corridors and pathways to other nonunit activities shall not be through the locked CSU or SRT unit.

427.1.4.2.2 The walls throughout all client areas of the CSU or SRT shall either be concrete block or a double layer of gypsum wallboard or ³/₄-inch (19 mm) thick plaster on metal lath to minimize maintenance of the facility. The general architecture of the unit shall provide for optimal line-of-sight observation from the nurses' station throughout the unit, minimizing hidden spots and blind corners.

427.1.4.2.3 The CSU or SRT shall be designed to create a pleasant functional therapeutic environment throughout, by the use of sunlight, colors, designs, textures, and furnishings. The design shall achieve a secure unit which looks more residential than institutional in its construction and furnishings, while incorporating substantial safety considerations throughout.

427.1.4.2.4 The CSU or SRT shall be designed in order that the general unit be divided into a close observation area and a general observation area based upon the need for frequent physical proximity, singular observation of individuals, and lowered stimulation levels. These areas do not need physical separation; for example, they may be the left and right sides of the unit.

427.1.4.2.4.1 Close observation area. This area shall include persons brought onto the CSU or SRT needing initial observation or restraints, individualized observation, and lowered stimulation levels, all of which require the frequent physical proximity of nurses. This area shall be directly adjacent to the primary unit doorway and nurses' station. The immediately adjacent rooms shall be used for single occupancy and restraint or seclusion. These rooms shall be remote from routine high activity areas and corridors.

427.1.4.2.4.2 General observation area. This shall include areas where persons routinely congregate or walk through such as multioccupant bedrooms, activity rooms, smoking areas, dining room and routine traffic corridors, or pathways. The dining and activity areas shall be directly observable, or under constant staff supervision, but may be a greater distance from the nurses' station.

427.1.4.2.5 All areas of CSUs and SRTs shall be ventilated by central, ducted supply and return forced air systems. Toilets, bathrooms and soiled function rooms shall be mechanically exhausted to the outside. Venti-

lation units shall distribute tempered heated or cooled air to all spaces and shall supply outside air in the quantity of either the sum of all exhausts or 20 cfm (.009 m³/s) per person whichever is greater. The quality of all exhausts must match the intake volume of all outside air. Supply, exhaust, and return fans shall run continuously while the building is occupied. Areas in which smoking is permitted shall be well vented by at least 35 cfm (.02 m³/s) per person to the outside in order to minimize smoke diffusion throughout the unit.

427.1.4.2.6 All doors opening directly onto the unit from nonclient rooms or office areas shall be equipped with locksets which are key released to leave the client area and permit unobstructed return to the client area. Door closures are required to deny persons receiving services accidental unsupervised access to the contents of staff offices, janitorial closets, and mechanical areas.

427.1.4.2.7 Corridors shall ensure maximum clear distances by recessing water fountains and fire extinguishers, or placing them in alcoves. Corridors in client areas must be at least a 6 foot (1829 mm) clear width; nonclient areas must be at least 44 inches (1118 mm) minimum clear width. Corridor ceilings shall be a minimum height of 7 feet 6 inches (2284 mm).

427.1.4.2.8 Hot and cold running water under pressure shall be readily available in all washing, bathing, food preparation, and food handling areas. Hot water in client areas shall be at least 100°F (38°C), but not exceed 120°F (49°C).

427.1.4.2.9 The minimum size for doors shall be no less than 3 feet (914 mm) wide and 6 feet 8 inches high (2032 mm). Areas accessible to persons with physical disabilities shall comply with applicable codes and standards.

427.1.4.2.10 Since glass fragments are a safety hazard throughout the unit, the use of glass shall be minimal.

427.1.4.2.11 All television sets must be securely fastened.

427.1.4.2.12 Door closures shall not be utilized in unobserved client areas.

427.1.4.2.13 All CSUs and SRTs equipped with electronic locks on internal doors or egress doors shall ensure that such locks have manual common key mechanical override that will operate in the event of a power failure or fire. Egress pathways and doors shall be locked as provided for in the *Life Safety Code*, NFPA 101, Chapter 12, as incorporated by reference in Chapter 59A-3, *Florida Administrative Code* as adopted by the *Florida Fire Prevention Code*,

427.1.4.2.14 CSUs and SRTs with electronic or magnetic door locks or other fundamental operational components which are electric shall have either: a battery back-up system rated for facility emergency power draw and capable of sustaining door locks and emergency operations for a minimum period of 6 hours; or an emergency generator with transfer switch with a

battery pack back-up system capable of operating for 2 hours at facility emergency power draw level.

427.1.4.2.15 The use of door vision panels and windows shall minimize the opportunity for isolation of staff or persons served in unobserved areas. This does not include privacy provisions such as bathrooms and bedrooms.

427.1.4.3 Uniform specifications.

427.1.4.3.1 The design shall ensure that each person receiving services in a CSU or SRT is provided a minimum of 175 square feet (16 m^2) of usable client space.

427.1.4.3.2 Tamper-resistant screws shall be used to protect electrical switches and outlets throughout the facility in all areas accessible to persons receiving services. Lighting fixtures shall be tamperproof type throughout the facility in all areas accessible to persons receiving services.

427.1.4.3.3 All electrical switches and outlets in wet areas shall be ground-fault protected with a remote breaker switch. Tamperproof, safety type duplex outlets shall be used in all areas accessible to persons receiving services.

427.1.4.3.4 Air ducts shall be covered with a perforated type metal grille not residential louvered grilles, throughout the unit in all areas accessible to persons receiving services.

427.1.4.3.5 All hose bibbs shall be equipped with a vacuum breaker device.

427.1.4.3.6 The unit shall have a minimum of one drinking fountain.

427.1.4.3.7 Ceiling height in bedrooms, activity areas, and bathrooms shall be at least 9 feet (2743 mm).

427.1.4.3.8 The operation of all perimeter locks shall ensure reasonable control over both access and egress.

427.1.4.4 Administration and public areas.

427.1.4.4.1 Waiting rooms shall have an adjacent rest room which is designed to accommodate persons with physical disabilities in accordance with Chapter 11 of the *Florida Building Code, Building*.

427.1.4.4.2 The entrance shall be grade level, sheltered from inclement weather and accessible to persons with physical disabilities in accordance with Chapter 11 of the *Florida Building Code, Building*.

427.1.4.4.3 The lobby shall include a drinking fountain and space for clerical personnel. Private interview space for emergency screening of voluntary persons shall be adjacent to the lobby.

427.1.4.5 Emergency screening area for CSUs.

427.1.4.5.1 This shall be a locked area in which law enforcement admissions may be received. This area shall not be wholly isolated visually from the CSU to provide safety for emergency screening personnel who may become isolated in this area. This area shall provide

for medical clearance, emergency screening, bathroom facilities, and other activities which may be necessary.

427.1.4.5.2 A separate entrance shall be provided directly to emergency screening areas and examination rooms for law enforcement personnel. It shall have a driveway where a law enforcement vehicle can pull immediately adjacent to the building before transferring a person through the separate entrance to the emergency screening area. The law enforcement entrance shall also have a lock box where the law enforcement officer can lock his weapons during such time as he or she is in the facility.

427.1.4.5.3 A separate bathroom with supervised shower area shall be located so that all persons being admitted may be showered before being admitted to the residential section of the unit.

427.1.4.6 Seclusion rooms.

427.1.4.6.1 Each CSU shall have a minimum of two seclusion rooms that shall share a common vestibule with a bathroom off the vestibule area. Each SRT shall have at least one seclusion room. Seclusion rooms shall be free of sharp edges or corners and be strongly constructed to withstand repeated physical assaults. Walls shall be either concrete block or double layered to provide resistance and be smooth. The ceilings shall be 9 feet (2743 mm) in clear height, hard-coated, and lighting fixtures recessed and tamperproof. Lighting fixtures shall be nonbreakable, preferably Lexan, and shall be installed with tamperproof screws, as shall any other items in the seclusion rooms. The seclusion room door shall be heavy wood or metal at least 36 inches (914 mm) in width and shall open outward. The door frame shall be heavy steel and shall be thoroughly bolted into the wall and cemented in.

427.1.4.6.2 At least one seclusion room in the CSU shall have a sturdily constructed bed, without sharp edges and bolted to the floor. A bed in the SRT seclusion room is optional; however, if present, the bed shall meet the same requirements as specified for the CSU. Its placement in the room shall provide adequate space for staff to apply restraints and not assist individuals in tampering with the lights, smoke detectors, cameras, or other items that may be in the ceiling of the room. There shall be a rheostat control mechanism outside the room to adjust the illumination of the light in the seclusion room.

427.1.4.6.3 The floor and walls, up to a height of 3 feet (914 mm), shall be coated with an impermeable finish to resist penetration of body fluids. One seclusion room shall have a floor drain. A hose bibb shall be in a readily adjacent area such as a bathroom.

427.1.4.6.4 There shall be a vision panel in the door of the seclusion room, no larger than 8 inches by 8 inches (203 mm by 203 mm), which provides a view of the entire room. This vision panel shall be Lexan or other suitably strong material and it shall be securely mounted in the door. Provisions shall be made to

ensure privacy from the public and other persons receiving services while providing easy access for staff observation.

427.1.4.6.5 Seclusion rooms shall be a minimum of 70 square feet (7 m^2) and a minimum room dimension of 9 feet (2743 mm).

427.1.4.6.6 Fire sprinkler heads shall be ceiling mounted and either recessed or flush-mounted type without a looped spray dispersal head.

427.1.4.6.7 A voice-activated and switchable emergency calling system for monitoring persons receiving services shall be provided in each seclusion room.

427.1.4.6.8 Each seclusion room shall have an electronic visual monitoring system capable of viewing the entire room and be monitored from the nurses' station.

427.1.4.7 Janitor's closet.

427.1.4.7.1 A janitor's closet shall be on the unit. It shall contain a floor receptor for mop water and provide space for mop bucket, brooms, and other minimal items. Caustic and other dangerous chemicals shall not be stored in this closet.

427.1.4.7.2 This closet shall have an automatic door closer and have automatic relocking type lock.

427.1.4.8 Bathrooms.

427.1.4.8.1 Access to a bathroom shall not be through another person's bedroom. Bathrooms shall provide space, in addition to bathing, for dry clothes and changing of clothes and for observation staff. The shower head shall be recessed or have a smooth curve from which items cannot be hung. There shall be no overhead rod, privacy stall supports, protrusions, or fixtures capable of carrying more than 40 pounds (18 kg) of weight. The ceiling shall be hard coated. Sprinkler heads shall be either recessed or a flush-mounted type dispersal head. The toilet shall be a flushometer-type, not residential with water tank and cover. Toilets shall be of heavy duty construction securely fastened to the floor and have seats with locking nuts. Secure cleanout access shall be provided for the toilet to clean out plugs and pipes. Floor drains in bathroom areas shall be of sufficient size that they cannot be plugged by standing on them.

427.1.4.8.2 Mirrors shall not be common glass. A polycarbonate mirror, fully secured, and flat-mounted to the wall is required. Polished metal mirrors shall not be permitted.

427.1.4.8.3 Lighting fixtures shall be recessed and tamperproof with Lexan or other strong translucent material.

427.1.4.8.4 Bathroom fixtures, shower, lavatory, and toilet shall be readily accessible from a common area. If not accessible from a common area, they will be deemed to be available only to the occupants of directly adjoining bedroom or bedrooms.

427.1.4.8.5 Each CSU and SRT shall have a bathroom of sufficient size for use by persons with physical disabilities. It shall include toilet, lavatory, shower, and safety grab bars for shower and toilet.

427.1.4.8.6 The facility shall have a minimum ratio of one shower for each eight persons receiving services and one toilet and lavatory for each six persons receiving services. Individual shower stalls and dressing areas shall be provided. The use of gang showers is prohibited.

427.1.4.9 Nurses' station.

427.1.4.9.1 The nurses' station shall be positioned so that the unit may be under constant direct visual surveillance. Charting and records areas shall be located in the rear of the nurses' station, and not in a separate area, so that staff on duty can readily observe the client areas. A bathroom shall be nearby for staff use. The nurses' station, if separated from client areas, shall utilize either Lexan or safety wire glass for enclosure to above counter top level. If not enclosed the counter top shall be at least 18 inches (457 mm) in width.

427.1.4.9.2 Thirty is the maximum number of beds which may be served by a common nurses' station in colocated units, as described in Section 65E-12.106(23), F.A.C.

427.1.4.9.3 The nurses' station, which functions as the primary control center, shall have necessary electronic assistance such as camera monitors and intercoms in more remote areas where persons may become isolated. Areas warranting visual and auditory monitoring include remote entrance or egress doors, isolated hallways, after hours law enforcement entrance, emergency screening area, and fenced recreational yard.

427.1.4.10 Medication room. The medication room shall be located near the nurses' station. The medication room shall have a sink, refrigerator, locked storage, and facilities for dispensing medication. Security against unauthorized access shall be assured. The refrigerator shall store medications and clean materials only.

427.1.4.11 Examination room. A suitable examination room shall be provided for physical examinations, nursing assessments, and other related medical activities. It shall include a sink for hand washing.

427.1.4.12 Bedrooms.

427.1.4.12.1 Ceilings shall be nonaccessible to prohibit persons receiving services from entering attic spaces or having access to overhead pipes and beams. Light switches and electrical outlets shall be secured with nontamper type screws. When feasible each bedroom shall have a window, operable by staff, with an exterior view. Window sills shall not exceed a height of 36 inches (914 mm) above floor level and should incorporate protective screens or Lexan-type material to prevent direct access to glass surfaces. There

should be no overhead protrusions available for hanging in excess of 40 pounds (18 kg) weight.

427.1.4.12.2 Beds and other heavy furniture suitable for barricading the door shall be secured to the floor or walls.

427.1.4.12.3 multiple occupant bedrooms shall be limited to a maximum of four occupants and shall be a minimum size of 60 square feet (6 m^2) per bed with no less than a 30-inch (762 mm) separation between beds. Single occupant bedrooms shall be a minimum of 80 square feet (7 m^2) .

427.1.4.12.4 Bedroom doors shall be a minimum of 36 inches wide.

427.1.4.13 Kitchen and nourishment preparation area.

427.1.4.13.1 Preparation or food handling areas shall have water and plumbing fixtures suitable for cleaning dining utensils. The requirements for nourishment preparation areas are less than that of kitchens due to the minimal scale of operations for these areas. If these areas are accessible to persons receiving services, they should include appropriate safety considerations for sharp and other dangerous instruments and the elimination of hot surfaces. Space shall be provided for disposal of wet garbage. Refrigeration and freezer space shall be provided in these areas for the carryover of a minimum amount of perishable food.

427.1.4.13.2 Kitchens shall comply with Chapter 64E-11, Florida Administrative Code, Food Preparation and Sanitation Requirements, as well as the 1985 NFPA 101, Chapters 12 and 13, Fire Safety Requirements as incorporated by reference in Chapter 59A3, Florida Administrative Code as adopted by the Florida Fire Prevention Code. Kitchens shall be designed with flow-through type operation where food arriving is immediately placed into dry storage or freezer units without walking through food preparation areas. The flow-through type system would provide for the preparation of food, serving and dishes returned with garbage and waste going out to an adjacent dumpster and can wash with water collection curbing and drain. A concrete pad shall be provided for the trash dumpster and garbage truck entrance.

427.1.4.13.3 Kitchens shall be equipped with fire suppression hoods and through-wall grease laden air evacuation and ventilation systems. All electrical outlets shall be ground-fault circuit interrupter protected. If meals are to be served via an open area, directly from the kitchen, this area shall have a fire-rated steel retractable overhead door type mechanism to continue the fire wall protection around the kitchen area. Kitchens shall have heat detectors rather than smoke sensors.

427.1.4.13.4 External to the kitchen, and outside the waste exit door, there shall be a curbed slop sink for mops and dirty kitchen water with an immediately accessible hose bibb and drain. This area shall be external to the kitchen area, but immediately adjacent to it, to provide ready disposal of waste water as well

as for the removal of cleaning items from the kitchen when they are not in use.

427.1.4.13.5 There shall be a large food storage pantry in or adjacent to the kitchen.

427.1.4.13.6 Facilities using off-site kitchens for food preparation shall have an onsite food reception, warming, and holding area of sufficient size and with sufficient equipment to warm and hold food for each meal served. Required space shall include provision for proper disposal or holding of used implements and disposal of wet garbage in accordance with Chapter 64E-11, *Florida Administrative Code*.

427.1.4.14 Dining area. Each CSU or SRT shall have an attractive dining area on the unit. Seating capacity shall reflect the licensed capacity of the entire CSU or SRT, although residents may eat or be served in shifts during daily operations. Individual, rather than bench seating, shall be used for easy floor cleaning.

427.1.4.15 Unit laundry facilities.

427.1.4.15.1 Provision shall be made for the storage of soiled laundry in an adjacent, isolated, fire-resistant area.

427.1.4.15.2 Each CSU or SRT shall have a personal laundry room which shall incorporate a flow-through design in which dirty laundry enters, is sorted, placed in the washer, dried, folded, and moved out without crossing clean laundry with dirty laundry. CSUs and SRTs shall have a small washer and dryer for immediate unit needs and to wash clothes. These washing and drying units shall be equipped to sanitize clothes as a preventive measure of infection control.

427.1.4.15.3 The soiled laundry room shall have a locked door equipped with automatic door closer to restrict access to cleaning chemicals. The soiled laundry room air shall be exhausted outside the facility.

427.1.4.16 Clean laundry room.

427.1.4.16.1 A separate space shall be provided for clean laundry capable of storing an adequate supply of laundry for the size of the CSU or SRT. The laundry closet shall have a locked door to prevent access to these items by persons receiving services.

427.1.4.16.2 Items stored on the top shelf shall provide an 18 inch (457 mm) clear space from sprinkler heads so as to not block dispersal of water.

427.1.4.17 Fenced recreational area.

427.1.4.17.1 CSUs and SRTs shall have a no less than 6-foot-high (1829 mm) fenced, out-of-doors area where persons receiving services may have access to fresh air and exercise. It must provide privacy for persons receiving services otherwise exposed to public view. This area shall be constructed to retain persons inside the area and minimize elopements from the area, although it is not a secure area.

427.1.4.17.2 The fenced area shall provide some shaded area where persons receiving services may be

out of doors without being in direct sunlight or may receive sunlight as they desire. The enclosing fences shall have an exit gate which is located away from the building as a secondary egress from the fenced area, for use in fire situations, or access by lawn maintenance equipment. The gate shall be provided with a lock which is readily accessible from both sides. The area of this fenced enclosure shall be at least 1,100 square feet (102 m^2) including an activity area having dimensions of not less than 20 feet by 40 feet (6096 mm by 1219 mm).

427.1.4.17.3 Objects shall not be placed near the fence to provide a ready step ladder over the fence and, if fabric fencing is used, the horizontal bracing used for corners shall be outside the fabric to preclude its use as an escape ladder step. The fenced area shall be designed, without blind corners, to be readily visible by one staff member standing in a central location. If desired, the fence may be topped with a 45-degree inward slanting restraining-type wire. The use of barbed wire and other sharp injurious materials, however, is prohibited.

427.1.4.17.4 This area, as all other primary fire exit routes, shall have egress lighting which is connected to the power side of the facility electrical panel so that in the event of a fire and electrical panel disconnect, the exit and congregation areas would still have lighting.

427.1.4.18 Multipurpose room. In addition to open, onunit floor space, each CSU and SRT shall have an accessible multipurpose room for group activities of at least 180 square feet (7 m^2) . This area may be the dining area.

427.1.4.19 Off unit storage areas.

427.1.4.19.1 Each CSU and SRT shall have appropriate storage, in nonclient areas, for operating supplies and materials.

427.1.4.19.2 Adjacent nonclient area storage for personal belongings shall be a minimum of 8 cubic feet (.23 m³) for each person receiving services.

427.2 Community mental health regulation. Adult residential treatment facilities (RTFs) shall be limited to adults and comply with the regulations in sections 427.2.1 through 427.2.4.

Note: Other administrative and programmatic provisions may apply. See Department of Children and Family Services (DCFS) Rule 65E-4.016, *Florida Administrative Code*, and Chapter 394, *Florida Statutes*.

427.2.1 Facility standards.

427.2.1.1 Building construction requirements. The construction and renovation of a facility shall comply with the provisions of the *Florida Building Code*.

427.2.2 Health and safety. Facilities and additions shall be constructed to allow full compliance with the provisions of this section.

427.2.2.1 Fire safety.

427.2.2.1.1 Residential treatment facilities shall comply with all applicable federal, state and local fire safety standards as follows:

- Level IA licensed facilities shall comply with the fire codes contained in Chapter 69A-3, *Fire Prevention-General Provisions*, *Florida Administrative Code*, as described in the NFPA. 101, Chapters 18 and 19, Special Definitions as adopted by the *Florida Fire Prevention Code*, as applicable to limited health care facilities.
- 2. For facility Level IB, which may have no more than three residents incapable of selfpreservation, and for facility Levels II, III, IV and V, which may have no residents incapable of self-preservation, each resident record shall have a signed statement by a physician or licensed psychologist regarding the resident's capability of self-preservation.
- 3. Facility Levels IB, II, III, IV and V shall have a prompt evacuation capability.

427.2.2.1.2 Level IV and V facilities shall have a written policy on the safe use of extension cords and adapters. The use of extension cords and adaptors is prohibited in Level I, II and III facilities.

427.2.2.1.3 Electrical cords and appliances shall be maintained in a safe condition.

427.2.2.1.4 Portable heating devices shall be used only in emergency situations as defined in agency procedures approved by the governing board.

427.2.2.1.5 Flammable liquids or gas cylinders shall not be positioned near flame or heat sources, nor stored with combustible materials.

427.2.2.1.6 Emergency power. The facility shall provide egress lighting that will operate in the event of a power failure.

427.2.2.1.7 Smoking. The program shall have a written policy governing smoking in the facilities. Smoking shall be prohibited in any area of the facility where combustible supplies, materials, liquids or gases will be used or stored.

427.2.2.1.8 Fire safety inspections. A fire safety inspection shall be obtained before occupying any new physical facility or addition.

427.2.2.2 Personal safety.

427.2.2.1 The building shall be free of hazards such as cracks in the floors, walls or ceiling; warped or loose boards, tile, linoleum, handrails or railings; and broken window panes or missing window screens.

427.2.2.2 Protection shall be provided from sharp or jagged projections, "invisible" glass, moving parts, heated surfaces, heavy objects that could fall, or any other potentially hazardous condition.

427.2.2.3 Grab bars shall be nonremovable.

427.2.2.4 The temperature of the hot water supply shall be regulated and shall be between $105^{\circ}F(41^{\circ}C)$ and $115^{\circ}F(46^{\circ}C)$ at the outlet.

427.2.2.5 Any electrical fans, except ceiling paddle fans, shall be screened. All electrical fans, including paddle fans, shall be placed in a safe location.

427.2.2.6 Indoor and outdoor recreational areas shall be provided with safeguards designed for the needs of the residents.

427.2.2.7 Outdoor recreational areas shall be well drained.

427.2.2.3 Health and sanitation.

427.2.2.3.1 Appropriate health and sanitation inspection certificates shall be obtained before occupying any new physical facility or addition, and at least yearly or as required by statute, thereafter. A report of the most recent inspection must be on file and accessible to authorized individuals.

427.2.3.2 Hot and cold running water under pressure shall be readily available in all washing, bathing and food preparation areas.

427.2.2.3.3 The kitchen and food preparation area shall be well-lighted, ventilated and located apart from areas which could cause food contamination. All doors and windows in the kitchen and food preparation areas that open to the outside shall be screened.

427.2.3 Food service.

427.2.3.1 For food service areas with a capacity of 13 or more residents, all matters pertaining to food service shall comply with the provisions of Chapter 64E-11, *Florida Administrative Code*.

427.2.3.2 Food preparation, sanitation and storage.

427.2.3.2.1 Each refrigerator or freezer used for storage of perishable foods shall be provided with an accurate indicating thermometer located in the warmest part toward the front side of the refrigerator or freezer so that the temperature can be easily and readily observed.

427.2.3.2.2 Freezers should be kept at or below 0° F (-18°C).

427.2.3.3 Dining.

427.2.3.3.1 Dining tables shall seat small groups of residents unless other arrangements are justified on the basis of resident needs.

427.2.3.3.2 The dining area shall be suitably lighted, ventilated and furnished.

427.2.4 Environment.

427.2.4.1 Residential facilities shall not be identified by an exterior sign or vehicle sign that labels the residents or special functions of the facility. Vehicle traffic and parking relating to the facility shall be similar to that of surrounding structures or residences.

427.2.4.2 The grounds of the facility shall have adequate space for resident activities.

427.2.4.3 The facility shall be accessible to persons with disabilities or the facility shall have written policies and procedures that describe how disabled individuals can gain access to the facility for necessary services.

427.2.4.4 Areas that accommodate the following shall be available:

- 1. A full range of social activities;
- 2. Private conversations;
- 3. Group activities; and
- 4. Resident privacy, when appropriate.

427.2.4.5 All areas of the facility occupied by residents shall be climatically controlled in a manner conducive to the comfort and privacy of the residents and shall include the following:

427.2.4.5.1 A design temperature of at least 72°F (22°C) and not to exceed 85°F (29°C)shall be used for waking hours in all areas used by residents. During sleeping hours, a temperature of at least 68°F (20°C) shall be used. These temperature requirements apply unless otherwise mandated by federal or state authorities.

427.2.4.5.2 When cooling devices are used, they shall be placed or adjusted in a manner which minimizes drafts.

427.2.4.6 Drinking water shall be readily available and easily accessible to residents.

427.2.4.7 Mirrors reasonably free of distortion shall be placed in appropriate places to aid in grooming and to enhance self-awareness.

427.2.4.8 Clocks shall be provided to promote awareness of time and day.

427.2.4.9 The use of door locks or closed sections of the building shall comply with all applicable safety standards.

427.2.4.10 Clean, well-lighted and ventilated laundering facilities for resident use shall be available on the premises or in the immediate neighborhood.

427.2.4.11 A telephone which allows private conversations shall be available and easily accessible within the facility.

427.2.4.12 Facility lighting shall promote clear perceptions of people and functions. When and where appropriate, lighting shall be controlled by residents.

427.2.4.13 Whenever feasible, the environment shall provide views of the outdoors.

427.2.4.14 Bedrooms. Bedrooms shall be designed to meet the following criteria:

427.2.4.14.1 All resident bedrooms shall be ventilated, well-lighted and located convenient to a bathroom.

427.2.4.14.2 Resident bedrooms designated for single occupancy shall provide a minimum inside measurement of 80 square feet (7 m^2) of usable floor space.

427.2.4.14.3 Resident bedrooms designated for multiple occupancy shall provide a minimum inside measurement of 60 square feet (6 m^2) of usable floor space per bed and be limited to four occupants.

427.2.4.14.4 All resident bedrooms shall open directly into a corridor, a common use area or the outside, except in those facilities comprised of apartments.

427.2.4.14.5 Each resident bedroom where furnishings are supplied by the facility shall be furnished with personal storage space and adequate space for hanging clothes

427.2.4.14.6 Bedroom doors shall not have vision panels.

427.2.4.15 Bathrooms. Bathrooms shall be designed to meet the following criteria:

427.2.4.15.1 A toilet and lavatory facility shall be provided for every six residents, and toilets shall be equipped with seats.

427.2.4.15.2 A minimum of one tub or shower facility, equipped with nonslip devices, shall be provided for every eight residents.

427.2.4.15.3 Bathrooms shall be ventilated, adequately lighted and have clearly labeled hot and cold running water.

427.2.4.15.4 Each bathroom shall have a door in working order to assure privacy.

427.2.4.15.5 When there is more than one toilet or bathing facility in a bathroom, provisions are required for privacy.

427.2.4.15.6 Bathrooms used by residents with disabilities shall be equipped to ensure safety and independent mobility.

427.2.4.15.7 Sole access to toilet or bathing facilities shall not be through another resident's sleeping room, except in facilities comprised of apartments.

427.2.4.16 Common living areas. Common living areas shall be designed to meet the following criteria:

427.2.4.16.1 A room, separate from sleeping areas, shall be provided where residents may read or engage in socialization or other leisure time activities.

427.2.4.16.2 A minimum of 35 square feet (3 m^2) of living and dining space per resident shall be provided by all facilities except those comprised of apartments. This space shall include living, recreational and other space designated accessible to residents, but shall not include bathrooms, corridors, storage space, or screened porches which cannot be adapted for year round use. Facilities with bedrooms which include living space may count the square footage that is in excess of the bedroom square footage requirements as part of the 35 square footage (3 m²) living and dining space requirements.

SECTION 428 MANUFACTURED BUILDINGS

428.1 General. The following administrative requirements for inspection and plan review apply to manufactured buildings including factory-built schools. Additional technical requirements for factory-built schools can be found in Section 423.

Note: See Department of Community Affairs (DCA) Rule 9B-1, *Florida Administrative Code* and Chapter 553, *Florida Statutes*.

428.2 Definitions.

428.2.1 "Third-party agency" means an individual or entity authorized to perform inspections of or review plans for manufactured buildings as provided by Rule 9B-l, *Florida Administrative Code*.

428.2.2 "Factory-built school" means any building designed or intended for use as a school building which is manufactured in whole or in part at an off-site facility, including prefabricated educational facilities, factory-built educational facilities and modular built educational facilities that are designed to be portable, relocatable, demountable or reconstructible, are used primarily as classrooms or the components of an entire school and do not fall under the provisions of Sections 320.822-320.862, *Florida Statutes*.

428.2.3 Department. Refers to Department of Community Affairs.

428.3 Inspections. Inspection of installation of manufactured buildings and construction activities conducted at the site of the installation shall by conducted pursuant to Chapter 1 hereof. Inspections during the manufacturing process shall be conducted by those third-party agencies as follows:

428.3.1 Inspections shall be conducted at the manufacturing facility by an appropriately licensed representative of a third-party agency selected by the manufacturer. The inspections shall be to ensure that the buildings are being manufactured in compliance with the applicable codes and the approved plans. Once a third-party agency has inspected a manufactured building, the manufacturer shall not seek to have the building inspected by another agency, nor shall any agency inspect a building that has already been inspected by another unless the subsequent inspection is at the direction of the department or unless the building or modification thereto is being inspected for recertification by the department.

428.3.2 At a minimum, a certified third-party agency shall meet the criteria in Sections 428.3.2.1 through 428.3.2.4.

428.3.2.1 With regard to manufactured buildings, observe the manufacture of the first building built subsequent to the plan approval or the selection of the agency, whichever occurs last, from start to finish, inspecting all subsystems thereof. Continual observation and inspection shall continue until the third-party agency determines that the implementation of the manufacturer's quality control program in conjunction with application of the approved plans and specifications and the manufacturer's capabilities result in a building that meets or exceeds the standards adopted herein. Thereafter, the agency shall inspect each module produced during at

least one point of the manufacturing process and shall inspect the entire production line during each plant inspection, so that a minimum of 75 percent of the modules inspected will have a minimum of one of the subsystems (electrical, plumbing, structural, mechanical or thermal) exposed for inspection.

428.3.2.2 With regard to components, observe the manufacture of the first unit assembled subsequent to the plan approval or the selection of the agency, whichever occurs last, from start to finish, inspecting all subsystems thereof. Continual observation and inspection shall continue until the third-party agency determines that the implementation of the manufacturer's quality control program in conjunction with application of the approved plans and specifications and the manufacturer's capabilities result in a component that meets or exceeds the codes and standards adopted herein. Thereafter, the third-party agency shall inspect not less than 50 percent of the manufactured building components or 20 percent of storage sheds that are not designed for human habitation and that have a floor area of 720 square feet (67 m^2) or less manufactured pursuant to the approved plan,

428.3.2.3 During each inspection, the agency shall verify that the manufacturer's inplant quality control program is working as set forth in the approved quality control manual.

428.3.2.4 Should work stop on a particular module or component for a period of two months, reinspection shall be required.

428.3.3 When a third-party agency discovers a deviation from the code or the approved plans which creates or threatens an imminent life safety hazard, all buildings or components which have progressed through that stage of production since the agency's previous inspection shall be inspected to ensure the absence of that deviation, and the agency shall immediately notify the manufacturer and the department in writing. Any building or component exhibiting the deviation shall be brought into conformance with the applicable code or the approved plans by the manufacturer within thirty days of notification of the deviation by the third party agency. The corrective action must be left available for reinspection by the third-party agency.

428.3.4 The third-party agency shall note all inspections, deviations and corrective actions in a written inspection report and shall complete the inspection report portion of the building code information system available via the Internet.

428.3.5 The agency shall give a copy of the inspection report(s) to the manufacturer for record and shall retain another copy. The agency or the manufacturer shall provide a copy of an inspection report to the department when requested.

428.4 Design plan and systems approval. Plan review pertaining to installation of manufactured buildings and construction activities conducted at the site of the installation shall be conducted pursuant to Chapter 1 hereof. Plan review pertaining to construction activities occurring within the manufacturing process shall be conducted by those third-party agencies as follows: third-party agencies shall review plans in conformity with Chapter 1 hereof and the following additional requirements: If the plans are for a residential manufactured building, certification from the design professional responsible for the plans that the structure has been designed only for erection or installation on a site built foundation in accordance with this code. If the residential manufactured building is transportable in one or more sections and is 8 body feet or more in width or 40 body feet (12 192 mm) or more in length, or, when erected on site, is 320 square feet (29 m²) or more, and which is built on a permanent chassis, the manufacturer shall certify that the manufactured building has been excluded from regulation by the United States Department of Housing and Urban Development.

428.4.1 Plan approval expiration. Upon revision of the *Florida Building Code* plan approvals shall expire upon the latter of the effective date of that revision or 90 days from adoption of that revision by the Florida Building Commission unless the manufacturer files with the department a sworn statement by a third-party agency that the plans have been reviewed and that they are in compliance with the revisions to the *Florida Building Code*.

428.4.2 Evidence of third-party agency approval. Approved plans and specifications shall be evidenced by a letter certificate from the agency. Approved copies of the design plans and specifications shall be returned to the manufacturer with an agency approval letter indicating the limitations, if any, of such approval. An approved copy of the plans shall be available at each place of manufacture, which shall be made available for inspection and monitoring. Upon approval of the plans, the third-party agency shall submit a copy of the plans bearing the approval stamp to the department together with a list of any limitations of that plan approval and a separate copy of the plans and limitations on compact disk in a readable format.

428.5 Alterations.

428.5.1 On-site modifications. On-site modification to manufactured buildings must be inspected by either a third party agency or by the authority having jurisdiction and must comply with the *Florida Building Code*. The authority having jurisdiction has superseding authority over any onsite modifications to a manufactured building or may delegate this authority to the department in writing on a case-by-case basis. Upon issuance of a certificate of occupancy for the modified manufactured building, the old insignia shall be removed and returned to the department.

428.5.2 In order to recertify a used manufactured building that is being relocated and not otherwise altered, the owner must provide the approved inspection agency with a set of the original approved plans for the building and any modification of the building. As-built plans shall be acceptable as an alternative to approved plans for factory-built schools manufactured prior to July 1, 2001. Once the agency has evaluated the continued compliance of the building with those plans and certifies to the department that the building is in compliance with the applicable codes, the approved inspection agency shall affix a recertification insignia to the building. If a building complied with the code in effect on the date of the original plan approval, the applicable code as

set forth above shall be that which was in effect on the date of the original plan approval. The relocation of a manufactured building does not constitute an alteration.

428.6 Factory-built schools, plan review (also see Section 423, State requirements for education facilities). Plan review of plans for newly constructed factory-built schools shall be performed by the third-party agency selected by the department. An applicant for plan approval shall submit complete plans to an agency in the manner and format agreed to by the agency and the applicant. Plan submittals shall include a schedule of inspections which shall be performed periodically as necessary to ensure that the building complies with applicable standards. Upon determination by the agency that the plans submitted comply with all applicable standards, the agency shall certify such determination by affixing an approval stamp on each page of the plans, and shall return one copy to the applicant, maintain an original set, and submit one copy electronically to the department. The agency shall be compensated for the actual cost of the plan review by the applicant. No manufacturing activity shall commence until plan approval has been obtained from the third-party agency. Plan review at a minimum shall include those items identified in Chapter 1 hereof. Plans for modification of factory-built schools shall be reviewed by an approved third-party agency selected by the manufacturer as set forth in 9B-1.009, Florida Administrative Code.

428.7 Factory-built schools, inspections and work progress reports (also see Section 423, state requirements for education facilities).

428.7.1 Inspectors. The school board or community college (educational entity) which is to utilize the factory-built school shall be responsible for compliance with inspection requirements.

428.7.2 Existing buildings. Factory-built schools designated as existing buildings shall be inspected to determine compliance with the standards adopted in Section 423 hereof. All deficiencies shall be noted in an inspection report provided to the educational entity upon completion of the inspection. Activities performed to rehabilitate a noncompliant building shall be subject to plan review and reinspection. Upon an inspector's determination that the building complies with the applicable standards, the inspector shall provide to the department the information as required on the data plate for the building and identify the building code information system.

428.7.3 New construction. All buildings other than existing buildings shall be subject to inspection during the manufacturing process. The educational entity shall ensure that factory inspections are performed periodically and are sufficient to ensure that the building and its systems comply with the applicable standards. The inspector shall require the correction of all deficiencies found during the manufacturing process. Upon an inspector's determination that the building complies with the applicable standards, the inspector shall provide to the department the information as required on the data plate for the building and identify the building as

satisfactory for use as an educational facility on the building code information system.

SECTION 429 BOOT CAMPS FOR CHILDREN

429.1 Boot camps for children shall comply with the design and construction standards as described herein. Enforcement and interpretation of theses provisions shall be by the entities authorized by Chapter 553.80, *Florida Statutes*.

Note: Other administrative and programmatic provisions may apply. See Department of Juvenile Justice Rule 63-E 2, *Florida Administrative Code*, and Chapter 39, *Florida Statutes*.

429.2 Facility structural and operational standards.

429.2.1 The facility shall conform to the *Florida Fire Prevention Code*. All new construction and building renovations shall comply with the *Florida Building Code*.

429.2.2 All juvenile justice residential treatment program facilities shall conform to the *Florida Building Code*.

429.2.3 All juvenile justice residential treatment program facilities shall comply with the sanitation, health and fire codes set forth in the *Florida Building Code* and in the *Florida Fire Prevention Code*.

SECTION 430 MAUSOLEUMS AND COLUMBARIUMS

430.1 General. The provisions of Section 430 shall apply to buildings or structures as defined in Section 202 as chapel mausoleums, garden mausoleums, nonvisitation crypt mausoleums, and columbariums. All crypts and niches built after this code becomes effective shall conform to this code.

430.2 Occupancy classification. Mausoleums and columbariums shall be classified as a Group S2 low hazard storage occupancy.

430.3 Construction type. Mausoleums, columbariums and accessory occupancies shall be of Type I unsprinklered, Type II unsprinklered, or Type IIB unsprinklered construction.

430.4 Accessory occupancies. Accessory occupancies shall comply with Sections 302.1 and 302.2.

430.5 Structural loads. Mausoleums and columbariums shall be designed to comply with the structural design requirements of Chapter 16. Crypts shall be designed for a minimum total live load of 35 psf ($2kN/m^2$).

430.6 Mausoleum and columbarium construction. The design and construction of mausoleums and columbariums shall comply with the *Florida Building Code, Building* and Section 430.6.

430.6.1 Plumbing systems. Mausoleums and columbariums shall not be required to comply with the *Florida Building Code, Plumbing.*

Exception: Accessory areas and an occupancy in a mixed occupancy building shall comply with *Florida Building Code, Plumbing.* The number and location of

plumbing facilities shall be based on the accessory areas and the mixed occupancy areas.

430.6.2 Mechanical systems. Mausoleums and columbariums shall not be required to comply with the *Florida Building Code, Mechanical.*

Exceptions:

- 1. Accessory areas and an occupancy in a mixed occupancy building shall comply with *Florida Building Code, Mechanical.* Mechanical systems shall be based on the accessory areas and the mixed occupancy areas.
- 2. Crypt pressure relief system shall comply with Section 430.7.2 except that for family mausoleum units where all crypts are bordering an exterior wall, pressure relief ventilation shall be provided from the crypt to the outside of the mausoleum through the exterior wall or roof.
- 3. Niches shall not require pressure relief systems.

430.6.3 Fire protection systems. Mausoleums and columbariums shall not be required to comply with Chapter 9, Fire Protection Systems.

Exception: Accessory areas and an occupancy in a mixed occupancy building shall comply with Chapter 9. The fire protection systems shall be based on the accessory areas and the mixed occupancy areas.

430.6.4 Interior finish. The interior finish for mausoleums and columbariums shall be Class A for exits and exit access and Class B for other spaces. The floor tile, marble, and granite used in a chapel mausoleum shall comply with the Marble Institute of America (1998).

430.6.5 Exterior finish. The exterior finish for mausoleums and columbariums shall be one or more of the following finishes:

Granite Marble Rubbed concrete Painted concrete Stucco Synthetic stucco Waterproofing products Tile

430.7 Crypts.

430.7.1 Crypts construction. Crypts and companion crypts shall be constructed of reinforced concrete complying with Chapter 19 and 430.7.1.

430.7.1.1 Cast in place crypt. Cast in placed crypts shall have a minimum thickness of 3 inches (76 mm) for floor slabs, walls, and other structural framework.

430.7.1.2 Precast crypt. Concrete shall have a minimum specified compressive strength f'_c of 5,000 psi (34.5 mPa). Crypt floor slabs and roof slabs shall have a minimum thickness of $2\frac{1}{2}$ inches (63.5 mm) Crypt walls shall be a minimum thickness of $3\frac{1}{2}$ inches (88.9 mm) at the top of the wall to a minimum of 2 inches (50.8 mm) at the bottom of the wall.

430.7.1.3 Crypt front. Crypt fronts are to be independent of the crypt panel. The front shall be Grade A exterior type granite or marble according to the Marble Institute of America (1998), or travertine, or bronze, or tile mosaic. The front shall be installed with a hanger system. The hangers, clips, and other exterior or interior fastenings shall be of copper-based alloy, copper, or stainless steel designed for strength and durability. Aluminum fastenings may be used if they will not react with and when not embedded in concrete. The front, trim, and wall stone shall be a minimum ³/₄ inch (19.1 mm) thick, other materials used for crypt fronts shall be the thickness as dictated at the time by modern mausoleum construction.

430.7.2 Crypt relief vent. For family mausoleum units where all crypts are bordering an exterior wall, pressure relief ventilation shall be provided from the crypt to the outside of the mausoleum through the exterior wall or roof. For all other mausoleum units, each crypt shall have a pressure relief vent from the crypt to the roof of the mausoleum complying with Section M515, Mausoleum relief system, of the *Florida Building Code, Mechanical.* Niches shall not require pressure relief systems.

430.8 Casket placement. Casket placement shall have minimum interior dimensions of 2 feet 6 inches (762 mm) wide mm) by 2 feet 1 inch (635 mm) high by 7 feet 3¹/₂ inches (2223 mm) deep.

430.9 Niches. Niches shall be designed and constructed in accordance with Section 430.9.

430.9.1 Minimum size. Niches shall have a minimum volume of 200 cubic inches (7 m^3) with a minimum width of 4¹/₂ inches (114.3 mm), a minimum height of 9 inches (228.6 mm), and a minimum depth of 5 inches (127 mm).

430.9.2 Niche front. The niche front shall be Grade A exterior-type granite or marble according to the marble Institute of America (1998), or travertine, bronze, tile mosaic, glass, lexan, or plexiglass.

430.9.3 Pressure relief systems. Niches shall not require pressure relief systems.

430.9.4 Wall thickness. Niche wall thickness shall be the thickness as dictated at the time of construction by modern mausoleum and columbarium construction.

430.10 Family mausoleum. Family mausoleums consisting of six or fewer casket placements shall comply with either Sections 430.1 or 430.10.

430.10.1 Materials. Family mausoleums shall be constructed of the materials in Sections 430.10.1.1 through 430.10.1.6.

430.10.1.1 Reinforced concrete floor. Reinforced concrete floor shall have a minimum specified compressive strength f'_c of 5,000 psi (34.5 mPa).

430.10.1.2 Hardware. Hardware and fasteners shall be of stainless steel or bronze.

430.10.1.3 Doors. When installed, doors and door hardware shall be bronze.

430.10.1.4 Crypt front. Crypt fronts shall be granite or marble.

430.10.1.5 Walls and roof. Walls and roof shall be of granite, marble or reinforced concrete.

430.10.1.6 Floor. The floor shall be granite, marble, or reinforced concrete.

430.10.2 Crypt relief vent. For family mausoleum units where all crypts are bordering an exterior wall, pressure relief ventilation shall be provided from the crypt to the outside of the mausoleum through the exterior wall or roof.

For family mausoleum units where all crypts are not bordering an exterior wall, each crypt shall have a pressure relief vent from the crypt to the roof of the mausoleum complying with Section M515, Mausoleum relief system, of the *Florida Building Code, Mechanical.*

430.10.3 minimum thickness. The minimum thickness for the components of a family mausoleum shall comply with Section 430.10.3.

430.10.3.1 Family mausoleum. Exterior walls shall be a minimum of 4 inches (101.6 mm). Roof shall be minimum of 6 inches (152 mm). Floor shall be a minimum of 6 inches (152 mm) granite, marble, or reinforced concrete. Shelves shall be a minimum of 2 inches (51 mm). Crypt fronts shall be a minimum of ³/₄ inch (19.1 mm).

430.10.3.2 Burial chamber mausoleum. Exterior walls shall be a minimum of 6 inches (152 mm). Roof shall be a minimum of 6 inches (152 mm). Floor shall be a minimum of 8 inches (203 mm) granite. Shelves shall be a minimum of 2 inches (51 mm). Crypt fronts shall be a minimum of ³/₄ inch (19.1 mm).

SECTION 431 TRANSIENT PUBLIC LODGING ESTABLISHMENTS

431.1 Any transient public lodging establishment, as defined in Chapter 509, Florida Statutes, and used primarily for transient occupancy as defined in Section 83.43(10), Florida Statutes, or any timeshare unit of a timeshare plan as defined in Chapters 718 and 721, Florida Statutes, which is of three stories or more and for which the construction contract has been let after the effective date of this code, with interior corridors which do not have direct access from the guest area to exterior means of egress and on buildings over 75 feet (22 860 mm) in height that have direct access from the guest area to exterior means of egress and for which the construction contract has been let after the effective date of this code, shall be equipped with an automatic sprinkler system installed in compliance with the provisions prescribed in the NFPA 13, Standards for the Installation of Sprinkler Systems. Each guestroom and each timeshare unit shall be equipped with an approved listed single-station smoke detector meeting the minimum requirements of NFPA 74, Standards for the installation, maintenance and Use of Household Fire Warning Equipment, powered from the building electrical service, notwithstanding the number of stories in the structure, if the contract for construction is let after the effective date of this code. Single-station smoke detectors shall not be required when guest- rooms or timeshare units contain smoke detectors connected to a central alarm system which also alarms locally.

SECTION 432 USE OF ASBESTOS IN NEW PUBLIC BUILDINGS OR BUILDINGS NEWLY CONSTRUCTED FOR LEASE TO GOVERNMENT ENTITIES-PROHIBITION

432.1 The use of asbestos or asbestos-based fiber materials is prohibited in any building, construction of which is commenced after September 30, 1983, which is financed with public funds or is constructed for the express purpose of being leased to any governmental entity.

SECTION 433 ADULT DAY CARE

433.1 General. Adult day care facilities shall comply with the following design and construction standards.

Note: See Agency for Health Care Administration (AHCA) Rule 58A-6, *Florida Administrative Code*, and Chapter 400, Part V, *Florida Statutes*.

433.2 Definitions.

"Adult day care center" or **"center"** means any building, buildings, or part of a building, whether operated for profit or not, in which is provided through its ownership or management, for a part of a day, basic services to three or more persons who are 18 years of age or older, who are not related to the owner or operator by blood or marriage, and who require such services. The following are exempt from this part:

- 1. Any facility, institution, or other place that is operated by the federal government or any agency thereof.
- 2. Any freestanding inpatient hospice facility that is licensed by the state and which provides day care services to hospice patients only.
- 3. A licensed assisted living facility, a licensed hospital, or a licensed nursing home facility that provides services during the day which include, but are not limited to, social, health, therapeutic, recreational, nutritional and respite services, to adults who are not residents, so long as the facility does not hold itself out as an adult day care center.

"Capacity" shall mean the number of participants for which a center has been licensed to provide care at any given time and shall be based upon required net floor space.

"Net floor space" shall mean the actual climatically con trolled occupied area, not including accessory unoccupied areas such as hallways, stairs, closets, storage areas, bathrooms, kitchen or thickness of walls, set aside for the use of the day care center participants.

"Participant space" shall mean the required net floor space per participant. Maximum participant capacity shall refer to the licensed capacity.

433.3 The following minimum conditions shall be met:

433.3.1 The floor surface in kitchens, all rooms and areas in which food is stored or prepared and in which utensils are washed or stored shall be of smooth nonabsorbent material and constructed so it can be easily cleaned and shall be washable up to the highest level reached by splash or spray.

433.3.2 The walls and ceilings of all food preparation, utensil washing and hand washing rooms or areas shall have smooth, easily cleanable surfaces. Walls shall be washable up to the highest level reached by splash or spray.

433.3.3 Hot and cold running water under pressure shall be easily accessible to all rooms where food is prepared or utensils are washed.

433.3.4 Hand-washing facilities, provided with hot and cold running water, shall be located within the food preparation area in new adult day care facilities and adult day care facilities which are extensively altered.

433.3.5 Multiuse equipment and utensils shall be constructed and repaired with materials that are nontoxic, corrosion resistant and nonabsorbent; and shall be smooth, easily cleanable and durable under conditions of normal use; and shall not impart odors, color or taste nor contribute to the contamination of food.

433.3.6 A three-compartment sink or a two-compartment sink and a dishwater with an effective, automatic sanitizing cycle, shall be provided.

433.3.7 Refrigeration units and hot food storage units used for the storage of potentially hazardous foods shall be provided with a numerically scaled indicating thermometer accurate to plus or minus $3^{\circ}F$ (-16°C). The thermometer shall be located in the warmest or coldest part of the units and of such type and so situated that the temperature can be easily and readily observed.

433.4 Participant and program data, emergency procedures. Fire safety protection shall be governed in accordance with the *Florida Fire Prevention Code*.

433.5 Physical plant, sanitary conditions, housekeeping standards and maintenance.

433.5.1 The participant capacity shall be determined by the total amount of net floor space available for all of the participants. Centers shall provide not less than 45 square feet (4 m^2) of net floor area per participant. Centers shall be required to provide additional floor space for special target populations to accommodate activities required by participant care plans.

433.5.2 Facilities exempt pursuant to Section 400.553, *Florida Statutes*, shall utilize separate space over and above the minimum requirement needed to meet their own licensure certification approval requirements. Only congregate space shall be included in determining minimum space. For purposes of this section, congregate space shall mean climatically controlled living room, dining room, specialized activity rooms, or other rooms to be commonly used by all participants.

433.5.3 Center facilities shall consist of, but not be limited to, the following:

- 1. Bathrooms.
- 2. Dining areas.
- 3. Kitchen areas.
- 4. Rest areas.
- 5. Recreation and leisure time areas.

433.5.4 A private area shall be available for the provision of first aid, special care and counseling services when provided, or as necessary for other services required by participants. This area shall be appropriately furnished and equipped.

433.5.5 Bathrooms shall be ventilated and have hot and cold running water, supplying hot water at a minimum of 105° F (41°C) and a maximum of 115° F (46°C).

433.5.6 Recreation and leisure time areas shall be provided where a participant may read, engage in socialization or other leisure time activities. The recreation areas also may be utilized for dining areas.

433.5.7 All areas used by participants shall be suitably lighted and ventilated and maintained at a minimal inside temperature of $72^{\circ}F(22^{\circ}C)$ when outside temperatures are $65^{\circ}F(18^{\circ}C)$ or below, and all areas used by participants must not exceed 90°F (32°C). Mechanical cooling devices must be provided when indoor temperatures exceed $84^{\circ}F(29^{\circ}C)$. The facility shall have a thermometer which accurately identifies the temperature.

SECTION 434 ASSISTED LIVING FACILITIES

434.1 Scope. Assisted living facilities shall comply with the following design and construction standards as described herein.

Note: Other administrative and programmatic provisions may apply. See Agency of Health Care Administration (AHCA) Rule 58A-5, *Florida Administrative Code* and Chapter 400 Part III, *Florida Statutes*.

434.2 Definitions.

AGENCY. The Agency for Health Care Administration.

ASSISTED LIVING FACILITY. Any building or buildings, section or distinct part of a building, private home, boarding home, home for the aged or other residential facility, whether operated for profit or not, which undertakes through its ownership or management to provide housing, meals and one or more personal services for a period exceeding 24 hours to one or more adults who are not relatives of the owner or administrator. The following are exempted from this definition:

- 1. Any facility, institution, or other place operated by the federal government or any agency of the federal government.
- 2. Any facility or part of a facility licensed under Chapter 393, *Florida Statutes*, or Chapter 394, *Florida Statutes*.
- 3. Any facility licensed as an adult family care home under Part VII Chapter 400, *Florida Statutes*.

- 4. Any person who provides housing, meals and one or more personal services on a 24-hour basis in the person's own home to not more than two adults who do not receive optional state supplementation. The person who provides the housing, meals, and personal services must own or rent the home and reside therein.
- 5. Any home or facility approved by the United States Department of Veterans Affairs as a residential care home wherein care is provided exclusively to three or fewer veterans.
- 6. Any facility that has been incorporated in this state for 50 years or more on or before July 1, 1983, and the board of directors of which is nominated or elected by the residents, until the facility is sold or its ownership is transferred; or any facility, with improvements or additions thereto, which has existed and operated continuously in this state for 60 years or more on or before July 1, 1989, is directly or indirectly owned and operated by a nationally recognized fraternal organization, is not open to the public, and accepts only its own members and their spouses as residents.
- 7. Any facility certified under Chapter 651, Florida Statutes, or a retirement community, may provide services authorized under this section or Part IV of Chapter 400, Florida Statutes to its residents who live in single-family homes, duplexes, quadruplexes, or apartments located on the campus without obtaining a license to operate an assisted living facility if residential units within such buildings are used by residents who do not require staff supervision for that portion of the day when personal services are not being delivered and the owner obtains a home health license to provide such services. However, any building or distinct part of a building on the campus that is designated for persons who receive personal services and require supervision beyond that which is available while such services are being rendered must be licensed in accordance with this section. If a facility provides personal services to residents who do not otherwise home health agency, the buildings or distinct parts of buildings where such services are rendered must be licensed under this section. A resident of a facility that obtains a home health license may contract with a home health agency of his or her choice, provided that the home health agency provides liability insurance and workers' compensation coverage for its employees. Facilities covered by this exemption may establish policies that give residents the option of contracting for services and care beyond that which is provided by the facility to enable them to age in place. For purposes of this section, a retirement community consists of a facility licensed under this section or under Part II of Chapter 400, Florida Statutes, and apartments designed for independent living located on the same campus.
- 8. Any residential unit for independent living which is located within a facility certified under Chapter 651 *Florida Statutes*, or any residential unit which is colocated with a nursing home licensed under Part II of Chapter 400 *Florida Statutes*. or colocated with a

facility licensed under this section in which services are provided through an outpatient clinic or a nursing home on an outpatient basis.

DEPARTMENT. The Department of Elderly Affairs.

EXTENDED CONGREGATE CARE. Acts beyond those authorized in subsection (5) that may be performed pursuant to part I of Chapter 464, *Florida Statutes*, by persons licensed thereunder while carrying out their professional duties. The purpose of such services is to enable residents to age in place in a residential environment despite mental or physical limitations that might otherwise disqualify them from residency in a facility licensed under this part.

PERSONAL SERVICES. Direct physical assistance with or supervision of the activities of daily living and the self-administration of medication and other similar services which the department may define by rule. Personal services shall not be construed to mean the provision of medical, nursing, dental or mental health services.

RELATIVE. An individual who is the father, mother, stepfather, stepmother, son, daughter, brother, sister, grandmother, grandfather, great-grandmother, great-grandfather, grandson, granddaughter, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, brother-in-law, sister-in-law, stepson, stepdaughter, stepbrother, stepsister, half brother or half sister of an owner or administrator.

RESIDENT. A person 18 years of age or older, residing in and receiving care from a facility.

RESIDENT'S REPRESENTATIVE OR DESIGNEE. A person other than the owner, or an agent or employee of the facility, designated in writing by the resident, if legally competent, to receive notice of changes in the contract executed pursuant to Section 400.424, *Florida Statutes.*; to receive notice of and to participate in meetings between the resident and the facility owner, administrator or staff concerning the rights of the resident; to assist the resident in contacting the ombudsman council if the resident has a complaint against the facility; or to bring legal action on behalf of the resident pursuant to Section 400.429, *Florida Statutes*.

AHCA CENTRAL OFFICE. The Assisted Living Unit, Agency for Health Care Administration.

CAPACITY. The number of residents for which a facility has been licensed to provide residential care.

DISTINCT PART. Designated bedrooms or apartments, bathrooms and a living area; or a separately identified wing, floor or building which includes bedrooms or apartments, bathrooms and a living area. The distinct part may include a separate dining area, or meals may be served in another part of the facility.

DOEA ASSISTED LIVING PROGRAM. The Assisted Living Program, Department of Elder Affairs.

FOOD SERVICE. The storage, preparation, serving and cleaning up of food intended for consumption in a facility or a formal agreement that meals will be regularly catered by a third party.

RENOVATION. Additions, repairs, restorations or other improvements to the physical plant of the facility within a five-year period that costs in excess of 50 percent of the value of the building as reported on the tax rolls, excluding land, before the renovation.

434.3 Codes and standards for the design and construction of assisted living facilities. Except as modified and required by this section of the code, Chapter 58A-5, *Florida Administrative Code* or Chapter 429 Part III, *Florida Statutes*, all new assisted living facilities and all additions, alterations, or renovations to existing assisted living facilities with more than 16 licensed beds shall also be in compliance with *The Guidelines for the Design and Construction of Health Care Facilities* (The Guidelines) Part I General, and Chapter 4.3 Assisted Living of Part 4, Other Health Care Facilities, incorporated by reference and obtainable from the American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006-5292.

434.4 Additional physical plant requirements for assisted living facilities. In addition to the codes and standards referenced in Section 434.3 of the code, the following minimum essential facilities shall apply to all new assisted living facilities.

434.4.1 Indoor radon testing as mandated by Section 404.056(5), *Florida Statutes*, shall be completed by all facilities.

434.4.2 Heating and cooling.

434.4.2.1 When outside temperatures are $65^{\circ}F(18^{\circ}C)$ or below, an indoor temperature of at least $72^{\circ}F(22^{\circ}C)$ shall be maintained in all areas used by residents during hours when residents are normally awake. During night hours when residents are asleep, an indoor temperature of at least $68^{\circ}F(20^{\circ}C)$ shall be maintained.

434.4.2.2 During hours when residents are normally awake, mechanical cooling devices, such as electric fans, must be used in those areas of buildings used by residents when inside temperatures exceed $85^{\circ}F(29^{\circ}C)$ provided outside temperatures remain below $90^{\circ}F(32^{\circ}C)$. No residents shall be in any inside area that exceeds $90^{\circ}F(32^{\circ}C)$. However, during daytime hours when outside temperatures exceed $90^{\circ}F(32^{\circ}C)$, and at night, an indoor temperature of no more than $81^{\circ}F(27^{\circ}C)$ must be maintained in all areas used by residents.

434.4.2.3 Residents who have individually controlled thermostats in their bedrooms or apartments shall be permitted to control temperatures in those areas.

434.4.3 Common areas.

434.4.3.1 A minimum of 35 square feet (3 m^2) of living and dining space per resident, live-in staff and livein family member shall be provided except in facilities comprised of apartments. This space shall include living, dining, recreational or other space designated accessible to all residents, and shall not include bathrooms, corridors, storage space or screened porches which cannot be adapted for year round use. Facilities with apartments may count the apartment's living space square footage as part of the 35 square footage (3 m^2) living and dining space requirement. Those facilities also serving as adult day care centers must provide an additional 35 square feet (3 m^2) of living and dining space per adult day care client. Excess floor space in residents' bedrooms or apartments cannot be counted toward meeting the requirement of 35 square feet (3 m^2) of living and dining space requirements for adult day care participants. Day care participants may not use residents' bedrooms for resting unless the room is currently vacant.

434.4.3.2 A room, separate from resident bedrooms, shall be provided where residents may read, engage in socialization or other leisure time activities. Comfortable chairs or sofas shall be provided in this communal area.

434.4.3.3 The dining area shall be furnished to accommodate communal dining.

434.4.4 Bedrooms.

434.4.1 Resident sleeping rooms designated for single occupancy shall provide a minimum inside measurement of 80 square feet of usable floor space. Usable floor space does not include closet space or bathrooms.

434.4.4.2 Resident bedrooms designated for multiple occupancy shall provide a minimum inside measurement of 60 square feet (6 m^2) of usable floor space per room occupant.

434.4.4.3 Resident bedrooms designated for multiple occupancy in facilities newly licensed or renovated six months after October 17, 1999, shall have a maximum occupancy of two persons.

434.4.4 All resident bedrooms shall open directly into a corridor, common use area or to the outside. A resident must be able to exit his bedroom without having to pass through another bedroom unless the two rooms have been licensed as one bedroom.

434.4.4.5 All resident bedrooms shall be for the exclusive use of residents. Live-in staff and their family members shall be provided with sleeping space separate from the sleeping and congregate space required for residents.

434.4.5 Bathrooms.

434.4.5.1 There shall be at least one bathroom with one toilet and sink per six persons, and one bathtub or shower per eight persons. All residents, all live-in staff and family members, and respite care participants must be included when calculating the required number of toilets, sinks, bathtubs and showers. All adult day care participants shall be included when calculating the required number of toilets and sinks.

434.4.5.2 Each bathroom shall have a door in working order to assure privacy. The entry door to bathrooms with a single toilet shall have a lock which is operable from the inside by the resident with no key needed. A nonlocking door shall be permitted if the resident's safety would otherwise be jeopardized.

434.4.5.3 There shall be nonslip safety devices such as bath mats or peel off stickers in the showers and bathtubs of all facilities. Showers and bathtubs with a nonskid

surface require a separate nonskid device only if the surface is worn. Grab bars shall be required in showers and bathtubs. Grab bars, whether portable or permanent, must be securely affixed to the floor or adjoining walls. Facilities newly licensed or renovated six months after October 17, 1999 must have grab bars next to the commode.

434.4.5.4 Sole access to a toilet or bathtub or shower shall not be through another resident's bedroom, except in apartments within a facility.

434.4.6 Security. External boundaries of a facility or a distinct part of a facility, including outside areas, may be secured using egress control or perimeter control devices if the following conditions are met.

434.4.6.1 The use of the device complies with all lifesafety requirements.

434.4.6.2 Residents residing within a secured area are able to move freely throughout the area, including the resident's bedroom or apartment, bathrooms and all common areas, and have access to outdoor areas on a regular basis and as requested by each resident.

434.4.6.3 Residents capable of entering and exiting without supervision have keys, codes or other mechanisms to exit the secured area without requiring staff assistance.

434.4.6.4 Staff who provide direct care or who have regular contact with residents residing in secured areas complete Level 1 Alzheimer's training as described in Rule 58A-5.0191.

434.4.6.5 Pursuant to Section 400.441, *Florida Statutes*, facilities with 16 or fewer residents shall not be required to maintain an accessible telephone in each building where residents reside, maintain written staff job descriptions, have awake night staff or maintain standardized recipes as provided in Rules 58A-5.0182(6)(g), 58A-5.019(2)(e), 58A-5.019(4)(a) and 58A-5.020(2)(b), respectively.

434.5 Extended congregate care.

434.5.1 Physical site requirements. Each extended congregate care facility shall provide a homelike physical environment which promotes resident privacy and independence including:

434.5.1.1 A private room or apartment, or a semiprivate room or apartment shared with roommate of the resident's choice. The entry door to the room or apartment shall have a lock which is operable from the inside by the resident with no key needed. The resident shall be provided with a key to the entry door on request. The resident's service plan may allow for a nonlocking entry door if the resident's safety would otherwise be jeopardized.

434.5.1.2 A bathroom, with a toilet, sink and bathtub or shower, which is shared by a maximum of four residents. A centrally located hydromassage bathtub may substitute for the bathtub or shower in two of the bath rooms. The entry door to the bathroom shall have a lock which is operable from the inside by the resident with no key needed. The resident's service plan may allow for a nonlocking bathroom door if the resident's safety would otherwise be jeopardized.

SECTION 435 CONTROL OF RADIATION HAZARDS

435.1 Scope. Control of radiation hazards shall comply with the following design and construction standards as described herein.

Note: Other administrative and programmatic provisions may apply. See Department of Health (DOH) Rule 64E-5, *Florida Administrative Code*, and Chapter 404, *Florida Statutes*.

435.2 Control of access to high radiation areas.

435.2.1 Definitions.

HIGH RADIATION AREA. An area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 1 mSv (0.1 rem) in 1 hour at 30 cm from any source of radiation or from any surface that the radiation penetrates. For purposes of this section, rooms or areas in which diagnostic X-ray systems are used for healing arts purposes are not considered high radiation areas.

VERY HIGH RADIATION AREA. An area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess to 500 rad (5 gray) in 1 hour at 1 m from a source of radiation or from any surface that the radiation penetrates. At very high doses received at high dose rates, units of absorbed dose, gray and rad, are appropriate, rather than units of dose equivalent, sievert and rem.

435.2.2 The licensee or registrant shall ensure that each entrance or access point to a high radiation area has one or more of the following features:

435.2.2.1 A control device that upon entry into the area causes the level of radiation to be reduced below that level at which an individual might receive a deep dose equivalent of 0.1 rem (1 millisievert) in 1 hour at 30 cm from the source of radiation from any surface that the radiation penetrates;

435.2.2.2 A control device that energizes a conspicuous visible or audible signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; or

435.2.2.3 Entryways that are locked except during periods when access to the areas is required with positive control over each individual entry.

435.3 Caution signs.

435.3.1 Standard radiation symbol. Unless otherwise authorized by the department, the symbol prescribed in this section shall use the colors magenta or purple or black on yellow background. The symbol prescribed is the three-bladed design as follows:

435.3.1.1 Radiation symbol.

435.3.1.1.1 Cross-hatched area is to be magenta or purple or black.

435.3.1.1.2 The background is to be yellow.

435.3.2 Exception to color requirements for standard radiation symbol. In spite of the requirements of Section 435.3.1, licensees or registrants are authorized to label sources, source holders or device components containing sources of radiation that are subjected to high temperatures, with conspicuously etched or stamped radiation caution symbols and without a color requirement.

435.3.3 Additional information on signs and labels. In addition to contents of signs and labels prescribed in this part, the licensee or registrant shall provide on or near the required signs and labels additional information to make individuals aware of potential radiation exposures and to minimize the exposures.

435.4 Posting requirements.

435.4.1 Posting of radiation areas. The licensee or registrant shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

435.4.2 Posting of high radiation areas. The licensee or registrant shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DAN-GER, HIGH RADIATION AREA."

435.4.3 Posting of very high radiation areas. The licensee or registrant shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words "GRAVE DANGER, VERY HIGH RADIATION AREA."

435.4.4 Posting of air-borne radioactivity areas. The licensee shall post each air-borne radioactivity area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, AIR-BORNE RADIOACTIVITY AREA" or "DANGER, AIR-BORNE RADIOACTIVITY AREA."

435.4.5 Posting of areas or rooms in which licensed material is used or stored. The licensee shall post each area or room in which there is used or stored an amount of licensed material exceeding 10 times the quantity of such material specified in State of Florida Office of Radiation Control Radioactive Material Requiring Labeling, May 2000, which is herein incorporated by reference and which is available from the department, with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL(S)" or "DANGER, RADIO-ACTIVE MATERIAL(S)."

435.4.6 A licensee or registrant is not required to post caution signs in areas or rooms containing sources of radiation for periods of less than 8 hours if each of the following conditions is met.

435.4.6.1 The sources of radiation are constantly attended during these periods by an individual who takes the precautions necessary to prevent the exposure of individuals to sources of radiation in excess of the limits established in this section, and

435.4.6.2 The area or room is subject to the licensee's or registrant's control.
435.4.7 Rooms or other areas in hospitals that are occupied by patients are not required to be posted with caution signs as specified in 64E-5.323 if the patient could be released from confinement as specified in 64E-5.622.

435.4.8 A room or area is not required to be posted with a caution sign because of the presence of a sealed source provided the radiation level at 30 cm from the surface of the sealed source container or housing does not exceed 0.005 rem (0.05 millisievert) per hour.

435.4.9 A room or area is not required to be posted with a caution sign because of the presence of radiation machines used solely for diagnosis in the healing arts.

435.5 General requirements.

435.5.1 Shielding. Each X-ray facility shall have primary and secondary protective barriers as needed to assure that an individual will not receive a radiation dose in excess of the limits specified in Part III of Chapter 64E-5, *Florida Administrative Code*.

435.5.1.1 Structural shielding in walls and other vertical barriers required for personnel protection shall extend without breach from the floor to a height of at least 7 feet (2.1 m).

435.5.1.2 Doors, door frames, windows and window frames shall have the same lead equivalent shielding as that required in the wall or other barrier in which they are installed.

435.5.1.3 Prior to construction, the floor plans and equipment arrangement of all new installations, or modifications of existing installations, utilizing X-ray energies of 200 keV and above for diagnostic or therapeutic purposes shall be submitted to the Department of Health for review and approval. In computation of protective barrier requirements, the maximum anticipated workload, use factors, occupancy factors and the potential for radiation exposure from other sources shall be taken into consideration.

435.5.1.3.1 The plans shall show, as a minimum, the following:

435.5.1.3.1.1 The normal location of the X-ray system's radiation port; the port's travel and traverse limits; general direction of the useful beam; locations of any windows and doors; the location of the operator's booth; and the location of the X-ray control panel.

435.5.1.3.1.2 The structural composition and thickness or lead equivalent of all walls, doors, partitions, floor and ceiling of the room concerned.

435.5.1.3.1.3 The dimensions of the room concerned.

435.5.1.3.1.4 The type of occupancy of all adjacent areas inclusive of space above and below the room concerned. If there is an exterior wall, the distance to the closest area where it is likely that individuals may be present.

435.5.1.3.1.5 The make and model of the X-ray equipment and the maximum technique factors.

435.5.1.3.1.6 The type of examinations or treatments which will be performed with the equipment.

435.5.1.3.2 Information shall be submitted on the anticipated maximum workload of the X-ray system.

435.5.1.3.3 If the services of a qualified person have been utilized to determine the shielding requirements, a copy of the report, including all basic assumptions used, shall be submitted with the plans.

435.5.2 X-ray film processing facilities.

435.5.2.1 Processing facilities. Each installation using a radiographic X-ray system shall provide suitable equipment for handling and processing radiographic film in accordance with the following provisions:

435.5.2.1.1 The area in which undeveloped films are handled for processing shall be devoid of light with the exception of light in the wave lengths having no significant effect on the radiographic film.

435.5.2.1.2 Film pass boxes, if provided, shall be so constructed as to exclude light when film is placed in or removed from the boxes, and shall incorporate adequate shielding to prevent exposure of undeveloped film to stray radiation.

435.5.2.1.3 Darkrooms used by more than one individual shall be provided a positive method to prevent accidental entry while undeveloped films are being handled or processed.

435.5.2.1.4 Where film is developed manually, the following conditions shall be met:

435.5.2.1.4.1 At least one trisectional tank made of mechanically rigid, corrosion resistant material shall be utilized; and

435.5.2.1.4.2 The temperature of each solution shall be maintained within the range of 600°F to 800°F (160°C to 270°C). Film shall be developed in accordance with the time-temperature relationships specified by the film manufacturer, or, in the absence of such recommendations by the film manufacturer, with the following time-temperature chart:

435.5.2.1.4.3 Devices shall be utilized which will:

- 1. Indicate the actual temperature of the developer; and
- 2. Signal the passage of a preset time as short as 2 minutes.

435.6 Doors, interlocks, and warning systems.

435.6.1 A licensee shall control access to the teletherapy room by a door at each entrance.

435.6.2 A licensee shall equip each entrance to the teletherapy room with an electrical interlock system that shall:

- 1. Prevent the operator from turning on the primary beam of radiation unless each treatment room entrance door is closed;
- 2. Turn off the beam of radiation immediately when an entrance door is opened; and
- 3. Prevent the primary beam of radiation from being turned on following an interlock interruption until all treatment room entrance doors are closed and the beam on-off control is reset at the console.

435.6.3 A licensee shall equip each entrance to the teletherapy room with a conspicuously visible beam condition indicator light.

435.7 Radiation monitoring devices.

435.7.1 A licensee shall have a permanent radiation monitor in each teletherapy room capable of continuously monitoring beam status.

435.7.2 Each radiation monitor shall be capable of providing visible notice of a teletherapy unit malfunction that results in an exposed or partially exposed source. The visible indicator of high radiation levels shall be observable by an individual entering the teletherapy room.

Thermom Read	Minimum Developing	
C	F	Time (minutes)
26.7	80	2
26.1	79	2
25.6	78	2-1/2
25.0	77	2-1/2
24.4	76	3
23.9	75	3
23.3	74	3-1/2
22.8	73	3-1/2
22.2	72	4
21.7	71	4
21.1	70	4-1/2
20.6	69	4-1/2
20.0	68	5
19.4	67	5-1/2
18.9	66	5-1/2
18.3	65	6
17.8	64	6-1/2
17.2	63	7
16.7	62	8
16.1	61	8-1/2
15.6	60	9-1/2

TIME-TEMPERATURE CHART

435.7.3 Each radiation monitor shall be equipped with a backup power supply separate from the power supply to the

teletherapy unit. This backup power supply may be a battery system.

435.8 Viewing systems. A licensee shall construct or equip each teletherapy room to permit continuous observation of the patient from the teletherapy unit console during irradiation.

435.9 Warning devices.

435.9.1 All locations designated as high radiation areas, and all entrances to such locations shall be equipped with easily observable warning lights that operate when and only when radiation is being produced.

435.9.2 Except in facilities designed for human exposure, each high radiation area shall have an audible warning device which shall be activated for 15 seconds prior to the possible creation of such high radiation area. Such warning device shall be clearly discernible in all high radiation areas and in any adjacent radiation areas.

435.9.3 Barriers, temporary or otherwise, and pathways leading to high radiation areas shall be identified in accordance with the Department of Health.

435.10 Design requirements for radiation rooms. Panoramic irradiators shall not be operated unless the following are met:

435.10.1 Each entrance to a radiation room must have a door or other physical barrier to prevent inadvertent entry of personnel while the sources are exposed. Product conveyor systems can serve as barriers as long as they reliably and consistently function as a barrier. It must not be possible to move the sources out of their shielded position if any door or barrier to the radiation room is open. Opening the door or barrier while the sources are exposed must cause the sources to return promptly to their shielded position. The primary entry door must have a lock which is operated by the same key used to control source movement. The doors and barriers must not prevent any individual in the radiation room from leaving.

435.10.2 Each entrance to a radiation room must have an independent backup access control to detect personnel entry while the sources are exposed if the primary access control fails. Entry while the sources are exposed must cause the sources to return to their fully shielded position and also must activate a visible and audible alarm to make the individual entering the room aware of the hazard. The alarm also must alert at least one other individual of the entry who is on site and who is trained to render or summon assistance promptly.

435.10.3 A radiation monitor must be provided to detect the presence of high radiation levels in the radiation room before personnel entry. The monitor must be integrated with personnel access door locks to prevent room access when the monitor detects high radiation levels. The monitor must generate audible and visible alarms if high radiation levels are detected when personnel entry is attempted. The monitor can be located in the entrance or maze but not in the direct radiation beam.

435.10.4 Before sources move from their shielded position, the source control automatically must activate conspicuous visible and audible alarms to alert people in the radiation

room that the sources will be moved from their shielded position. The alarms must give individuals enough time to leave the room before the sources leave the shielded position.

435.10.5 Each radiation room must have a clearly visible and readily accessible control which will allow an individual in the room to return the sources to their fully shielded position.

435.10.6 Each radiation room must contain a control which allows the sources to move from the shielded position only if the control has been activated and the door or barrier to the radiation room subsequently has been closed within a preset time.

435.10.7 Each entrance to the radiation room and each entrance to the area within the personnel access barrier of an underwater irradiator must be posted as required by this section. Panoramic irradiators also must be posted as required by this section. The sign can be removed, covered or otherwise made inoperative when the sources are shielded fully.

435.10.8 If the radiation room has roof plugs or other movable shielding, it must not be possible to operate the irradiator unless the shielding is in its proper location. This requirement can be met by interlocks which prevent operation if shielding is not placed properly or by an operating procedure requiring inspection of shielding before operating.

435.10.9 Underwater irradiators must have a personnel access barrier around the pool which must be locked to prevent access when the irradiator is not attended. Only operators and facility management shall have access to keys to the personnel access barrier. There must be an intrusion alarm to detect unauthorized entry when the personnel access barrier is locked. Activation of the intrusion alarm must alert an individual, not necessarily on site, who is prepared to respond or summon assistance.

435.11 Fire protection.

435.11.1 The radiation room at a panoramic irradiator must have heat and smoke detectors. The detectors must activate an audible alarm. The alarm must be capable of alerting a person who is prepared to summon assistance promptly. The sources must become fully shielded automatically and the air handling systems within the radiation room must be disabled automatically if a fire is detected.

435.11.2 The radiation room at a panoramic irradiator must be equipped with a fire suppression or extinguishing system capable of extinguishing a fire without the entry of personnel into the room. The system for the radiation room must have a shutoff valve to control flooding into unrestricted areas.

435.12 Irradiator pools.

435.12.1 Irradiator pools must possess a watertight stainless steel liner or a liner metallurgically compatible with other components in the pool or be constructed so that there is a low likelihood of substantial leakage and have a surface designed to facilitate decontamination and must include a means of safely storing sources during repairs of the pool.

435.12.2 Irradiator pools must have no penetration more than 0.5 m below the normal low water level which could allow water to drain out of the pool. Pipes which have intakes more than 0.5 m below the normal low water level must have siphon breakers to prevent the siphoning of the pool.

435.12.3 A means must be provided to replenish water losses from the pool.

435.12.4 An audible and visible indicator must be provided to indicate if the pool water level is below the normal low water level or above the normal high water level.

435.12.5 Irradiator pools must be equipped with a purification system designed to maintain the water during normal operation at a level of conductance not exceeding 20 microsiemens per centimeter and with a clarity so the sources can be seen clearly.

435.12.6 A physical barrier such as a railing or cover must be used around irradiator pools during normal operation to prevent personnel from accidentally falling into the pool. The barrier can be removed during maintenance, inspection, and service operations.

435.12.7 If long-handled tools or poles are used in irradiator pools, the radiation dose rate on the handling areas of the tools must not exceed 2 millirem (0.02 millisievert) per hour.

435.13 Design requirements.

435.13.1 Panoramic irradiators shall meet the following design requirements:

435.13.1.1 Shielding. The shielding walls shall be designed to meet generally accepted building code requirements for reinforced concrete and shall design the walls, wall penetrations, and entrance ways to meet the radiation shielding requirements of 64E-5.1407. If the irradiator will use more than 2×10^{17} becquerels (5 million curies) of activity, the licensee shall evaluate the effects of heating of the shielding walls by the irradiator sources.

435.13.1.2 Foundations. The foundation shall be designed with consideration given to soil characteristics to ensure it is adequate to support the weight of the facility.

435.13.1.3 Fire protection. The number, design, locations and spacing of the smoke and heat detectors and extinguishing system shall be appropriate to detect fires and that the detectors are protected from mechanical and radiation damage. The fire extinguishing system shall be designed to provide the necessary discharge patterns, densities, and flow characteristics for complete coverage of the radiation room and that the system is protected from mechanical and radiation damage.

435.13.1.4 Wiring. The electrical wiring and electrical equipment in the radiation room shall be selected to minimize failures due to prolonged exposure to radiation.

435.13.2 Pool irradiators shall meet the following design requirements.

435.13.2.1 Pool integrity. The pool shall be designed to assure that it is leak resistant, that it is strong enough to bear the weight of the pool water and shipping casks, that a dropped cask would not fall on sealed sources, that all penetrations meet the requirements of Section 435.12.2, and that metal components are metallurgically compatible with other components in the pool.

435.13.2.2 Water-handling system. The water purification system shall be designed to meet the requirements of Section 435.12.5. The system must be designed so that water leaking from the system does not drain to unrestricted areas without being monitored. The licensee shall design the water chiller system so that it shall compensate adequately for the amount of heat generated by the sealed sources. The water-handling system must have remote controls capable of safely operating a contaminated system.

435.13.3 Floor penetrations. No floor penetrations, including expansion joints, floor joints and drains, shall allow the uncontrolled release of water from the radiation room that has not been analyzed for its radioactive content.

435.14 Construction control. The requirements of this section must be met before loading sources. Panoramic irradiators shall meet the following construction requirements:

435.14.1 Shielding. The construction of the shielding shall be monitored to verify that it meets design specifications and generally accepted building code requirements for reinforced concrete.

435.14.2 Foundations. The construction of the foundations shall be monitored to verify that they meet design specifications.

435.14.3 Fire protection. The ability of the heat and smoke detectors shall be verified to detect a fire, to activate alarms and to cause the source rack to become fully shielded automatically. The operability of the fire suppression or extinguishing system shall also be verified

435.14.4 Wiring. The electrical wiring and electrical equipment that were installed shall be verified to meet the design specifications.

435.15 Pool irradiators shall meet the following construction requirements.

435.15.1 Pool integrity. The integrity of the pool shall be tested to verify that the pool meets the design specifications. The penetrations and water intakes shall be verified to meet the requirements of Section 435.12.2

SECTION 436 DAY-CARE OCCUPANCIES

436.1 General.

436.1.1 Places of religious worship shall not be required to meet the provisions of this section in order to operate a nursery while services are being held in the building.

436.1.2 Where day care occupancies with clients 24 months or less in age or incapable of self-preservation are located one or more stories above the level of exit discharge or where day care occupancies are located two or more stories above the level of exit discharge, smoke barriers shall be provided to divide such stories into a minimum of two smoke compartments. The smoke barriers shall be constructed in accordance with Section 709 but shall not be required to have a fire-resistance rating.

436.2 Closet doors. Every closet door latch shall be such that clients can open the door from inside the closet.

436.3 Bathroom doors. Every bathroom door lock shall be designed to permit opening of the locked door from the outside in an emergency. The opening device shall be readily accessible to the staff.

436.4 Door closure. Any exit door designed to be normally closed shall be kept closed and shall comply with Section 715.3.

436.5 Location and construction types. Day care occupancies shall be limited to the locations and construction types specified in Table 436.5. Day care homes and adult day care shall be permitted to be of any type construction permitted by this code.

	TYPE OF CONSTRUCTION				
LOCATION OF DAY CARE	Sprinklered Building	Construction Type			
1 story below LED ¹	Yes	I, II, IIIA, IV, V-A			
Level of Exit Discharge	No	Any type permitted by this code			
1 story above LED ¹	Yes No	Any type			
2 or 3 stories above LED ¹	Yes	I, II, III-A, V-A			
> 3 stories above LED ¹ but not high rise	Yes	I			
High rise	Yes	I			

TABLE 436.5 DAY-CARE LOCATION AND TYPE OF CONSTRUCTION

Notes:

¹LED means Level of Exit Discharge.

436.6 Protection from hazards. Rooms or spaces for the storage, processing or use of materials specified below shall be protected in accordance with the following:

436.6.1 The following rooms or spaces shall be separated from the remainder of the building by fire barriers having a fire resistance rating of not less than 1-hour or shall be protected by an approved automatic extinguishing system.

1. Boiler and furnace rooms.

Exception: Rooms enclosing only air-handling equipment.

- 2. Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the build-ing official.
- 3. Rooms or spaces used for the storage of hazardous materials or flammable or combustible liquids in quantities deemed hazardous by recognized standards.
- 4. Janitor closets.

Exception: Doors to janitor closets shall be permitted to have ventilating louvers where the space is protected by automatic sprinklers.

436.6.2 The following rooms or spaces shall be separated from the remainder of the building by fire barriers having a fire resistance rating of not less than 1 hour and shall be protected by an approved automatic fire-extinguishing system.

- 1. Laundries.
- 2. Maintenance shops, including woodworking and painting areas.
- 3. Rooms or spaces used for processing or use of combustible supplies deemed hazardous by the building official.
- 4. Rooms or spaces used for processing or use of hazardous materials or flammable or combustible liquids in quantities deemed hazardous by recognized standards.

Exception: Food preparation facilities protected in accordance with NFPA 96 shall not be required to have openings protected between food preparation areas and dining areas. Where domestic cooking equipment is used for food warming or limited cooking, protection or segregation of food preparation facilities shall not be required if approved by the building official.

436.6.3 Where automatic extinguishing is used to meet the requirements of this section, sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gpm/per square foot (6.1 L/min/m²) of floor area throughout the entire enclosed area. An indicating shutoff valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply.

436.7 Detection and alarm systems. Day care occupancies shall be provided with a fire alarm system in accordance with Section 907 and this section.

Exception: Day care occupancies housed in one room.

436.7.1 Initiation of the required fire alarm system shall be by manual means and by operation of any required smoke detectors and required sprinkler systems.

436.7.1.1 Occupant notification signals shall be audible and visual signals in accordance with NFPA 72 and Chapter 11 of this code. The general evacuation alarm signal shall operate throughout the entire building.

Exceptions:

- 1. Where total evacuation of occupants is impractical because of building configuration, only the occupants in the affected zones shall be initially notified. Provisions shall be made to selectively notify occupants in other zones to afford orderly evacuation of the entire building.
- 2. Where occupants are incapable of evacuating themselves because of age, physical or mental disability or physical restraint, the private operating mode as described in NFPA 72 shall be permitted to be used. Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified. This notification shall include means to readily identify the zone, area, floor or building in need of evacuation.

436.7.1.2 Fire department notification. The fire alarm system shall be arranged to transmit the alarm automatically to the fire department in accordance with NFPA 72 by means of one of the following methods as approved by the building official:

- 1. An auxiliary alarm system, or
- 2. A central station connection, or
- 3. A proprietary system, or
- 4. A remote station connection.

Exception: Where none of the above means of notification is available, a plan for notification of the fire department, acceptable to the building official, shall be provided.

436.7.2 Detection. A smoke detection system shall be installed in accordance with NFPA 72, with placement of detectors in each story in front of doors to the stairways and in the corridors of all floors occupied by the day care occupancy. Detectors also shall be installed in lounges, recreation areas and sleeping rooms in the day care occupancy.

Exception: Day care occupancies housed in one room.

436.8 Corridors. Every interior corridor shall be constructed of walls having not less than a 1-hour fire-resistance rating.

Exceptions:

- 1. In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Sections 901.6 and 903.3.1.1 corridor walls shall not be required to be rated, provided that such walls form smoke partitions in accordance with Section 710.
- 2. Where the corridor ceiling is an assembly having an 1-hour fire-resistance rating where tested as a wall,

the corridor walls shall be permitted to terminate at the corridor ceiling.

- 3. Lavatories in unsprinklered buildings shall not be required to be separated from corridors, provided that they are separated from all other spaces by walls having not less than a 1-hour fire-resistance rating in accordance with Section 709.
- 4. Lavatories shall not be required to be separated from corridors, provided the building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Sections 901.6 and 903.3.1.1.

436.9 Flexible plan and open plan buildings. Flexible plan and open plan buildings shall comply with the requirements of this chapter as modified as follows:

436.9.1 Each room occupied by more than 300 persons shall have two or more means of egress entering into separate atmospheres. Where three or more means of egress are required, not more than two of them shall enter into a common atmosphere.

436.9.2 Flexible plan buildings shall be evaluated while all folding walls are extended and in use as well as when they are in the retracted position.

436.10 Day care homes.

436.10.1 This section establishes life safety requirements for day care homes in which more than three but not more than 12 clients receive care, maintenance and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day.

Exception: Facilities that supervise clients on a temporary basis with a parent or guardian in close proximity.

436.10.2 Definitions. For definitions, see Chapter 2.

436.10.3 Places of religious worship shall not be required to meet the provisions of this section in order to operate a nursery while services are being held in the building.

436.10.4 Occupancies that include part-day preschools, kindergartens and other schools whose purpose is primarily educational even though the children are of preschool age shall comply with the provisions for Group E occupancy.

436.10.5 Smoke detection systems.

436.10.5.1 Single-station smoke alarms installed in accordance with the household fire warning equipment requirements of Chapter 2 of NFPA 72 shall be installed within day care homes.

Exception: System smoke detectors installed in accordance with NFPA 72 and arranged to function in the same manner shall be permitted.

436.10.5.2 Where the day care home is located within a building of another occupancy, any corridors serving the day care home shall be provided with a complete smoke detection system installed in accordance with NFPA 72.

436.10.5.3 Single-station smoke alarms shall be powered by the building electrical system.

436.10.5.4 Single-station smoke alarms shall be provided in all rooms used for sleeping.

436.10.5.5 Where two or more smoke alarms are required within a living unit, suite of rooms, or similar area, they shall be arranged so that operation of any smoke alarm shall cause all smoke alarms within the living unit, suite of rooms or similar area to sound.

436.10.5.5.1 The alarms shall sound only within an individual living unit, suite of rooms or similar area and shall not actuate the building fire alarm system. Remote annunciation shall be permitted.

SECTION 437 HOSPICE INPATIENT FACILITIES AND UNITS AND HOSPICE RESIDENCES

437.1 Scope. All hospice inpatient facilities and units and residences shall comply with the following design and construction standards. Enforcement and interpretation of these provisions shall be by the state agency authorized by Section 553.73, *Florida Statutes*.

Note: Other administrative and programmatic provisions may apply. See Department of Elder Affairs (DOEA) Rule 58A-2, *Florida Administrative Code*, Agency for Health Care Administration (AHCA) Rule 59C-1, *Florida Administrative Code, and Chapter 400 Part VI, Florida Statutes.*

437.2 Physical plant requirements (inpatient facility and unit).

437.2.1 As used in this rule, "inpatient facility and unit" means the location where inpatient services are provided to hospice patients that are in need of hospice inpatient care.

437.2.2 Codes and standards.

437.2.2.1 All new inpatient units and facilities, and additions or renovations to existing units and facilities shall be in compliance with the requirements for:

- 1. Institutional Occupancy Group I-2, as described in Section 308.3 of this code; and
- 2. The National Fire Protection Association Life Safety Code 101, Chapter 18, New Health Care Occupancy, as described in Rule 69A-3.012, F.A.C., Standards of the National Fire Protection Association and incorporated by reference in Rule 69A-3.012, F.A.C.

437.2.2.2 Inpatient sleeping rooms shall be made accessible in accordance with the requirements of the *Florida Building Code*, Section11-6.1(1).

437.2.2.3 In renovations and additions to existing facilities, only that portion of the total facility affected by the project must comply with applicable sections of the codes for new facilities and units.

437.2.2.4 Existing portions of the facility that are not included in the renovation or addition but are essential to the functioning of the complete facility, as well as existing areas which receive less than substantial amounts of

new work, shall comply with the applicable sections of the codes for existing inpatient facilities and units.

437.2.2.5 All existing inpatient facilities and units licensed by the Agency for Health Care Administration shall be in compliance with National Fire Protection Association Life Safety Code 101, Chapter 19, Existing Health Care Occupancy, and incorporated by reference in Rule 69A-3.012, F.A.C.

437.2.3 Construction requirements. The following shall be provided in each inpatient facility and unit:

437.2.3.1 Each patient sleeping room shall have a minimum room area exclusive of toilet room, or permanently attached or built in closets, lockers or wardrobes, of 100 square feet (9.29 m²) per bed for private rooms and 80 square feet (7.70 m²) per bed for double occupancy rooms.

437.2.3.2 Each patient sleeping room shall have a window or door with a clear glass light in compliance with Section 1205.2 of the *Florida Building Code*. The window or door shall open directly to an atrium or to the outside of the building with a minimum of 20 feet (6.10 m) in clear and unobstructed vista measured perpendicularly from the window or door.

437.2.3.3 Each patient sleeping room shall have a ward-robe, locker or closet suitable for hanging clothing of the patient.

437.2.3.4 Other than a patient sleeping room located in a hospital or nursing home, each patient sleeping room shall have access to a toilet room without having to enter the general corridor area. One toilet room shall serve no more than four beds and no more than two resident rooms. The door shall be side hinged, swing out from the toilet room, and unless otherwise required by this code, be at least 32 inches (813 mm) wide. The toilet room shall contain a water closet with grab bars on both sides and an emergency nurse call station. The water closet shall be equipped with a bedpan-rinsing device.

437.2.3.5 A hand washing facility shall be provided within each patient toilet room or within each patient bedroom.

437.2.3.6 A nurses' station, clean workroom and soiled workroom shall be provided. Access to these rooms shall be from a corridor or ante room.

437.2.3.7 A charting space for clinical staff shall be provided at each nurses' station.

437.2.3.8 A hand washing facility shall be located in or near each nurses' station.

437.2.3.9 The clean workroom shall be provided with a work counter, hand wash facility, storage facilities and covered waste receptacle.

437.2.3.10 The soiled workroom shall be provided with a service sink equipped with rinsing device, work counter, a hand-washing facility, storage facilities, covered waste receptacle and covered linen receptacle.

437.2.3.11 A drug distribution system shall be provided with provisions for the locked storage of medications. Nothing in this section shall prohibit the use of the clean workroom for drug distribution.

437.2.3.12 A clean linen storage room or closet shall be provided.

437.2.3.13 A nourishment station with equipment for preparing or serving nourishments between scheduled meals shall be provided and shall be available for patient, family, volunteers, guests and staff use. Provisions shall be made for the use and storage of small appliances such as coffee makers or toasters. A minimum of two duplex receptacles connected to a small appliance circuit shall be provided.

437.2.3.14 A nurse calling system accessible by the patient shall be provided.

437.2.3.15 Storage for administrative supplies shall be provided.

437.2.3.16 Parking for stretchers and wheelchairs in an area out of the path of normal traffic and of adequate size for the unit shall be provided.

437.2.3.17 A janitor's closet with a floor drain and storage space for housekeeping equipment and supplies shall be provided.

437.2.3.18 A multipurpose lounge suitable and furnished for reception, recreation, dining, visitation, group social activities and worship shall be provided.

437.2.3.19 A conference or consultation room for patient and family use shall be provided.

437.2.3.20 A washer and dryer for patients' personal use shall be provided.

437.2.4 Details.

437.2.4.1 Fixtures, such as drinking fountains, public telephone, vending machines and portable equipment, shall not be located or stored so as to restrict corridor traffic or reduce the minimum required corridor width.

437.2.4.2 Doors to patient tub rooms, showers and water closets that swing into the room shall be equipped with reversible hardware that will allow the door to swing out in an emergency.

437.2.4.3 Doors, except those to closets or spaces not subject to occupancy, shall not swing into the exit access corridors.

437.2.4.4 Windows and outer doors, if used for ventilation, shall be equipped with insect screens.

437.2.4.5 Interior thresholds and expansion joint covers shall be made flush with the floor surface.

437.2.4.6 Grab bars shall be provided at all patient toilets, showers, and tubs. The bars shall have a clearance of $1^{1}/_{2}$ inches (38 mm) to the walls and shall be sufficiently anchored to sustain a concentrated applied load of not less than 250 pounds (113 kg).

437.2.4.7 Single paper towel dispensers, soap dispensers and covered waste receptacles shall be provided at all hand washing facilities.

437.2.4.8 Staff hand washing facilities shall be fitted with wrist blades and a gooseneck type spout.

437.2.4.9 All hand washing facilities shall be securely anchored to withstand an applied vertical load of not less than two hundred and fifty pounds on the front of the fixture.

437.2.5 Elevators. In new multistory units and facilities an elevator shall be provided in compliance with the requirements of Chapter 30 of the *Florida Building Code, Building*. In addition, a hospital-type elevator large enough to accommodate a bed and attending staff shall service all patient sleeping rooms and patient treatment areas located above the ground floor. The car shall be at least 5 feet 8 inches (1.73 m) wide by 9 feet (2.74 m) deep and the car doors shall have a clear opening of not less than 4 feet (1.22 m) wide and 7 feet (2.13 m) high.

437.2.6 Mechanical system requirements.

437.2.6.1 Air conditioning, heating and ventilating systems.

- All patient occupied areas shall be heated or cooled by individual or central units. Heating units shall be designed to provide a minimum of 72°F (22.22°C) ambient indoor temperature and air conditioning units shall be designed to provide a minimum of 78°F (25.55°C) ambient indoor temperature.
- 2. All air-supply and air-exhaust systems shall be mechanically operated. Fans serving exhaust systems shall be located at the discharge end of the system.

437.2.6.1.1 Carbon monoxide detector. See Section 913.1.

437.2.6.2 Plumbing and other piping systems. Water distribution systems shall be arranged to provide hot water at each hot water outlet at all times. Hot water at shower, bathing, and hand washing facilities for patients' personal use shall not exceed 110°F (43.3°C).

437.2.7 Electrical system requirements.

437.2.7.1 Lighting.

- 1. All spaces occupied by people, machinery, and equipment within the building, approaches to building, and parking areas shall have electric lighting.
- 2. All patients' rooms shall have general lighting and night lighting. General room luminaries shall be switched at the entrance to the patient room.

437.2.7.2 Receptacles. All patient rooms shall have hospital grade duplex grounding type receptacles.

437.2.8 Emergency electrical system.

437.2.8.1 A Type 1 essential electrical system shall be provided in all hospice facilities as described in National Fire Protection Association Life Safety Code 99,

"Health Care Facilities", and incorporated by reference in Rule 69A-3.012, *F.A.C.* The emergency power for this system shall meet the requirements of a Level 1, type 10, Class 48 generator as described in National Fire Protection Association Life Safety Code 110, "Emergency Standby Power Systems", and incorporated by reference in Rule 69A-3.012, *F.A.C.*

437.2.8.2 In new construction, the normal main service equipment shall be separated from the emergency distribution equipment by locating it in a separate room. Transfer switches shall be considered emergency distribution equipment for this purpose.

437.2.8.3 Switches for critical branch lighting shall be completely separate from normal switching. The devices or cover plates shall be of a distinctive color. Critical branch switches are permitted to be adjacent to normal switches. Switches for life safety lighting are not permitted except as required for dusk-to-dawn automatic control of exterior lighting fixtures.

437.2.8.4 There shall be selected life safety lighting provided at a minimum of 1 footcandle and designed for automatic dusk-to-dawn operation along the travel paths from the exits to the public way or to safe areas located a minimum of 30 feet (9.14 m) from the building.

437.2.8.5 A minimum of one elevator per bank serving any patient use floor shall be connected to the equipment branch of the essential electric system and arranged for manual or automatic operation during loss of normal power. Elevator cab lighting, controls, and communication and signal systems shall be connected to the life safety branch.

437.2.8.6 There shall be a dedicated low-fuel alarm for the day tank supplying the emergency generator driver. A manual pump shall also be provided for the day tank. The alarm shall be located at the generator derangement panel.

437.2.8.7 Transfer switch contacts shall be of the open type and shall be accessible for inspection and replacement.

437.2.8.8 If required by the facility's emergency food plan, there shall be power connected to the equipment branch of the essential electrical system for kitchen refrigerators, freezers and range hood exhaust fans. Selected lighting within the kitchen and dry storage areas shall be connected to the critical branch of the essential electrical system.

437.3 Residential units.

437.3.1 Residential units shall comply with the *Florida Building Code* and the National Fire Protection Association Life Safety Code 101 as adopted by the *Florida Fire Prevention Code*.

437.3.2 Residential units shall comply with the following codes and standards:

437.3.2.1 All new facilities and additions and renovations to existing facilities shall be in compliance with:

1. Section 310.1 of this code for Group R-4 occupancy;

*

- 2. The National Fire Protection Association Life Safety Code 101, Chapter 32, Residential Board and Care Occupancy and incorporated by reference in Rule 69A-3.012, *F.A.C.*, and
- 3. Chapter 11, Section 11-6.1(1) of the *Florida Building Code, Building.*

437.3.2.2 All existing facilities shall comply with National Fire Protection Association Life Safety Code 101, Chapter 33, Residential Board and Care Occupancy and incorporated by reference in Rule 69A-3.012, *F.A.C.*

SECTION 438 GROUP I-1, R-1, R-2, R-3

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- **11 438.1 General.** Occupancies in Groups I-1, R-1, R-2 and R-3 shall comply with the provisions of this section and other applicable provisions of this code.
- 11 **438.2 Separation walls.** Walls separating dwelling units in the same building and walls separating sleeping units in the same building shall comply with Section 708.
- **11 438.3 Horizontal separation.** Floor/ceiling assemblies separating dwelling units in the same buildings and floor/ceiling assemblies separating sleeping units in the same building shall be constructed in accordance with Section 711.

SECTION 439 HYDROGEN CUTOFF ROOMS

- [F] **439.1 General.** When required by the *Florida Fire Prevention Code*, hydrogen cutoff rooms shall be designed and constructed in accordance with this section.
- [] **[F] 439.2 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

[F] GASEOUS HYDROGEN SYSTEM. An assembly of piping, devices and apparatus designed to generate, store, contain, distribute or transport a nontoxic, gaseous hydrogen-containing mixture having at least 95-percent hydrogen gas by volume and not more than 1-percent oxygen by volume. Gaseous hydrogen systems consist of items such as compressed gas containers, reactors and appurtenances, including pressure regulators, pressure relief devices, manifolds, pumps, compressors and interconnecting piping and tubing and controls.

[F] HYDROGEN CUTOFF ROOM. A room or space that is intended exclusively to house a gaseous hydrogen system.

- [| [F] 439.3 Location. Hydrogen cut-off rooms shall not be located below grade.
- [] [F] 439.4 Design and construction. Hydrogen cutoff rooms shall be classified with respect to occupancy in accordance with Section 302.1 and separated from other areas of the building by not less than 1-hour fire barriers or as required by Section 508.2 or 508.3 as applicable.
- [] [F] 439.4.1 Opening protectives. Doors within such fire barrier walls, including doors to corridors, shall be self-closing in accordance with Section 715. Interior door openings shall be electronically interlocked to prevent oper-

ation of the hydrogen system when doors are opened or ajar or the room shall be provided with a mechanical exhaust ventilation system designed in accordance with Section 439.4.1.1.

[F] 439.4.1.1 Ventilation alternative. When an exhaust system is used in lieu of the interlock system required by Section 439.4, exhaust ventilation systems shall operate [] continuously and shall be designed to operate at a negative pressure in relation to the surrounding area. The average velocity of ventilation at the face of the door opening with the door in the fully open position shall not be less than 60 feet per minute (0.2287 m/s) at any point in the door opening.

[F] 439.4.2 Windows. Operable windows in interior walls **||** shall not be permitted. Fixed windows shall be permitted when in accordance with Section 715.

[F] 439.5 Ventilation. Cutoff rooms shall be provided with || mechanical ventilation in accordance with the applicable provisions for repair garages in Chapter 5 of the *Florida Building Code, Mechanical.*

[F] 439.6 Gas detection system. Hydrogen cutoff rooms shall || be provided with an approved flammable gas-detection system in accordance with Sections 439.6.1 through 439.6.3. ||

[F] 439.6.1 System design. The flammable gas-detection system shall be listed for use with hydrogen and any other flammable gases used in the room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.

[F] **439.6.2 Operation.** Activation of the gas detection sys- || tem shall result in all of the following:

- 1. Initiation of distinct audible and visual alarm signals both inside and outside of the cutoff room.
- 2. Activation of the mechanical ventilation system.

[F] 439.6.3 Failure of the gas detection system. Failure of **||** the gas detection system shall result in activation of the mechanical ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

[F] 439.7 Explosion control. Explosion control shall be provided in accordance with the *Florida Fire Prevention Code*.

[F] 439.8 Standby power. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Chapter 27.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

SECTION 501 GENERAL

501.1 Scope. The provisions of this chapter control the height and area of structures hereafter erected and additions to existing structures.

[F] 501.2 Address numbers. Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabetical letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm).

SECTION 502 DEFINITIONS

502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AREA, BUILDING. The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above.

BASEMENT. That portion of a building that is partly or completely below grade plane (see "Story above grade plane" in Section 202). A basement shall be considered as a story above grade plane where the finished surface of the floor above the basement is:

- 1. More than 6 feet (1829 mm) above grade plane; or
- 2. More than 12 feet (3658 mm) above the finished ground level at any point.

EQUIPMENT PLATFORM. An unoccupied, elevated platform used exclusively for mechanical systems or industrial process equipment, including the associated elevated walkways, stairs and ladders necessary to access the platform (see Section 505.5).

GRADE PLANE. A reference plane representing the average of finished ground level adjoining the building at exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.

HEIGHT, BUILDING. The vertical distance from grade plane to the average height of the highest roof surface.

HEIGHT, STORY. The vertical distance from top to top of two successive finished floor surfaces; and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

MEZZANINE. An intermediate level or levels between the floor and ceiling of any story and in accordance with Section 505.

SECTION 503 GENERAL HEIGHT AND AREA LIMITATIONS

503.1 General. The height and area for buildings of different construction types shall be governed by the intended use of the building and shall not exceed the limits in Table 503 except as modified hereafter. Each part of a building included within the exterior walls or the exterior walls and fire walls where provided shall be permitted to be a separate building.

503.1.1 Special industrial occupancies. Reserved.

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503.1.2 Buildings on same lot. Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the height of each building and the aggregate area of buildings are within the limitations of Table 503 as modified by Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

503.1.3 Type I construction. Buildings of Type I construction permitted to be of unlimited tabular heights and areas are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited height in Sections 503.1.1 and 504.3 or increased height and areas for other types of construction.

503.1.4 Basements. A basement of a building shall not count as a story when applying Table 503 for allowable building height.

503.1.5 Group A and E basements. Group A and E basements used as classrooms or assembly rooms shall be counted as a story.

SECTION 504 HEIGHT

504.1 Special unlimited height. The height of Group B, M and R occupancies of Type I-B construction shall not be limited, provided the fire resistance of all columns shall be not less

		TYPE OF CONSTRUCTION								
		TY	PEI	ТҮРЕ ІІ ТҮРЕ ІІІ				TYPE IV TYPE V		
		А	В	А	В	А	В	НТ	А	В
	HGT(feet)									
GROUP	HGT(S)	UL	160	65	55	65	55	65	50	40
A-1	S	UL	5	3	2	3	2	3	2	1
	A	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
A-2	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-3	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-4	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-5	S A	UL UL	UL UL	UL UL	UL	UL UL	UL UL	UL UL	UL UL	UL UL
В	S A	UL UL	11 UL	5 37,500	4 23,000	5 28,500	4 19.000	5 36,000	3 18,000	2 9,000
E/D	S	UL	5	3	2	3	2	3	1	1
	A	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
F-1	S	UL	11	4	2	3	2	4	2	1
	A	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8,500
F-2/F-3	S	UL	11	5	3	4	3	5	3	2
	A	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
H-1	S	1	1	1	1	1	1	1	1	NP
	A	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
H-2 ^d	S	UL	3	2	1	2	1	2	1	1
	A	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	3,000
H-3 ^d	S	UL	6	4	2	4	2	4	2	1
	A	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
H-4	S	UL	7	5	3	5	3	5	3	2
	A	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
H-5	S	4	4	3	3	3	3	3	3	2
	A	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
I-1	S	UL	9	4	3	4	3	4	3	2
	A	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
I-2	S	UL	4	2	1	1	NP	1	1	NP
	A	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
I-3	S	UL	4	2	1	2	1	2	2	1
	A	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
М	S	UL	11	4	4	4	4	4	3	1
	A	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
R-1	S	UL	11	4	4	4	4	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-2	S	UL	11	4	4	4	4	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-3	S	UL	11	4	4	4	4	4	3	3
	A	UL	UL	UL	UL	UL	UL	UL	UL	UL
R-4	S	UL	11	4	4	4	4	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
S-1	S	UL	11	4	3	3	3	4	3	1
	A	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
S-2 ^{b, c}	S	UL	11	5	4	4	4	5	4	2
	A	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
U ^c	SA	UL UL	5	4	2 8 500	3	2 8 500	4	2 9,000	1

TABLE 503 ALLOWABLE HEIGHT AND BUILDING AREAS^a Height limitations shown as stories and feet above grade plane. Area limitations as determined by the definition of "Area, building," per story

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2 .

UL = Unlimited, NP = Not permitted.

a. See the following sections for general exceptions to Table 503:

1. Section 504.2, Allowable height increase due to automatic sprinkler system installation.

2. Section 506.2, Allowable area increase due to street frontage.

3. Section 506.3, Allowable area increase due to automatic sprinkler system installation.

4. Section 507, Unlimited area buildings.

b. For open parking structures, see Section 406.3.

c. For private garages, see Section 406.1.

d. See Section 415.5 for limitations.

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Exceptions:

- 1. Entry lobbies, mechanical rooms and similar uses incidental to the operation of the building shall be permitted.
- 2. Multiple Group A uses, each with an occupant load of less than 300, or Group B or M uses shall be permitted, in addition to those uses incidental to the operation of the building (including storage areas), provided that the entire structure below the horizontal assembly is protected throughout by an approved automatic sprinkler system.
- 5. The maximum building height in feet shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the grade plane.

509.3 Group S-2 enclosed parking garage with Group S-2 open parking garage above. A Group S-2 enclosed parking garage located in the basement or first story below a Group S-2 open parking garage shall be classified as a separate and distinct building for the purpose of determining the type of construction when the following conditions are met:

- 1. The allowable area of the structure shall be such that the sum of the ratios of the actual area divided by the allowable area for each separate occupancy shall not exceed 1.0.
- 2. The Group S-2 enclosed parking garage is of Type I or II construction and is at least equal to the fire-resistance requirements of the Group S-2 open parking garage.
- 3. The height and the number of the floors above the basement shall be limited as specified in Table 406.3.5.
- 4. The floor assembly separating the Group S-2 enclosed parking garage and Group S-2 open parking garage shall be protected as required for the floor assembly of the Group S-2 enclosed parking garage. Openings between the Group S-2 enclosed parking garage and Group S-2 open parking garage, except exit openings, shall not be required to be protected.
- 5. The Group S-2 enclosed parking garage is used exclusively for the parking or storage of private motor vehicles, but shall be permitted to contain an office, waiting room and toilet room having a total area of not more than 1,000 square feet (93 m²), and mechanical equipment rooms incidental to the operation of the building.

509.4 Parking beneath Group R. Where a maximum one-story above grade plane Group S-2 parking garage, enclosed or open, or combination thereof, of Type I construction or open of Type IV construction, with grade entrance, is provided under a building of Group R, the number of stories to be used in determining the minimum type of construction shall be measured from the floor above such a parking area. The number of stories to be used in determining the height in stories in accordance with Section 903.6 shall include the parking garage as a story. The floor assembly between the parking garage and the Group R above shall comply with the type of construction required for the parking garage and shall also pro-

vide a fire-resistance rating not less than the mixed occupancy separation required in Section 508.3.3.

509.5 Group R-2 buildings of Type IIIA construction. The height limitation for buildings of Type IIIA construction in Group R-2 shall be increased to six stories and 75 feet (22 860 mm) where the first-floor construction above the basement has a fire-resistance rating of not less than 3 hours and the floor area is subdivided by 2-hour fire-resistance-rated fire walls into areas of not more than 3,000 square feet (279 m²).

509.6 Group R-2 buildings of Type IIA construction. The height limitation for buildings of Type IIA construction in Group R-2 shall be increased to nine stories and 100 feet (30 480 mm) where the building is separated by not less than 50 feet (15 240 mm) from any other building on the lot and from lot lines, the exits are segregated in an area enclosed by a 2-hour fire-resistance-rated fire wall and the first-floor construction has a fire-resistance rating of not less than $1^{1}/_{2}$ hours.

509.7 Open parking garage beneath Groups A, I, B, M and R. Open parking garages constructed under Groups A, I, B, M and R shall not exceed the height and area limitations permitted under Section 406.3. The height and area of the portion of the building above the open parking garage shall not exceed the limitations in Section 503 for the upper occupancy. The height, in both feet and stories, of the portion of the building above the open parking garage and the portion of the building above the open parking garage and the portion of the building above the open parking garage.

509.7.1 Fire separation. Fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711 between the parking occupancy and the upper occupancy shall correspond to the required fire-resistance rating prescribed in Table 508.3.3 for the uses involved. The type of construction shall apply to each occupancy individually, except that structural members, including main bracing within the open parking structure, which is necessary to support the upper occupancy, shall be protected with the more restrictive fire-resistance-rated assemblies of the groups involved as shown in Table 601. Means of egress for the upper occupancy shall conform to Chapter 10 and shall be separated from the parking occupancy by fire barriers having at least a 2-hour fire-resistance rating as required by Section 706 with self-closing doors complying with Section 715 or horizontal assemblies having at least a 2-hour fire-resistance rating as required by Section 711, with self-closing doors complying with Section 715. Means of egress from the open parking garage shall comply with Section 406.3.

509.8 Group B or M with Group S-2 open parking garage above. Group B or M uses located in the basement or first story below a Group S-2 open parking garage shall be classified as a separate and distinct building for the purpose of determining the type of construction when all of the following conditions are met:

1. The basement or first story shall be Type I or II construction, but not less than the type of construction required for the open parking garage above. The height and area of the basement or first story shall not exceed the limitations in Section 503 for the Group B or M uses.

- 2. The height and area of the open parking garage shall not exceed the limitations permitted under Section 406.3. The height, in both feet and stories, of the open parking garage shall be measured from grade plane and include both the open parking garage and the basement or first story.
- 3. Fire separation assemblies between the open parking garage and the basement or first story use group shall correspond to the required fire-resistance rating prescribed by Table 508.3.3
- 4. Exits serving the open parking garage shall discharge directly to a street or public way and shall be separated from the basement or first story use group by not less than 2-hour fire barriers constructed in accordance with Section 706 or 2-hour horizontal assemblies constructed in accordance with Section 711, or both, with opening protectives in accordance with Table 715.4.

603.1.2 Piping. The use of combustible piping materials shall be permitted when installed in accordance with the limitations of the *Florida Building Code, Mechanical* and the *Florida Building Code, Plumbing*.

603.1.3 Electrical. The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of Chapter 27 of the *Florida Building Code, Building*.

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	ТҮІ	PEI	тү	PE II	ТҮР	EIII	TYPE IV	TYF	PE V
BUILDING ELEMENT	Α	в	A	в	А	В	НТ	Α	в
Structural frame ^a	3 ^{b,h}	2 ^b	1	0	1	0	НТ	1	0
Bearing walls Exterior ^g Interior	4 4 ^b	3 3 ^b	1	000	2 1	2 0	2 2 ^b /HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior ^f	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction Including supporting beams and joists	3 ^h	2	1e	0 ^{e,i}	1e	0 ^{e,i}	НТ	1	Oi
Roof construction Including supporting beams and joists	1 ¹ / ₂ ^{c,h}	1 ^{c, d}	1 ^{c, d}	0 ^d	1 ^d	0 d	HT	1 ^{c, d}	0

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

For SI: 1 foot = 304.8 mm.

a. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not a part of the structural frame.

b. Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting one floor or one roof only.

c. Except in Group F-1, H, I, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

d. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

e. Group B and M occupancies of Type II or III construction five or more stories in height shall be required to have a minimum 2-hour fire-resistance rating for the floor construction located over the basement.

f. Not less than the fire-resistance rating required by other sections of this code.

g. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

h. For Group A, B, E, F and R occupancies and parking garages, the required fire-resistance ratings for the structural frame, floor and roof construction, including supporting beams and joists, shall be permitted to be reduced by 1 hour where the building is protected throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, but the fire-resistance rating shall not be less than 1 hour.

i. For unsprinklered Group E occupancies of Type, IIB, IIIB, IV or VB construction, the floor construction located immediately above useable space in basements shall have a fire-resistance rating of not less than 1 hour.

	FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE ^{a, e}							
	FIRE SEPARATION DISTANCE = x (feet)	TYPE OF CONSTRUCTION	GROUP H	GROUP F-1, M, S-1	GROUP A, B, E, F-2, I, R, S-2, U ^b			
	x < 5°	I-A, I-B, III-A, III-B, IV Others	3 3	3 2	3 1			
	$5 \le x < 10$	I-A, I-B, III-A, III-B, IV Others	3 2	2 1	2 1			
*	$10 \le x < 20$	I-A, I-B, III-A, III-B, IV IIB, VB Others	2 1 1	2 0 1	2 ^d 0 1 ^d			
	$20 \le x < 30$	I-A, I-B, III-A, III-B, IV Others	1 1	1 0	1 ^d 0			
	x ≥ 30	All	0	0	0			

TABLE 602 EIDE DESISTANCE DATING DECUIDEMENTS FOD EXTEDIOD WALLS DASED ON EIDE SEDADATION DISTANCES 8

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. For special requirements for Group U occupancies see Section 406.1.2

c. See Section 705.1.1 for party walls.

d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

TABLE 602.4 WOOD MEMBER SIZE

MINIMUM NOMINA	L SOLID SAWN SIZE	MINIMUM GLUED-LA	AMINATED NET SIZE	
Width, inch	Depth, inch	Width, inch	Depth, inch	
8	8	6 ³ / ₄	81/4	
6	10	5	10 ¹ / ₂	
6	8	5	81/4	
6	6	5	6	
4	6	3	6 ⁷ / ₈	

For SI: 1 inch = 25.4 mm.

where:

- A = Actual area of protected openings, or the equivalent area of protected openings, A_e (see Section 704.7).
- *a* = Allowable area of protected openings.
- A_u = Actual area of unprotected openings.
- a_u = Allowable area of unprotected openings.

704.8.1 Automatic sprinkler system. In buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the maximum allowable area of unprotected openings in occupancies other than Groups H-1, H-2 and H-3 shall be the same as the tabulated limitations for protected openings.

704.8.2 First story. In occupancies other than Group H, unlimited unprotected openings are permitted in the exterior walls of the first story above grade facing a street that has a fire separation distance of greater than 15 feet (4572 mm) or facing an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall not be less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *Florida Fire Prevention Code*.

704.9 Vertical separation of openings. Openings in exterior walls in adjacent stories shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizon-tally and the opening in the lower story is not a protected opening with a fire protection rating of not less than $3/_4$ hour. Such openings shall be separated vertically at least 3 feet (914 mm) by spandrel girders, exterior walls or other similar assemblies that have a fire-resistance rating of at least 1 hour or by flame barriers that extend horizontally at least 30 inches (762 mm) beyond the exterior wall. Flame barriers shall also have a fire-resistance rating of at least 1 hour. The unexposed surface temperature limitations specified in ASTM E 119 shall not apply to the flame barriers or vertical separation unless otherwise required by the provisions of this code.

Exceptions:

- 1. This section shall not apply to buildings that are three stories or less in height.
- 2. This section shall not apply to buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- 3. Open parking garages.

704.10 Vertical exposure. For buildings on the same lot, opening protectives having a fire-protection rating of not less than $3/_4$ hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjoining building or adjacent structure that is within a horizontal fire separation distance of 15 feet (4572 mm) of the wall in which the opening is located.

Exception: Opening protectives are not required where the roof construction has a fire-resistance rating of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the adjoining building, and the entire length and span of the

supporting elements for the fire-resistance-rated roof assembly has a fire-resistance rating of not less than 1 hour.

704.11 Parapets. Parapets shall be provided on exterior walls of buildings.

Exceptions: A parapet need not be provided on an exterior wall where any of the following conditions exist:

- 1. The wall is not required to be fire-resistance rated in accordance with Table 602 because of fire separation distance.
- 2. The building has an area of not more than 1,000 square feet (93 m²) on any floor.
- 3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.
- One-hour fire-resistance-rated exterior walls that terminate at the underside of the roof sheathing, deck or slab, provided:
 - 4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
 - 4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
 - 4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated exterior wall for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
 - 4.4. The entire building shall be provided with not less than a Class B roof covering.
- 5. In Groups R-2 and R-3 where the entire building is provided with a Class C roof covering, the exterior wall shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided:
 - 5.1. The roof sheathing or deck is constructed of approved noncombustible materials or of fire-retardant-treated wood for a distance of 4 feet (1220 mm); or
 - 5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof

framing members for a minimum distance of 4 feet (1220 mm).

6. Where the wall is permitted to have at least 25 percent of the exterior wall areas containing unprotected openings based on fire separation distance as determined in accordance with Section 704.8.

704.11.1 Parapet construction. Parapets shall have the same fire-resistance rating as that required for the supporting wall, and on any side adjacent to a roof surface, shall have noncombustible faces for the uppermost 18 inches (457 mm), including counterflashing and coping materials. The height of the parapet shall not be less than 30 inches (762 mm) above the point where the roof surface and the wall intersect. Where the roof slopes toward a parapet at a slope greater than two units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within a fire separation distance where protection of wall openings is required, but in no case shall the height be less than 30 inches (762 mm).

704.12 Opening protection. Windows in exterior walls required to have protected openings in accordance with other sections of this code or determined to be protected in accordance with Section 704.3 or 704.8 shall comply with Section 715.5. Other openings required to be protected with fire door or shutter assemblies in accordance with other sections of this code or determined to be protected in accordance with Section 704.3 or 704.8 shall comply with Section 715.4.

Exception: Opening protectives are not required where the building is protected throughout by an automatic sprinkler system and the exterior openings are protected by an approved water curtain using automatic sprinklers approved for that use. The sprinklers and the water curtain shall be installed in accordance with Section 903.3.1.1 and shall have an automatic water supply and fire department connection.

704.12.1 Unprotected openings. Where protected openings are not required by Section 704, windows and doors shall be constructed of any approved materials. Glazing shall conform to the requirements of Chapters 24 and 26.

704.13 Joints. Joints made in or between exterior walls required by this section to have a fire-resistance rating shall comply with Section 713.

Exception: Joints in exterior walls that are permitted to have unprotected openings.

704.13.1 Voids. The void created at the intersection of a floor/ceiling assembly and an exterior curtain wall assembly shall be protected in accordance with Section 713.4.

704.14 Ducts and air transfer openings. Penetrations by air ducts and air transfer openings in fire-resistance-rated exterior walls required to have protected openings shall comply with Section 716.

Exception: Foundation vents installed in accordance with this code are permitted.

705.1 General. Each portion of a building separated by one or more fire walls that comply with the provisions of this section shall be considered a separate building. For the purposes of determining height and area in accordance with Table 503, fire walls dividing buildings into separate buildings shall provide a 4-hour fire-resistance rating. The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply.

705.1.1 Party walls. Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a fire wall and shall provide a 4-hour fire-resistance rating in accordance with Section 705, without openings and shall create separate buildings.

705.2 Structural stability. Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating.

705.3 Materials. Fire walls shall be constructed of any approved noncombustible materials.

705.4 Fire-resistance rating. Fire walls shall have a fire-resistance rating of not less than that required by Table 705.4.

FIRE WALL FIRE-RESISTANCE RATINGS					
GROUP	FIRE-RESISTANCE RATING (hours)				
A, B, D, E, H-4, I, R-1, R-2, U	3 ^a	1			
F-1, H-3 ^b , H-5, M, S-1	3				
H-1, H-2	4 ^b				
F-2, S-2, R-3, R-4	2				

TABLE 705.4 FIRE WALL FIRE-RESISTANCE RATINGS°

a. Walls shall be not less than 2-hour fire-resistance rated where separating buildings of Type II or V construction.

b. For Group H-1, H-2 or H-3 buildings, also see Sections 415.4 and 415.5.

c. For the purposes of determining height and area in accordance with Table 503, fire walls dividing buildings into separate buildings shall provide a 4-hour fire-resistance rating.

705.4.1 Townhouse fire separation.

705.4.1.1 Each townhouse shall be considered a separate building and shall be separated from adjoining townhouses by a party wall complying with Section 705.1.1 or by the use of separate exterior walls meeting the requirements of Tables 601 and 602 for zero clearance from property lines as required for the type of construction. Separate exterior walls shall include one of the following:

- 1. A parapet not less than 18 inches (457 mm) above the roof line.
- 2. Roof sheathing of noncombustible material or fire retardant-treated wood, for not less than a 4 foot (1219 mm) width on each side of the exterior dividing wall.

shall have continuity in accordance with Section 706.5 for fire barriers or Section 711.4 for horizontal assemblies as applicable.

707.6 Exterior walls. Where exterior walls serve as a part of a required shaft enclosure, such walls shall comply with the requirements of Section 704 for exterior walls and the fire-resistance-rated enclosure requirements shall not apply.

Exception: Exterior walls required to be fire-resistance rated in accordance with Section 1014.5.1 for exterior egress balconies, Section 1020.1.4 for exit enclosures and Section 1023.6 for exterior exit ramps and stairways.

707.7 Openings. Openings in a shaft enclosure shall be protected in accordance with Section 715 as required for fire barriers. Doors shall be self- or automatic closing by smoke detection in accordance with Section 715.4.7.3.

707.7.1 Prohibited openings. Openings other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

707.8 Penetrations. Penetrations in a shaft enclosure shall be protected in accordance with Section 712 as required for fire barriers.

707.8.1 Prohibited penetrations. Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

707.9 Joints. Joints in a shaft enclosure shall comply with Section 713.

707.10 Ducts and air transfer openings. Penetrations of a shaft enclosure by ducts and air transfer openings shall comply with Section 716.

707.11 Enclosure at the bottom. Shafts that do not extend to the bottom of the building or structure shall:

- 1. Be enclosed at the lowest level with construction of the same fire-resistance rating as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure;
- 2. Terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by a fire barrier having a fire-resistance rating and opening protectives at least equal to the protection required for the shaft enclosure; or
- 3. Be protected by approved fire dampers installed in accordance with their listing at the lowest floor level within the shaft enclosure.

Exceptions:

1. The fire-resistance-rated room separation is not required, provided there are no openings in or penetrations of the shaft enclosure to the interior of the building except at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 717.3.1 for draftstopping, or the room shall be provided with an approved automatic fire suppression system.

- 2. A shaft enclosure containing a refuse chute or laundry chute shall not be used for any other purpose and shall terminate in a room protected in accordance with Section 707.13.4.
- 3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required, provided there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building.

707.12 Enclosure at the top. A shaft enclosure that does not extend to the underside of the roof sheathing, deck or slab of the building shall be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure.

707.13 Refuse and laundry chutes. Refuse and laundry chutes, access and termination rooms and incinerator rooms shall meet the requirements of Sections 707.13.1 through 707.13.6.

Exception: Chutes serving and contained within a single dwelling unit.

707.13.1 Refuse and laundry chute enclosures. A shaft enclosure containing a refuse or laundry chute shall not be used for any other purpose and shall be enclosed in accordance with Section 707.4. Openings into the shaft, including those from access rooms and termination rooms, shall be protected in accordance with this section and Section 715. Openings into chutes shall not be located in corridors. Doors shall be self- or automatic closing upon the actuation of a smoke detector in accordance with Section 715.4.7.3, except that heat-activated closing devices shall be permitted between the shaft and the termination room.

707.13.2 Materials. A shaft enclosure containing a refuse or laundry chute shall be constructed of materials as permitted by the building type of construction.

707.13.3 Refuse and laundry chute access rooms. Access openings for refuse and laundry chutes shall be located in rooms or compartments enclosed by a fire barrier that has a fire-resistance rating of not less than 1 hour. Openings into the access rooms shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour. Doors shall be self- or automatic closing upon the detection of smoke in accordance with Section 715.4.7.3.

707.13.4 Termination room. Refuse and laundry chutes shall discharge into an enclosed room separated from the remainder of the building by a fire barrier that has a fire-resistance rating of not less than 1 hour. Openings into the termination room shall be protected by opening protectives having a fire protection rating of not less than $3/_4$ hour. Doors shall be self- or automatic closing upon the detection of smoke in accordance with Section 715.4.7.3. Refuse chutes shall not terminate in an incinerator room. Refuse and laundry rooms that are not provided with chutes need only comply with Table 508.2.

707.13.5 Incinerator room. Incinerator rooms shall comply with Table 508.2.

707.13.6 Automatic sprinkler system. An approved automatic sprinkler system shall be installed in accordance with Section 903.2.10.2.

707.14 Elevator, dumbwaiter and other hoistways. Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with Section 707 and Chapter 30.

707.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

- 1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
- 2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
- 3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
- 4. In other than Group I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
- 5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
- 6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

707.14.2 Enclosed elevator lobby pressurization alterna-tive. Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with this section.

707.14.2.1 Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.04 inches of water column (1.0 Pa) and a maximum positive pressure of 0.06 inches of water column (1.49 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all ground floor level hoistway doors open and all other hoistway doors closed. The supply air intake shall be from an outside, uncontaminated source

located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

707.14.2.2 Ducts for system. Any duct system that is part of the pressurization system shall be protected with the same fire-resistance rating as required for the elevator shaft enclosure.

707.14.2.3 Fan system. The fan system provided for the pressurization system shall be as required by this section.

707.14.2.3.1 Fire resistance. When located within the building, the fan system that provides the pressurization shall be protected with the same fire-resistance rating required for the elevator shaft enclosure.

707.14.2.3.2 Smoke detection. The fan system shall be equipped with a smoke detector that will automatically shut down the fan system when smoke is detected within the system.

707.14.2.3.3 Separate systems. A separate fan system shall be used for each bank of elevators.

707.14.2.3.4 Fan capacity. The supply fan shall either be adjustable with a capacity of at least 1,000 cfm $(.4719 \text{ m}^3/\text{s})$ per door, or that specified by a registered design professional to meet the requirements of a designed pressurization system.

707.14.2.4 Standby power. The pressurization system shall be provided with standby power from the same source as other required emergency systems for the building.

707.14.2.5 Activation of pressurization system. The elevator pressurization system shall be activated upon activation of the building fire alarm system or upon activation of the elevator lobby smoke detectors.

SECTION 708 FIRE PARTITIONS

708.1 General. The following wall assemblies shall comply with this section:

- 1. Walls separating dwelling units in the same building.
- 2. Walls separating sleeping units in occupancies in Group R-1 hotel, R-2 and I-1 occupancies.
- 3. Walls separating tenant spaces in covered mall buildings as required by Section 402.7.2.
- 4. Corridor walls as required by Section 1017.1.
- 5. Elevator lobby separation as required by Section 707.14.1.
- 6. Residential aircraft hangars.
- 7. Wall separating individual tenant spaces.

Exceptions:

1. In Group B and S occupancies, walls used to separate tenants shall not be required to have a fire-resistance rating, provided no area between fire partitions having a 1-hour fire-resistance rating exceeds 3,000 square feet (279 m²).

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716.2 Installation. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers located within air distribution and smoke control systems shall be installed in accordance with the requirements of this section, the manufacturer's installation instructions and the dampers' listing.

716.2.1 Smoke control system. Where the installation of a fire damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized.

716.2.2 Hazardous exhaust ducts. Fire dampers for hazardous exhaust duct systems shall comply with the *Florida Building Code, Mechanical.*

716.3 Damper testing and ratings. Dampers shall be listed and bear the label of an approved testing agency indicating compliance with the standards in this section. Fire dampers shall comply with the requirements of UL 555. Only fire dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire. Smoke dampers shall comply with the requirements of UL 555S. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S. Ceiling radiation dampers shall comply with the requirements of UL 555C.

716.3.1 Fire protection rating. Fire dampers shall have the minimum fire protection rating specified in Table 716.3.1 for the type of penetration.

TABLE 716.3.1 FIRE DAMPER RATING

TYPE OF PENETRATION	MINIMUM DAMPER RATING (hours)
Less than 3-hour fire-resistance-rated assemblies	1.5
3-hour or greater fire-resistance-rated assemblies	3

716.3.1.1 Fire damper actuating device. The fire damper actuating device shall meet one of the following requirements:

- 1. The operating temperature shall be approximately 50°F (10°C) above the normal temperature within the duct system, but not less than 160°F (71°C).
- The operating temperature shall be not more than 286°F (141°C) where located in a smoke control system complying with Section 909.
- 3. Where a combination fire/smoke damper is located in a smoke control system complying with Section 909, the operating temperature rating shall be approximately 50°F (10°C) above the maximum smoke control system designed operating temperature, or a maximum temperature of 350°F (177°C). The temperature shall not exceed the UL 555S degradation test temperature rating for a combination fire/smoke damper.

716.3.2 Smoke damper ratings. Smoke damper leakage ratings shall not be less than Class II. Elevated temperature ratings shall not be less than 250°F (121°C).

716.3.2.1 Smoke damper actuation methods. The smoke damper shall close upon actuation of a listed smoke detector or detectors installed in accordance with Section 907.10 and one of the following methods, as applicable:

- 1. Where a damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet (1524 mm) of the damper with no air outlets or inlets between the detector and the damper. The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.
- 2. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot-type detector listed for releasing service shall be installed on either side of the smoke barrier door opening.
- 3. Where a damper is installed within an unducted opening in a wall, a spot-type detector listed for releasing service shall be installed within 5 feet (1524 mm) horizontally of the damper.
- 4. Where a damper is installed in a corridor wall or ceiling, the damper shall be permitted to be controlled by a smoke detection system installed in the corridor.
- 5. Where a total-coverage smoke detector system is provided within areas served by a heating, ventilation and air-conditioning (HVAC) system, dampers shall be permitted to be controlled by the smoke detection system.

716.4 Access and identification. Fire and smoke dampers shall be provided with an approved means of access, which is large enough to permit inspection and maintenance of the damper and its operating parts. The access shall not affect the integrity of fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance rating of the assembly. Access points shall be permanently identified on the exterior by a label having letters not less than 0.5 inch (12.7 mm) in height reading: FIRE/SMOKE DAMPER, SMOKE DAMPER or FIRE DAMPER. Access doors in ducts shall be tight fitting and suitable for the required duct construction.

716.5 Where required. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers shall be provided at the locations prescribed in Sections 716.5.1 through 716.5.5 and Section 716.6. Where an assembly is required to have both fire dampers and smoke dampers, combination fire/smoke dampers or a fire damper and a smoke damper shall be required.

716.5.1 Fire walls. Ducts and air transfer openings permitted in fire walls in accordance with Section 705.11 shall be protected with listed fire dampers installed in accordance with their listing.

716.5.2 Fire barriers. Ducts and air transfer openings of fire barriers shall be protected with approved fire dampers installed in accordance with their listings. Ducts and air

transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections 1020.1.2 and 1021.5, respectively.

Exception: Fire dampers are not required at penetrations of fire barriers where any of the following apply:

- 1. Penetrations are tested in accordance with ASTM E 119 as part of the fire-resistance-rated assembly.
- 2. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire damper would interfere with the operation of a smoke control system.
- 3. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

716.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with listed fire and smoke dampers installed in accordance with their listing.

Exceptions:

- 1. Fire dampers are not required at penetrations of shafts where:
 - 1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or
 - 1.2. Penetrations are tested in accordance with ASTM E 119 as part of the fire-resistance-rated assembly; or
 - 1.3. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or
 - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
- 2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where:
 - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and

- 2.2. That extend at least 22 inches (559 mm) vertically; and
- 2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
- 3. Smoke dampers are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
- 4. Smoke dampers are not required at penetrations of shafts where ducts are used as part of an approved mechanical smoke control system designed in accordance with Section 909 and where the smoke damper will interfere with the operation of the smoke control system.

716.5.4 Fire partitions. Ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listing.

Exceptions: In occupancies other than Group H, fire dampers are not required where any of the following apply:

- 1. The partitions are tenant separation or corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the *Florida Building Code, Building* and the duct is protected as a through penetration in accordance with Section 712 of the *Florida Building Code, Building Code, Building*.
- 2. Tenant partitions in covered mall buildings where the walls are not required by provisions elsewhere in the code to extend to the underside of the floor or roof deck above.
- 3. The duct system is constructed of approved materials in accordance with the *Florida Building Code*, *Mechanical* and the duct penetrating the wall complies with all of the following requirements:
 - 3.1. The duct shall not exceed 100 square inches (0.06 m^2) .
 - 3.2. The duct shall be constructed of steel a minimum of 0.0217 inch (0.55 mm) in thickness.
 - 3.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.
 - 3.4. The duct shall be installed above a ceiling.
 - 3.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.
 - 3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1¹/₂-inch by 1¹/₂-inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the

sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with rock (mineral) wool batting on all sides.

716.5.4.1 Corridors. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a corridor enclosure required to have smoke and draft control doors in accordance with Section 715.4.3.

Exceptions:

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- 1. Smoke dampers are not required where the building is equipped throughout with an approved smoke control system in accordance with Section 909, and smoke dampers are not necessary for the operation and control of the system.
- 2. Smoke dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.

716.5.5 Smoke barriers. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a smoke barrier. Smoke dampers and smoke damper actuation methods shall comply with Section 716.3.2.1.

Exception: Smoke dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.

716.6 Horizontal assemblies. Penetrations by ducts and air transfer openings of a floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly shall be protected by a shaft enclosure that complies with Section 707 or shall comply with Sections 716.6.1 through 716.6.3.

716.6.1 Through penetrations. In occupancies other than Groups I-2 and I-3, a duct constructed of approved materials in accordance with the *Florida Building Code, Mechanical* that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two stories is permitted without shaft enclosure protection, provided a listed fire damper is installed at the floor line or the duct is protected in accordance with Section 712.4. For air transfer openings, see Exception 7 to Section 707.2.

Exception: A duct is permitted to penetrate three floors or less without a fire damper at each floor, provided it meets all of the following requirements:

- 1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel not less than 0.019 inch (0.48 mm) (26 gage) in thickness.
- 2. The duct shall open into only one dwelling or sleeping unit and the duct system shall be continuous from the unit to the exterior of the building.
- The duct shall not exceed 4-inch (102 mm) nominal diameter and the total area of such ducts shall not exceed 100 square inches (0.065 m²) in any 100 square feet (9.3 m²) of floor area.

- 4. The annular space around the duct is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 time-temperature conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.
- 5. Grille openings located in a ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with a listed ceiling radiation damper installed in accordance with Section 716.6.2.1.

716.6.2 Membrane penetrations. Ducts and air transfer openings constructed of approved materials in accordance with the *Florida Building Code, Mechanical* that penetrate [] the ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with one of the following:

- 1. A shaft enclosure in accordance with Section 707.
- 2. A listed ceiling radiation damper installed at the ceiling line where a duct penetrates the ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly.
- 3. A listed ceiling radiation damper installed at the ceiling line where a diffuser with no duct attached penetrates the ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly.

716.6.2.1 Ceiling radiation dampers. Ceiling radiation dampers shall be tested in accordance with UL 555C and installed in accordance with the manufacturer's installation instructions and listing. Ceiling radiation dampers are not required where either of the following applies:

- 1. Tests in accordance with ASTM E 119 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly.
- 2. Where exhaust duct penetrations are protected in accordance with Section 712.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

716.6.3 Nonfire-resistance-rated floor assemblies. Duct systems constructed of approved materials in accordance with the *Florida Building Code, Mechanical* that penetrate **||** nonfire-resistance-rated floor assemblies shall be protected by any of the following methods:

- 1. A shaft enclosure in accordance with Section 707.
- 2. The duct connects not more than two stories, the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion.
- 3. The duct connects not more than three stories, the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line.

Exception: Fire dampers are not required in ducts within individual residential dwelling units.

716.7 Flexible ducts and air connectors. Flexible ducts and air connectors shall not pass through any fire-resistance-rated assembly. Flexible air connectors shall not pass through any wall, floor or ceiling.

SECTION 717 CONCEALED SPACES

717.1 General. Fireblocking and draftstopping shall be installed in combustible concealed locations in accordance with this section. Fireblocking shall comply with Section 717.2. Draftstopping in floor/ceiling spaces and attic spaces shall comply with Sections 717.3 and 717.4, respectively. The permitted use of combustible materials in concealed spaces of buildings of Type I or II construction shall be limited to the applications indicated in Section 717.5.

717.2 Fireblocking. In combustible construction, fireblocking shall be installed to cut off concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space. Fireblocking shall be installed in the locations specified in Sections 717.2.2 through 717.2.7.

717.2.1 Fireblocking materials. Fireblocking shall consist of 2-inch (51 mm) nominal lumber or two thicknesses of 1-inch (25 mm) nominal lumber with broken lap joints or one thickness of 0.719-inch (18.3 mm) wood structural panel with joints backed by 0.719-inch (18.3 mm) wood structural panel or one thickness of 0.75-inch (19 mm) particleboard with joints backed by 0.75-inch (19 mm) particleboard. Gypsum board, cement fiber board, batts or blankets of mineral wool, glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fireblock. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot (3048 mm) horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs. Loose-fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases. The integrity of fireblocks shall be maintained.

717.2.1.1 Double stud walls. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be allowed as fireblocking in walls constructed using parallel rows of studs or staggered studs.

717.2.2 Concealed wall spaces. Fireblocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, as follows:

- 1. Vertically at the ceiling and floor levels.
- 2. Horizontally at intervals not exceeding 10 feet (3048 mm).

717.2.3 Connections between horizontal and vertical spaces. Fireblocking shall be provided at interconnections

between concealed vertical stud wall or partition spaces and concealed horizontal spaces created by an assembly of floor joists or trusses, and between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, cove ceilings and similar locations.

717.2.4 Stairways. Fireblocking shall be provided in concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall also comply with Section 1009.5.3.

717.2.5 Ceiling and floor openings. Where annular space protection is provided in accordance with Exception 6 of Section 707.2, Exception 1 of Section 712.4.1.2, or Section 712.4.2, fireblocking shall be installed at openings around vents, pipes, ducts, chimneys and fireplaces at ceiling and floor levels, with an approved material to resist the free passage of flame and the products of combustion. Factory-built chimneys and fireplaces shall be fireblocked in accordance with UL 103 and UL 127.

717.2.6 Architectural trim. Fireblocking shall be installed within concealed spaces of exterior wall finish and other exterior architectural elements where permitted to be of combustible construction as specified in Section 1406 or where erected with combustible frames, at maximum intervals of 20 feet (6096 mm), so that there will be no open space exceeding 100 square feet (9.3 m³). Where wood furring strips are used, they shall be of approved wood of natural decay resistance or preservative-treated wood. If noncontinuous, such elements shall have closed ends, with at least 4 inches (102 mm) of separation between sections.

Exceptions:

- Fireblocking of cornices is not required in single-family dwellings. Fireblocking of cornices of a two-family dwelling is required only at the line of dwelling unit separation.
- 2. Fireblocking shall not be required where installed on noncombustible framing and the face of the exterior wall finish exposed to the concealed space is covered by one of the following materials:
 - 2.1. Aluminum having a minimum thickness of 0.019 inch (0.5 mm).
 - 2.2. Corrosion-resistant steel having a base metal thickness not less than 0.016 inch (0.4 mm) at any point.
 - 2.3. Other approved noncombustible materials.

717.2.7 Concealed sleeper spaces. Where wood sleepers are used for laying wood flooring on masonry or concrete fire-resistance-rated floors, the space between the floor slab and the underside of the wood flooring shall be filled with an approved material to resist the free passage of flame and products of combustion or fireblocked in such a manner that there will be no open spaces under the flooring that will exceed 100 square feet (9.3 m^2) in area and such space shall be filled solidly under permanent partitions so that there is no communication under the flooring between adjoining rooms.

CHAPTER 8 INTERIOR FINISHES

SECTION 801 GENERAL

801.1 Scope. Provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

801.1.1 Interior finishes. These provisions shall limit the allowable flame spread and smoke development based on location and occupancy classification.

Exceptions:

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- 1. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings.
- 2. Exposed portions of structural members complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements.

[F] 801.1.2 Decorative materials and trim. Decorative materials and trim shall be restricted by combustibility and the flame propagation performance criteria of NFPA 701, in accordance with Section 806.

801.1.3 Applicability. For buildings in flood hazard areas, see Section 3110.

801.2 Application. Combustible materials shall be permitted to be used as finish for walls, ceilings, floors and other interior surfaces of buildings.

801.2.1 Windows. Show windows in the exterior walls of the first story above grade shall be permitted to be of wood or of unprotected metal framing.

801.2.2 Foam plastics. Foam plastics shall not be used as interior finish or trim except as provided in Section 2603.9 or 2604. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

SECTION 802 DEFINITIONS

802.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

EXPANDED VINYL WALL COVERING. Wall covering consisting of a woven textile backing, an expanded vinyl base coat layer and a nonexpanded vinyl skin coat. The expanded base coat layer is a homogeneous vinyl layer that contains a blowing agent. During processing, the blowing agent decomposes, causing this layer to expand by forming closed cells. The total thickness of the wall covering is approximately 0.055 inch to 0.070 inch (1.4 mm to 1.78 mm).

FLAME SPREAD. The propagation of flame over a surface.

FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E 84.

INTERIOR FINISH. Interior finish includes interior wall and ceiling finish and interior floor finish.

INTERIOR FLOOR FINISH. The exposed floor surfaces of buildings including coverings applied over a finished floor or stair, including risers.

INTERIOR WALL AND CEILING FINISH. The exposed interior surfaces of buildings, including but not limited to: fixed or movable walls and partitions; toilet room privacy partitions; columns; ceilings; and interior wainscoting, paneling or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural fire resistance or similar purposes, but not including trim.

SMOKE-DEVELOPED INDEX. A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with ASTM E 84.

TRIM. Picture molds, chair rails, baseboards, handrails, door and window frames and similar decorative or protective materials used in fixed applications.

SECTION 803 WALL AND CEILING FINISHES

803.1 General. Interior wall and ceiling finishes shall be classified in accordance with ASTM E 84. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread 0-25; smoke-developed 0-450.

Class B: Flame spread 26-75; smoke-developed 0-450.

Class C: Flame spread 76-200; smoke-developed 0-450.

Exception: Materials, other than textiles, tested in accordance with Section 803.2.

803.2 Interior wall or ceiling finishes other than textiles. Interior wall or ceiling finishes, other than textiles, shall be permitted to be tested in accordance with NFPA 286. Finishes tested in accordance with NFPA 286 shall comply with Section 803.2.1.

803.2.1 Acceptance criteria. During the 40 kW exposure, the interior finish shall comply with Item 1. During the 160 kW exposure, the interior finish shall comply with Item 2. During the entire test, the interior finish shall comply with Items 3 and 4.

1. During the 40 kW exposure, flames shall not spread to the ceiling.

- 2. During the 160 kW exposure, the interior finish shall comply with the following:
 - 2.1. Flame shall not spread to the outer extremity of the sample on any wall or ceiling.
 - 2.2. Flashover, as defined in NFPA 286, shall not occur.
- 3. The peak rate of heat release throughout the NFPA 286 test shall not exceed 800 kW.
- 4. The total smoke released throughout the NFPA 286 test shall not exceed $1,000 \text{ m}^2$.

803.3 Stability. Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

803.4 Application. Where these materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, they shall comply with the provisions of this section.

803.4.1 Direct attachment and furred construction. Where walls and ceilings are required by any provision in this code to be of fire-resistance-rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 1.75 inches (44 mm) applied directly against such surfaces. The intervening spaces between such furring strips shall be filled with inorganic or Class A material or shall be fireblocked at a maximum of 8 feet (2438 mm) in any direction in accordance with Section 717.

803.4.2 Set-out construction. Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.4.1, Class A finish materials shall be used except where interior finish materials are protected on both sides by an automatic sprinkler system or attached to noncombustible backing or furring strips installed as specified in Section 803.4.1. The hangers and assembly members of such dropped ceilings that are below the main ceiling line shall be of noncombustible materials, except that in Type III and V construction, fire-retardant-treated wood shall be permitted. The construction of each set-out wall shall be of fire-resistance-rated construction as required elsewhere in this code.

803.4.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of Type IV construction or to wood furring strips applied directly to the wood decking or planking shall be fireblocked as specified in Section 803.4.1.

803.4.4 Materials. An interior wall or ceiling finish that is not more than 0.25 inch (6.4 mm) thick shall be applied directly against a noncombustible backing.

Exceptions:

1. Class A materials.

2. Materials where the qualifying tests were made with the material suspended or furred out from the noncombustible backing.

803.5 Interior finish requirements based on group. Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.5 for the group and location designated. Interior wall and ceiling finish materials, other than textiles, tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.2.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 is required.

803.6 Textiles. Where used as interior wall or ceiling finish materials, textiles, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall comply with the requirements of Section 803.6.1, 803.6.2 or 803.6.3.

803.6.1 Surface burning characteristic test. Textile wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2.

803.6.2 Room corner test, textiles. Textile wall coverings shall meet the criteria of Section 803.6.2.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product-mounting system, including adhesive.

803.6.2.1 Method B test protocol. During the 40 kW exposure, the interior finish shall comply with Item 1. During the 150 kW exposure, the interior finish shall comply with Item 2. During the entire test, the interior finish shall comply with Item 3.

- 1. During the 40 kW exposure, flames shall not spread to the ceiling.
- 2. During the 150 kW exposure, the interior finish shall comply with the following:
 - 2.1. Flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 mm by 305 mm) walls.
 - 2.2. Flashover, as described in NFPA 265, shall not occur.
- 3. The total smoke released throughout the NFPA 265 test shall not exceed 1000 m².

803.6.3 Room corner test, ceiling and wall finish. Textile wall and ceiling coverings shall meet the criteria of Section 803.2.1 when tested in the manner intended for use in accordance with NFPA 286 using the product-mounting system, including adhesive.

803.7 Expanded vinyl wall coverings. Expanded vinyl wall coverings shall comply with the requirements for textile wall and ceiling materials and their use shall comply with Section 803.6.

Exception: Expanded vinyl wall or ceiling coverings complying with Section 803.2 shall not be required to comply with Section 803.1 or 803.6.

		SPRINKLERED			NONSPRINKLERED		
GROUP	Exit enclosures and exit passageways ^{a,b}	Corridors	Rooms and enclosed spaces ^c	Exit enclosures and exit passageways ^{a,b}	Corridors	Rooms and enclosed spaces ^c	
A-1 & A-2	В	В	С	А	A^d	B ^e	
A-3 ^f , A-4, A-5	В	В	С	А	A^d	С	
B, D, E, M, R-1, R-4	В	С	С	А	В	С	
F	С	С	С	В	С	С	
Н	В	В	\mathbf{C}^{g}	А	А	В	
I-1	В	С	С	А	В	В	
I-2	В	В	$\mathbf{B}^{\mathrm{h,i}}$	А	А	В	
I-3	А	A^j	С	А	А	В	
R-2	С	С	С	В	В	С	
R-3	С	С	С	С	С	С	
S	С	С	С	В	В	С	
U		No restrictions			No restrictions		

TABLE 803.5 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY^k

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2 .

a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.4.1.

b. In exit enclosures of buildings less than three stories in height of other than Group I-3, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted.

c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

g. Class B material is required where the building exceeds two stories.

h. Class C interior finish materials shall be permitted in administrative spaces.

i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors.

k. Finish materials as provided for in other sections of this code.

1. Applies when the exit enclosures, exit passageways, corridors or rooms and enclosed spaces are protected by a sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

803.8 Insulation. Thermal and acoustical insulation shall comply with Section 719.

803.9 Acoustical ceiling systems. The quality, design, fabrication and erection of metal suspension systems for acoustical tile and lay-in panel ceilings in buildings or structures shall conform with generally accepted engineering practice, the provisions of this chapter and other applicable requirements of this code.

803.9.1 Materials and installation. Acoustical materials complying with the interior finish requirements of Section 803 shall be installed in accordance with the manufacturer's recommendations and applicable provisions for applying interior finish.

803.9.1.1 Suspended acoustical ceilings. Suspended acoustical ceiling systems shall be installed in accordance with the provisions of ASTM C 635 and ASTM C 636.

803.9.1.2 Fire-resistance-rated construction. Acoustical ceiling systems that are part of fire-resistance-rated construction shall be installed in the same manner used in the assembly tested and shall comply with the provisions of Chapter 7.

SECTION 804 INTERIOR FLOOR FINISH

804.1 General. Interior floor finish and floor covering materials shall comply with Sections 804.2 through 804.4.1.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.2 Classification. Interior floor finish and floor covering materials required by Section 804.4.1 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifica-

tions determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.4 Interior floor finish requirements. In all occupancies, interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux as specified in Section 804.4.1.

804.4.1 Minimum critical radiant flux. Interior floor finish and floor covering materials in exit enclosures, exit passageways and corridors shall not be less than Class I in Groups I-2 and I-3 and not less than Class II in Groups A, B, E, H, M, R-1, R-2 and S. In all areas, floor covering materials shall comply with the DOCFF-1 "pill test" (CPSC 16 CFR, Part 1630).

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required, and materials complying with the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) are permitted in any area where Class II materials are required.

SECTION 805 COMBUSTIBLE MATERIALS IN TYPES I AND II CONSTRUCTION

805.1 Application. Combustible materials installed on or embedded in floors of buildings of Type I or II construction shall comply with Sections 805.1.1 through 805.1.3.

Exception: Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.

805.1.1 Subfloor construction. Floor sleepers, bucks and nailing blocks shall not be constructed of combustible materials, unless the space between the fire-resistance-rated floor construction and the flooring is either solidly filled with approved noncombustible materials or fireblocked in accordance with Section 717, and provided that such open spaces shall not extend under or through permanent partitions or walls.

805.1.2 Wood finish flooring. Wood finish flooring is permitted to be attached directly to the embedded or fireblocked wood sleepers and shall be permitted where cemented directly to the top surface of approved fire-resistance-rated floor construction or directly to a wood subfloor attached to sleepers as provided for in Section 805.1.1. **805.1.3 Insulating boards.** Combustible insulating boards not more than 1/2 inch (12.7 mm) thick and covered with approved finish flooring are permitted where attached directly to a noncombustible floor assembly or to wood subflooring attached to sleepers as provided for in Section 805.1.1.

[F] SECTION 806 DECORATIVE MATERIALS AND TRIM

[F] 806.1 General requirements. In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.

In Groups I-1 and I-2, combustible decorative materials shall meet the flame propagation criteria of NFPA 701 unless the decorative materials, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited.

Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or for decoration, acoustical correction, surface insulation or other purposes shall be considered interior finish if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings.

In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 806.2 and NFPA 701 or shall be noncombustible.

[F] 806.1.1 Noncombustible materials. The permissible amount of noncombustible decorative material shall not be limited.

[F] 806.1.2 Combustible decorative materials. The permissible amount of decorative materials meeting the flame propagation performance criteria of NFPA 701 shall not exceed 10 percent of the aggregate area of walls and ceilings.

Exceptions:

- 1. In auditoriums in Group A, the permissible amount of decorative material meeting the flame propagation performance criteria of NFPA 701 shall not exceed 50 percent of the aggregate area of walls and ceiling where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and where the material is installed in accordance with Section 803.4.
- 2. The amount of fabric partitions suspended from the ceiling and not supported by the floor in Group B and M occupancies shall not be limited.

[F] 806.2 Acceptance criteria and reports. Where required by Section 806.1, decorative materials shall be tested by an approved agency and meet the flame propagation performance criteria of NFPA 701 or such materials shall be

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CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 901 GENERAL

901.1 Scope. The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation and operation of fire protection systems and carbon monoxide detection alarms.

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901.2 Fire protection systems. Fire protection systems shall be installed, repaired, operated and maintained in accordancewith this code and the *Florida Fire Prevention Code*.

Any fire protection system for which an exception or reduction to the provisions of this code has been granted shall be considered to be a required system.

Exception: Any fire protection system or portion thereof not required by this code shall be permitted to be installed for partial or complete protection provided that such system meets the requirements of this code.

901.3 Modifications. No person shall remove or modify any fire protection system installed or maintained under the provi-

Sions of this code or the *Florida Fire Prevention Code* without approval by the building official.

901.4 Threads. Threads provided for fire department connections to sprinkler systems, standpipes, yard hydrants or any other fire hose connection shall be compatible with the connections used by the local fire department.

901.5 Acceptance tests. Fire protection systems shall be tested in accordance with the requirements of this code and the $E_{i} = E_{i} = E_{i} = E_{i} = E_{i}$

- || *Florida Fire Prevention Code*. When required, the tests shall be conducted in the presence of the building official. Tests
- [] required by this code, the *Florida Fire Prevention Code* and the standards listed in this code shall be conducted at the expense of the owner or the owner's representative. It shall be unlawful to occupy portions of a structure until the required fire protection systems within that portion of the structure have been tested and approved.

901.6 Supervisory service. Where required, fire protection systems shall be monitored by an approved supervising station in accordance with NFPA 72.

901.6.1 Automatic sprinkler systems. Automatic sprinkler systems shall be monitored for integrity in accordance with NFPA 72, *National Fire Alarm Code*.

Exceptions:

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- 1. A supervising station is not required for automatic sprinkler systems protecting one- and two-family dwellings.
- 2. Limited area systems serving fewer than 20 sprinklers.

901.6.2 Fire alarm systems. Fire alarm systems required by the provisions of Section 907.2 of this code and the *Florida Fire Prevention Code* shall be monitored by an approved supervising station in accordance with Section 907.14.

Exceptions:

- 1. Single- and multiple-station smoke alarms required by Section 907.2.10.
- 2. Smoke detectors in Group I-3 occupancies.
- 3. Supervisory service is not required for automatic sprinkler systems in one- and two-family dwell-ings.

901.6.3 Group H. Manual fire alarm, automatic fire-extinguishing and emergency alarm systems in Group H occupancies shall be monitored by an approved supervising station.

Exception: When approved by the building official, on-site monitoring at a constantly attended location shall be permitted provided that notifications to the fire department will be equal to those provided by an approved supervising station.

901.7 Fire areas. Where buildings, or portions thereof, are divided into fire areas so as not to exceed the limits established for requiring a fire protection system in accordance with this chapter, such fire areas shall be separated by fire barriers having a fire-resistance rating of not less than that determined in accordance with Section 706.3.9.

SECTION 902 DEFINITIONS

902.1 Definitions. The following words and terms shall, for the purposes of this chapter, and as used elsewhere in this code, have the meanings shown herein.

[F] ALARM NOTIFICATION APPLIANCE. A fire alarm system component such as a bell, horn, speaker, light or text display that provides audible, tactile or visible outputs, or any combination thereof.

[F] ALARM SIGNAL. A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.

[F] ALARM VERIFICATION FEATURE. A feature of automatic fire detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period, after being automatically reset, in order to be accepted as a valid alarm-initiation signal.

[F] ANNUNCIATOR. A unit containing one or more indicator lamps, alphanumeric displays or other equivalent means in which each indication provides status information about a circuit, condition or location.

[F] AUDIBLE ALARM NOTIFICATION APPLIANCE. A notification appliance that alerts by the sense of hearing.

[F] AUTOMATIC. As applied to fire protection devices, is a device or system providing an emergency function without the necessity for human intervention and activated as a result of a

predetermined temperature rise, rate of temperature rise or combustion products.

[F] AUTOMATIC FIRE-EXTINGUISHING SYSTEM. An approved system of devices and equipment which automatically detects a fire and discharges an approved fire-extinguishing agent onto or in the area of a fire.

[F] AUTOMATIC SPRINKLER SYSTEM. A sprinkler system, for fire protection purposes, is an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply. The portion of the system above the ground is a network of specially sized or hydraulically designed piping installed in a structure or area, generally overhead, and to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area.

[F] AVERAGE AMBIENT SOUND LEVEL. The root mean square, A-weighted sound pressure level measured over a 24-hour period.

[F] CARBON DIOXIDE EXTINGUISHING SYSTEMS. A system supplying carbon dioxide (CO₂) from a pressurized vessel through fixed pipes and nozzles. The system includes a manual- or automatic-actuating mechanism.

[F] CEILING LIMIT. The maximum concentration of an air-borne contaminant to which one may be exposed, as published in DOL 29 CFR Part 1910.1000.

[F] CLEAN AGENT. Electrically nonconducting, volatile or gaseous fire extinguishant that does not leave a residue upon evaporation.

[F] CONSTANTLY ATTENDED LOCATION. A designated location at a facility staffed by trained personnel on a continuous basis where alarm or supervisory signals are monitored and facilities are provided for notification of the fire department or other emergency services.

[F] DELUGE SYSTEM. A sprinkler system employing open sprinklers attached to a piping system connected to a water supply through a valve that is opened by the operation of a detection system installed in the same areas as the sprinklers. When this valve opens, water flows into the piping system and discharges from all sprinklers attached thereto.

[F] DETECTOR, HEAT. A fire detector that senses heat produced by burning substances. Heat is the energy produced by combustion that causes substances to rise in temperature.

[F] DRY-CHEMICAL EXTINGUISHING AGENT. A powder composed of small particles, usually of sodium bicarbonate, potassium bicarbonate, urea-potassium-based bicarbonate, potassium chloride or monoammonium phosphate, with added particulate material supplemented by special treatment to provide resistance to packing, resistance to moisture absorption (caking) and the proper flow capabilities.

[F] EMERGENCY ALARM SYSTEM. A system to provide indication and warning of emergency situations involving hazardous materials.

[F] EMERGENCY VOICE/ALARM COMMUNICA-TIONS. Dedicated manual or automatic facilities for originating and distributing voice instructions, as well as alert and evacuation signals pertaining to a fire emergency, to the occupants of a building.

[F] EXPLOSION. An effect produced by the sudden violent expansion of gases, that is accompanied by a shock wave or disruption of enclosing materials or structures, or both.

[F] FIRE ALARM BOX, MANUAL. See "Manual Fire Alarm Box."

[F] FIRE ALARM CONTROL UNIT. A system component that receives inputs from automatic and manual fire alarm devices and is capable of supplying power to detection devices and transponder(s) or off-premises transmitter(s). The control unit is capable of providing a transfer of power to the notification appliances and transfer of condition to relays or devices.

[F] FIRE ALARM SIGNAL. A signal initiated by a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, water flow switch, or other device whose activation is indicative of the presence of a fire or fire signature.

[F] FIRE ALARM SYSTEM. A system or portion of a combination system consisting of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.

[F] FIRE COMMAND CENTER. The principal attended or unattended location where the status of detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

[F] FIRE DETECTOR, AUTOMATIC. A device designed to detect the presence of a fire signature and to initiate action.

[F] FIRE PROTECTION SYSTEM. Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.

[F] FIRE SAFETY FUNCTIONS. Building and fire control functions that are intended to increase the level of life safety for occupants or to control the spread of harmful effects of fire.

[F] FOAM-EXTINGUISHING SYSTEM. A special system discharging a foam made from concentrates, either mechanically or chemically, over the area to be protected.

[F] HALOGENATED EXTINGUISHING SYSTEM. A fire-extinguishing system using one or more atoms of an element from the halogen chemical series: fluorine, chlorine, bromine and iodine.

[F] INITIATING DEVICE. A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box or supervisory switch.

[F] LISTED. Equipment, materials or services included in a list published by an organization acceptable to the building official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material or service meets identified standards or has been tested and found suitable for a specified purpose.

1909.3 Special inspection and test requirements. Reserved.

[F] 909.4 Analysis. A rational analysis supporting the types of smoke control systems to be employed, their methods of operation, the systems supporting them and the methods of construction to be utilized shall accompany the submitted construction documents and shall include, but not be limited to, the items indicated in Sections 909.4.1 through 909.4.6.

[F] 909.4.1 Stack effect. The system shall be designed such that the maximum probable normal or reverse stack effect will not adversely interfere with the system's capabilities. In determining the maximum probable stack effect, altitude, elevation, weather history and interior temperatures shall be used.

[F] 909.4.2 Temperature effect of fire. Buoyancy and expansion caused by the design fire in accordance with Section 909.9 shall be analyzed. The system shall be designed such that these effects do not adversely interfere with the system's capabilities.

[F] 909.4.3 Wind effect. The design shall consider the adverse effects of wind. Such consideration shall be consistent with the wind-loading provisions of Chapter 16.

[F] 909.4.4 HVAC systems. The design shall consider the effects of the heating, ventilating and air-conditioning (HVAC) systems on both smoke and fire transport. The analysis shall include all permutations of systems status. The design shall consider the effects of the fire on the HVAC systems.

[F] 909.4.5 Climate. The design shall consider the effects of low temperatures on systems, property and occupants. Air inlets and exhausts shall be located so as to prevent snow or ice blockage.

[F] 909.4.6 Duration of operation. All portions of active or passive smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is less.

[F] 909.5 Smoke barrier construction. Smoke barriers shall comply with Section 709, and shall be constructed and sealed to limit leakage areas exclusive of protected openings. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

0	8 8
1. Walls:	$A/A_w = 0.00100$
2. Exit enclosures:	$A/A_w = 0.00035$
3. All other shafts:	$A/A_w = 0.00150$
4. Floors and roofs:	$A/A_F = 0.00050$

where:

- A = Total leakage area, square feet (m²).
- A_F = Unit floor or roof area of barrier, square feet (m²).
- A_w = Unit wall area of barrier, square feet (m²).

The leakage area ratios shown do not include openings due to doors, operable windows or similar gaps. These shall be included in calculating the total leakage area.

[F] 909.5.1 Leakage area. The total leakage area of the barrier is the product of the smoke barrier gross area multiplied by the allowable leakage area ratio, plus the area of other openings such as gaps and operable windows. Compliance shall be determined by achieving the minimum air pressure difference across the barrier with the system in the smoke control mode for mechanical smoke control systems. Passive smoke control systems tested using other approved means such as door fan testing shall be as approved by the fire code official.

[F] 909.5.2 Opening protection. Openings in smoke barriers shall be protected by automatic-closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by fire door assemblies complying with Section 715.4.3.

Exceptions:

- 1. Passive smoke control systems with automatic-closing devices actuated by spot-type smoke detectors listed for releasing service installed in accordance with Section 907.10.
- 2. Fixed openings between smoke zones that are protected utilizing the airflow method.
- 3. In Group I-2, where such doors are installed across corridors, a pair of opposite-swinging doors without a center mullion shall be installed having vision panels with fire protection-rated glazing materials in fire protection-rated frames, the area of which shall not exceed that tested. The doors shall be close-fitting within operational tolerances and shall not have undercuts, louvers or grilles. The doors shall have head and jamb stops, astragals or rabbets at meeting edges and shall be automatic-closing by smoke detection in accordance with Section 715.4.7.3. Positive-latching devices are not required.
- 4. Group I-3.
- 5. Openings between smoke zones with clear ceiling heights of 14 feet (4267 mm) or greater and bank-down capacity of greater than 20 minutes as determined by the design fire size.

[F] 909.5.2.1 Ducts and air transfer openings. Ducts and air transfer openings are required to be protected with a minimum Class II, 250°F (121°C) smoke damper complying with Section 716.

[F] 909.6 Pressurization method. The primary mechanical means of controlling smoke shall be by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke control zone of fire origin.

[F] 909.6.1 Minimum pressure difference. The minimum pressure difference across a smoke barrier shall be 0.05-inch water gage (0.0124 kPa) in fully sprinklered buildings.

In buildings permitted to be other than fully sprinklered, the smoke control system shall be designed to achieve pressure differences at least two times the maximum calculated pressure difference produced by the design fire.

[F] 909.6.2 Maximum pressure difference. The maximum air pressure difference across a smoke barrier shall be determined by required door-opening or closing forces. The actual force required to open exit doors when the system is in the smoke control mode shall be in accordance with Section 1008.1.2. Opening and closing forces for other doors shall be determined by standard engineering methods for the resolution of forces and reactions. The calculated force to set a side-hinged, swinging door in motion shall be determined by:

$$F = F_{dc} + K(WA\Delta P)/2(W-d)$$

where:

- $A = \text{Door area, square feet } (\text{m}^2).$
- d = Distance from door handle to latch edge of door, feet (m).

(Equation 9-1)

- F = Total door opening force, pounds (N).
- F_{dc} = Force required to overcome closing device, pounds (N).
- K = Coefficient 5.2 (1.0).
- W = Door width, feet (m).
- ΔP = Design pressure difference, inches of water (Pa).

[F] 909.7 Airflow design method. When approved by the building official, smoke migration through openings fixed in a permanently open position, which are located between smoke control zones by the use of the airflow method, shall be permitted. The design airflow shall be in accordance with this section. Airflow shall be directed to limit smoke migration from the fire zone. The geometry of openings shall be considered to prevent flow reversal from turbulent effects.

[F] 909.7.1 Velocity. The minimum average velocity through a fixed opening shall not be less than:

 $v = 217.2 [h (T_f - T_o)/(T_f + 460)]^{1/2}$ (Equation 9-2)

For SI: $v = 119.9 [h (T_f - T_o)/T_f]^{1/2}$

where:

- h = Height of opening, feet (m).
- T_f = Temperature of smoke, °F (K).
- T_o = Temperature of ambient air, °F (K).
- v = Air velocity, feet per minute (m/minute).

[F] 909.7.2 Prohibited conditions. This method shall not be employed where either the quantity of air or the velocity of the airflow will adversely affect other portions of the smoke control system, unduly intensify the fire, disrupt plume dynamics or interfere with exiting. In no case shall airflow toward the fire exceed 200 feet per minute (1.02 m/s). Where the formula in Section 909.7.1 requires airflow to exceed this limit, the airflow method shall not be used.

[F] 909.8 Exhaust method. When approved by the building official, mechanical smoke control for large enclosed volumes, such as in atriums or malls, shall be permitted to utilize the exhaust method. Smoke control systems using the exhaust method shall be designed in accordance with NFPA 92B.

[F] 909.8.1 Smoke layer. The height of the lowest horizontal surface of the accumulating smoke layer shall be maintained at least 6 feet (1829 mm) above any walking surface that forms a portion of a required egress system within the smoke zone.

[F] 909.9 Design fire. The design fire shall be based on a rational analysis performed by the registered design professional and approved by the building official. The design fire shall be based in the analysis in accordance with Section 909.4 and this section.

[F] 909.9.1 Factors considered. The engineering analysis shall include the characteristics of the fuel, fuel load, effects included by the fire and whether the fire is likely to be steady or unsteady.

[F] 909.9.2 Separation distance. Determination of the design fire shall include consideration of the type of fuel, fuel spacing and configuration.

$$R = [Q/(12\pi q'')]^{1/2}$$
 (Equation 9-8)

where:

- q'' = Incident radiant heat flux required for nonpiloted ignition, Btu/ft² · s(W/m²).
- Q = Heat release from fire, Btu/s (kW).
- R = Separation distance from target to center of fuel package, feet (m).

[F] 909.9.3 Heat-release assumptions. The analysis shall make use of best available data from approved sources and shall not be based on excessively stringent limitations of combustible material.

[F] 909.9.4 Sprinkler effectiveness assumptions. A documented engineering analysis shall be provided for conditions that assume fire growth is halted at the time of sprinkler activation.

[F] 909.10 Equipment. Equipment including, but not limited to, fans, ducts, automatic dampers and balance dampers, shall be suitable for its intended use, suitable for the probable exposure temperatures that the rational analysis indicates and as approved by the building official.

(Equation 9-3)

[F] 909.10.1 Exhaust fans. Components of exhaust fans shall be rated and certified by the manufacturer for the probable temperature rise to which the components will be exposed. This temperature rise shall be computed by:

$$T_s = (Q_c/mc) + (T_a)$$

where:

- c = Specific heat of smoke at smoke layer temperature, Btu/lb°F (kJ/kg · K).
- m = Exhaust rate, pounds per second (kg/s).
- Q_c = Convective heat output of fire, Btu/s (kW).
- T_a = Ambient temperature, °F (K).
- T_s = Smoke temperature, °F (K).

Exception: Reduced T_s as calculated based on the assurance of adequate dilution air.

909.10.2 Ducts. Duct materials and joints shall be capable of withstanding the probable temperatures and pressures to which they are exposed as determined in accordance with Section 909.10.1. Ducts shall be constructed and supported in accordance with the *Florida Building Code, Mechanical*. Ducts shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the documentation procedure. Ducts shall be supported directly from fire-resistance-rated structural elements of the building by substantial, noncombustible supports.

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Exception: Flexible connections (for the purpose of vibration isolation) complying with the *Florida Building Code, Mechanical* that are constructed of approved fire-resistance-rated materials.

[F] 909.10.3 Equipment, inlets and outlets. Equipment shall be located so as to not expose uninvolved portions of the building to an additional fire hazard. Outside air inlets shall be located so as to minimize the potential for introducing smoke or flame into the building. Exhaust outlets shall be so located as to minimize reintroduction of smoke into the building and to limit exposure of the building or adjacent buildings to an additional fire hazard.

[F] 909.10.4 Automatic dampers. Automatic dampers, regardless of the purpose for which they are installed within the smoke control system, shall be listed and conform to the requirements of approved, recognized standards.

[F] 909.10.5 Fans. In addition to other requirements, belt-driven fans shall have 1.5 times the number of belts required for the design duty, with the minimum number of belts being two. Fans shall be selected for stable performance based on normal temperature and, where applicable, elevated temperature. Calculations and manufacturer's fan curves shall be part of the documentation procedures. Fans shall be supported and restrained by noncombustible devices in accordance with the requirements of Chapter 16. Motors driving fans shall not be operated beyond their nameplate horsepower (kilowatts), as determined from measurement of actual current draw, and shall have a minimum service factor of 1.15.

909.11 Power systems. The smoke control system shall be supplied with two sources of power. Primary power shall be from the normal building power systems. Secondary power shall be from an approved standby source complying with

- 11 Chapter 27 of the *Florida Building Code, Building*. The standby power source and its transfer switches shall be in a separate room from the normal power transformers and switch gear and shall be enclosed in a room constructed of not less than 1-hour fire-resistance-rated fire barriers ventilated directly to and from the exterior. Power distribution from the two sources shall be by independent routes. Transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power. The systems shall comply with
- || Chapter 27 of the *Florida Building Code, Building*.

[F] 909.11.1 Power sources and power surges. Elements of the smoke management system relying on volatile memories or the like shall be supplied with uninterruptable power sources of sufficient duration to span a 15-minute primary power interruption. Elements of the smoke management system susceptible to power surges shall be suitably protected by conditioners, suppressors or other approved means.

[F] 909.12 Detection and control systems. Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override, the presence of power downstream of all disconnects and, through a preprogrammed weekly test sequence, report abnormal conditions audibly, visually and by printed report.

909.12.1 Wiring. In addition to meeting requirements of Chapter 27 of the *Florida Building Code, Building*, all wir- || ing, regardless of voltage, shall be fully enclosed within continuous raceways.

[F] 909.12.2 Activation. Smoke control systems shall be activated in accordance with this section.

[F] 909.12.2.1 Pressurization, airflow or exhaust method. Mechanical smoke control systems using the pressurization, airflow or exhaust method shall have completely automatic control.

[F] 909.12.2.2 Passive method. Passive smoke control systems actuated by approved spot-type detectors listed for releasing service shall be permitted.

[F] 909.12.3 Automatic control. Where completely automatic control is required or used, the automatic-control sequences shall be initiated from an appropriately zoned automatic sprinkler system complying with Section 903.3.1.1, manual controls that are readily accessible to the fire department and any smoke detectors required by engineering analysis.

[F] 909.13 Control air tubing. Control air tubing shall be of sufficient size to meet the required response times. Tubing shall be flushed clean and dry prior to final connections and shall be adequately supported and protected from damage. Tubing passing through concrete or masonry shall be sleeved and protected from abrasion and electrolytic action.

[F] 909.13.1 Materials. Control air tubing shall be hard drawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type, in accordance with ASME B 16.18 or ASME B 16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP5 brazing alloy with solidus above 1,100°F (593°C) and liquids below 1,500°F (816°C). Brazing flux shall be used on copper-to-brass joints only.

Exception: Nonmetallic tubing used within control panels and at the final connection to devices, provided that all of the following conditions are met:

- 1. Tubing shall be listed by an approved agency for flame and smoke characteristics.
- 2. Tubing and connected devices shall be completely enclosed within galvanized or paint-grade steel enclosure of not less than 0.030 inch (0.76 mm) (No. 22 galvanized sheet gage) thickness. Entry to the enclosure shall be by copper tubing with a protective grommet of neoprene or teflon or by suitable brass compression to male-barbed adapter.
- 3. Tubing shall be identified by appropriately documented coding.
- 4. Tubing shall be neatly tied and supported within enclosure. Tubing bridging cabinet and door or moveable device shall be of sufficient length to avoid tension and excessive stress. Tubing shall be protected against abrasion. Tubing serving devices on doors shall be fastened along hinges.

[F] 909.13.2 Isolation from other functions. Control tubing serving other than smoke control functions shall be isolated by automatic isolation valves or shall be an independent system.

[F] 909.13.3 Testing. Control air tubing shall be tested at three times the operating pressure for not less than 30 minutes without any noticeable loss in gauge pressure prior to final connection to devices.

[F] 909.14 Marking and identification. The detection and control systems shall be clearly marked at all junctions, accesses and terminations.

[F] 909.15 Control diagrams. Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the building official, the fire department and in the fire command center in a format and manner approved by the fire chief.

909.16 Fire-fighter's smoke control panel. A fire-fighter's smoke control panel for fire department emergency response purposes only shall be provided and shall include manual control or override of automatic control for mechanical smoke control systems. The panel shall be located in a fire command center complying with Section 911 in high-rise buildings or buildings with smoke protected assembly seating. In other buildings, the fire-fighter's smoke control panel shall be installed in an approved location adjacent to the fire alarm control panel. The fire-fighter's smoke control panel shall comply with Sections 909.16.1 through 909.16.3.

[F] 909.16.1 Smoke control systems. Fans within the building shall be shown on the fire-fighter's control panel. A clear indication of the direction of airflow and the relationship of components shall be displayed. Status indicators shall be provided for all smoke control equipment, annunciated by fan and zone, and by pilot-lamp-type indicators as follows:

1. Fans, dampers and other operating equipment in their normal status—WHITE.

- 2. Fans, dampers and other operating equipment in their off or closed status—RED.
- 3. Fans, dampers and other operating equipment in their on or open status—GREEN.
- 4. Fans, dampers and other operating equipment in a fault status—YELLOW/AMBER.

[F] 909.16.2 Smoke control panel. The fire-fighter's control panel shall provide control capability over the complete smoke-control system equipment within the building as follows:

- 1. ON-AUTO-OFF control over each individual piece of operating smoke control equipment that can also be controlled from other sources within the building. This includes stairway pressurization fans; smoke exhaust fans; supply, return and exhaust fans; elevator shaft fans and other operating equipment used or intended for smoke control purposes.
- 2. OPEN-AUTO-CLOSE control over individual dampers relating to smoke control and that are also controlled from other sources within the building.
- 3. ON-OFF or OPEN-CLOSE control over smoke control and other critical equipment associated with a fire or smoke emergency and that can only be controlled from the fire-fighter's control panel.

Exceptions:

- 1. Complex systems, where approved, where the controls and indicators are combined to control and indicate all elements of a single smoke zone as a unit.
- 2. Complex systems, where approved, where the control is accomplished by computer interface using approved, plain English commands.

909.16.3 Control action and priorities. The fire-fighter's control panel actions shall be as follows:

1. ON-OFF, OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire-fighter's control panel, no automatic or manual control from any other control point within the building shall contradict the control action. Where automatic means are provided to interrupt normal, nonemergency equipment operation or produce a specific result to safeguard the building or equipment (i.e., duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices), such means shall be capable of being overridden by the fire-fighter's control panel. The last control action as indicated by each fire-fighter's control panel switch position shall prevail. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

Exception: Power disconnects required by Chapter 27 of the *Florida Building Code, Building.*

2. Only the AUTO position of each three-position fire-fighter's control panel switch shall allow auto-

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matic or manual control action from other control points within the building. The AUTO position shall be the NORMAL, nonemergency, building control position. Where a fire-fighter's control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall continue to be indicated by the status indicator described above. When directed by an automatic signal to assume an emergency condition, the NORMAL position shall become the emergency condition for that device or group of devices within the zone. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

[F] 909.17 System response time. Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as dampers and fans) in the sequence necessary to prevent physical damage to the fans, dampers, ducts and other equipment. For purposes of smoke control, the fire-fighter's control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for detection, shutdown of operating equipment and smoke control system startup, shall allow for full operational mode to be achieved before the conditions in the space exceed the design smoke condition. The system response time for each component and their sequential relationships shall be detailed in the required rational analysis and verification of their installed condition reported in the required final report.

[F] 909.18 Acceptance testing. Devices, equipment, components and sequences shall be individually tested. These tests, in addition to those required by other provisions of this code, shall consist of determination of function, sequence and, where applicable, capacity of their installed condition.

[F] 909.18.1 Detection devices. Smoke or fire detectors that are a part of a smoke control system shall be tested in accordance with Chapter 9 in their installed condition. When applicable, this testing shall include verification of airflow in both minimum and maximum conditions.

[F] 909.18.2 Ducts. Ducts that are part of a smoke control system shall be traversed using generally accepted practices to determine actual air quantities.

[F] 909.18.3 Dampers. Dampers shall be tested for function in their installed condition.

[F] 909.18.4 Inlets and outlets. Inlets and outlets shall be read using generally accepted practices to determine air quantities.

[F] 909.18.5 Fans. Fans shall be examined for correct rotation. Measurements of voltage, amperage, revolutions per minute (rpm) and belt tension shall be made.

[F] 909.18.6 Smoke barriers. Measurements using inclined manometers or other approved calibrated measuring devices shall be made of the pressure differences across smoke barriers. Such measurements shall be conducted for each possible smoke control condition.

[F] 909.18.7 Controls. Each smoke zone, equipped with an automatic-initiation device, shall be put into operation by the actuation of one such device. Each additional device within the zone shall be verified to cause the same sequence without requiring the operation of fan motors in order to prevent damage. Control sequences shall be verified throughout the system, including verification of override from the fire-fighter's control panel and simulation of standby power conditions.

[F] 909.18.8 Special inspections for smoke control. Smoke control systems shall be tested by a special inspector.

[F] 909.18.8.1 Scope of testing. Special inspections shall be conducted in accordance with the following:

- 1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
- 2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

[F] 909.18.8.2 Qualifications. Special inspection agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

[F] 909.18.8.3 Reports. A complete report of testing shall be prepared by the special inspector or special inspection agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or mark. The report shall be reviewed by the responsible registered design professional and, when satisfied that the design intent has been achieved, the responsible registered design professional shall seal, sign and date the report.

[F] 909.18.8.3.1 Report filing. A copy of the final report shall be filed with the building official and an *\not* identical copy shall be maintained in an approved location at the building.

[F] 909.18.9 Identification and documentation. Charts, drawings and other documents identifying and locating each component of the smoke control system, and describing its proper function and maintenance requirements, shall be maintained on file at the building as an attachment to the report required by Section 909.18.8.3. Devices shall have an approved identifying tag or mark on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

[F] 909.19 System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the building official determines that the provisions of this section have been fully complied with and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system.

Exception: In buildings of phased construction, a temporary certificate of occupancy, as approved by the building №

official, shall be allowed provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

909.20 Smokeproof enclosures. Where required by Section 1020.1.7, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an enclosed interior exit stairway that conforms to Section 1020.1 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access

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to the roof is required by the *Florida Building Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

909.20.1 Access. Access to the stair shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall not be less than the required width of the corridor leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

909.20.2 Construction. The smokeproof enclosure shall be separated from the remainder of the building by not less than a 2-hour fire barrier without openings other than the required means of egress doors. The vestibule shall be separated from the stairway by not less than a 2-hour fire barrier. The open exterior balcony shall be constructed in accordance with the fire-resistance-rating requirements for floor construction.

909.20.2.1 Door closers. Doors in a smokeproof enclosure shall be self- or automatic closing by actuation of a smoke detector in accordance with Section 715.4 and shall be installed at the floor-side entrance to the smokeproof enclosure. The actuation of the smoke detector on any door shall activate the closing devices on all doors in the smokeproof enclosure at all levels. Smoke detectors shall be installed in accordance with Section 907.10.

909.20.3 Natural ventilation alternative. The provisions of Sections 909.20.3.1 through 909.20.3.3 shall apply to ventilation of smokeproof enclosures by natural means.

909.20.3.1 Balcony doors. Where access to the stairway is by way of an open exterior balcony, the door assembly into the enclosure shall be a fire door assembly in accordance with Section 715.4.

909.20.3.2 Vestibule doors. Where access to the stairway is by way of a vestibule, the door assembly into the vestibule shall be a fire door assembly complying with Section 715.4. The door assembly from the vestibule to the stairway shall have not less than a 20-minute fire protection rating complying with Section 715.4.

909.20.3.3 Vestibule ventilation. Each vestibule shall have a minimum net area of 16 square feet (1.5 m^2) of opening in a wall facing an outer court, yard or public way that is at least 20 feet (6096 mm) in width.

909.20.4 Mechanical ventilation alternative. The provisions of Sections 909.20.4.1 through 909.20.4.4 shall apply

to ventilation of smokeproof enclosures by mechanical means.

909.20.4.1 Vestibule doors. The door assembly from the building into the vestibule shall be a fire door assembly complying with Section 715.4.3. The door assembly from the vestibule to the stairway shall not have less than a 20-minute fire protection rating and meet the requirements for a smoke door assembly in accordance with Section 715.4.3. The door shall be installed in accordance with NFPA 105.

909.20.4.2 Vestibule ventilation. The vestibule shall be supplied with not less than one air change per minute and the exhaust shall not be less than 150 percent of supply. Supply air shall enter and exhaust air shall discharge from the vestibule through separate, tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 inches (152 mm) of the floor level. The top of the exhaust register shall be located at the top of the smoke trap but not more than 6 inches (152 mm) down from the top of the trap, and shall be entirely within the smoke trap area. Doors in the open position shall not obstruct duct openings. Duct openings with controlling dampers are permitted where necessary to meet the design requirements, but dampers are not otherwise required.

909.20.4.2.1 Engineered ventilation system. Where a specially engineered system is used, the system shall exhaust a quantity of air equal to not less than 90 air changes per hour from any vestibule in the emergency operation mode and shall be sized to handle three vestibules simultaneously. Smoke detectors shall be located at the floor-side entrance to each vestibule and shall activate the system for the affected vestibule. Smoke detectors shall be installed in accordance with Section 907.10.

909.20.4.3 Smoke trap. The vestibule ceiling shall be at least 20 inches (508 mm) higher than the door opening into the vestibule to serve as a smoke and heat trap and to provide an upward-moving air column. The height shall not be decreased unless approved and justified by design and test.

909.20.4.4 Stair shaft air movement system. The stair shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.

909.20.5 Stair pressurization alternative. Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the vestibule is not required, provided that interior exit stairways are pressurized to a minimum of 0.05 inch of water (12.3 Pa) and a maximum of 0.35 inch of water (87 Pa) in the shaft relative to the building measured with all stairway doors closed under maximum anticipated stack pressures.

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed
ings for supply air shall be uniformly distributed around the periphery of the area served.

[F] 910.4.6 Interlocks. In combination comfort air-handling/smoke removal systems or independent comfort air-handling systems, fans shall be controlled to shut down in accordance with the approved smoke control sequence.

SECTION 911 FIRE COMMAND CENTER

[F] 911.1 Features. Where required by other sections of this code, a fire command center for fire department operations shall be provided. The location and accessibility of the fire command center shall be approved by the fire department. The fire command center shall be separated from the remainder of the building by not less than a 1-hour fire barrier constructed in accordance with Section 706 or horizontal assembly constructed in accordance with Section 711, or both. The room shall be a minimum of 96 square feet (9 m²) with a minimum dimension of 8 feet (2438 mm). A layout of the fire command center shall be submitted for approval prior to installation. The fire command center shall comply with NFPA 72 and shall contain the following features:

- 1. The emergency voice/alarm communication system unit.
- 2. The fire department communications unit.
- 3. Fire detection and alarm system annunciator unit.
- 4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
- 5. Status indicators and controls for air-handling systems.
- 6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the build-ing.
- 7. Controls for unlocking stairway doors simultaneously.
- 8. Sprinkler valve and water-flow detector display panels.
- 9. Emergency and standby power status indicators.
- 10. A telephone for fire department use with controlled access to the public telephone system.
- 11. Fire pump status indicators.
- 12. Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighting equipment and fire department access.
- 13. Worktable.
- 14. Generator supervision devices, manual start and transfer features.
- 15. Public address system, where specifically required by other sections of this code.

SECTION 912 FIRE DEPARTMENT CONNECTIONS

[F] 912.1 Installation. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through 912.5.

[F] 912.2 Location. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be approved.

[F] 912.2.1 Visible location. Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved by the fire code official.

[F] 912.2.2 Existing buildings. On existing buildings, wherever the fire department connection is not visible to approaching fire apparatus, the fire department connection shall be indicated by an approved sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" at least 6 inches (152 mm) high and words in letters at least 2 inches (51 mm) high or an arrow to indicate the location. All such signs shall be subject to the approval of the fire code official.

[F] 912.3 Access. Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other object for a minimum of 3 feet (914 mm).

[F] 912.3.1 Locking fire department connection caps. The fire code official is authorized to require locking caps on fire department connections for water-based fire protection systems where the responding fire department carries appropriate key wrenches for removal.

[F] 912.4 Signs. A metal sign with raised letters at least 1 inch (25 mm) in size shall be mounted on all fire department connections serving automatic sprinklers, standpipes or fire pump connections. Such signs shall read: AUTOMATIC SPRIN-KLERS, STANDPIPES or TEST CONNECTION, or a combination thereof as applicable.

[P] 912.5 Backflow protection. The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the *Florida Building Code*, *Plumbing*.

SECTION 913 CARBON MONOXIDE PROTECTION

913.1 Carbon monoxide protection. Every building for which a permit for new construction is issued having a fossil-fuel-burning heater or appliance, a fireplace or an attached garage shall have an operational carbon monoxide alarm installed within 10 feet (3048 mm) of each room used for sleeping purposes.

913.1.1 Power source. In new construction, alarms shall receive their primary power from the building wiring when

such wiring is served from the local power utility. Such alarms shall have battery back up.

913.1.2 Combination alarms. Combination smoke/carbon monoxide alarms shall be listed or labeled by a nationally recognized testing laboratory.

Exception: An approved operational carbon monoxide detector shall be installed inside or directly outside of each room or area within a hospital, inpatient hospice facility or nursing home facility where a fossil-fuel burning heater, engine or appliance is located. The carbon monoxide detector shall be connected to the fire-alarm system of the hospital, inpatient hospice facility or nursing home facility as a supervisory signal.

CHAPTER 10 MEANS OF EGRESS

SECTION 1001 ADMINISTRATION

1001.1 General. Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof.

1001.2 Minimum requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by this code.

1001.3 Maintenance. Means of egress shall be maintained in accordance with the *Florida Fire Prevention Code*.

1001.4 Alterations. A building shall not hereafter be altered to reduce the capacity of the means of egress to less than required by this chapter nor shall any change of occupancy be made in any building unless such building conforms to the requirements of this chapter.

Exception: Existing stairs shall be permitted to remain in use provided they comply with the requirements of the building code in effect at the time of original construction.

1001.5 Where approved by the building official, existing stairs shall be permitted to be rebuilt in accordance with the dimensional criteria of the building code in effect at the time of original construction provided:

- 1. Handrails comply with Section 1012, and,
- 2. Guardrails comply with Section 1013, and,
- 3. The elevation of the floor surfaces on both sides of the door complies with Section 1008.1.4.

1001.6 Special egress requirements by occupancy. The general requirements of Chapter 10 apply to all occupancies except as modified for specific occupancies in accordance with Section 1025 and Sections 1027 through 1034.

SECTION 1002 DEFINITIONS

1002.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ACCESSIBLE MEANS OF EGRESS. A continuous and unobstructed way of egress travel from any accessible point in a building or facility to a public way.

AISLE. An exit access component that defines and provides a path of egress travel.

AISLE ACCESSWAY. That portion of an exit access that leads to an aisle.

ALTERNATING TREAD DEVICE. A device that has a series of steps between 50 and 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

AREA OF REFUGE. An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation.

BLEACHERS. Tiered seating facilities.

CIRCULAR STAIRS. A stairway with steps that result in a sweeping circular or curved pattern, but not spiral stairs.

COMMON PATH OF EGRESS TRAVEL. That portion of exit access which the occupants are required to traverse before two separate and distinct paths of egress travel to two exits are available. Paths that merge are common paths of travel. Common paths of egress travel shall be included within the permitted travel distance.

CORRIDOR. An enclosed exit access component that defines and provides a path of egress travel to an exit.

DOOR, BALANCED. A door equipped with double-pivoted hardware so designed as to cause a semicounterbalanced swing action when opening.

EGRESS COURT. A court or yard which provides access to a public way for one or more exits.

EMERGENCY ESCAPE AND RESCUE OPENING. An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

EXIT. That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include exterior exit doors at ground level, exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits.

EXIT, HORIZONTAL. A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.

EXIT ACCESS. That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit.

EXIT DISCHARGE. That portion of a means of egress system between the termination of an exit and a public way.

EXIT DISCHARGE, LEVEL OF. The lowest level having at least 50 percent of the number of exits and capacity of exits discharging to the exterior at grade or story with the least change in elevation to grade, provided no other story has 50 percent of

its exits or egress capacity discharging to the exterior at the grade.

EXIT ENCLOSURE. An exit component that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives, and provides for a protected path of egress travel in a vertical or horizontal direction to the exit discharge or the public way.

EXIT PASSAGEWAY. An exit component that is separated from all other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives, and provides for a protected path of egress travel in a horizontal direction to the exit discharge or the public way.

FIRE EXIT HARDWARE. Panic hardware that is listed for use on fire door assemblies.

FLOOR AREA, GROSS. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.

FLOOR AREA, NET. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms and closets.

FOLDING AND TELESCOPIC SEATING. Tiered seating facilities having an overall shape and size that are capable of being reduced for purposes of moving or storing.

GRANDSTAND. Tiered seating facilities.

GUARD. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

MEANS OF EGRESS. A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

MEANS OF ESCAPE. A way out of a building or structure that does not conform to the strict definition of means of egress but does provide an alternate way out. A means of escape consists of a door, stairway, passage or hall providing a way of unobstructed travel to the outside at street or ground level that is independent of and remotely located from the means of egress. It may also consist of a passage through an adjacent nonlockable space, independent of and remotely located from the means of egress, to any approved exit.

MERCHANDISE PAD. A merchandise pad is an area for display of merchandise surrounded by aisles, permanent fixtures or walls. Merchandise pads contain elements such as nonfixed and moveable fixtures, cases, racks, counters and partitions from which customers browse or shop. **NOSING.** The leading edge of treads of stairs and of landings at the top of stairway flights.

OCCUPANT LOAD. The number of persons for which the means of egress of a building or portion thereof is designed.

PANIC HARDWARE. A door-latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel.

PUBLIC WAY. A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet (3048 mm).

RAMP. A walking surface that has a running slope steeper than one unit vertical in 20 units horizontal (5-percent slope).

SCISSOR STAIR. Two interlocking stairways providing two separate paths of egress located within one stairwell enclosure.

SMOKE-PROTECTED ASSEMBLY SEATING. Seating served by means of egress that is not subject to smoke accumulation within or under a structure.

STAIR. A change in elevation, consisting of one or more risers.

STAIRWAY. One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

STAIRWAY, EXTERIOR. A stairway that is open on at least one side, except for required structural columns, beams, handrails and guards. The adjoining open areas shall be either yards, courts or public ways. The other sides of the exterior stairway need not be open.

STAIRWAY, INTERIOR. A stairway not meeting the definition of an exterior stairway.

STAIRWAY, SPIRAL. A stairway having a closed circular form in its plan view with uniform section-shaped treads attached to and radiating from a minimum-diameter supporting column.

WINDER. A tread with nonparallel edges.

SECTION 1003 GENERAL MEANS OF EGRESS

1003.1 Applicability. The general requirements specified in Sections 1003 through 1013 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

1003.2 Ceiling height. The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

Exceptions:

- 1. Sloped ceilings in accordance with Section 1208.2.
- 2. Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2.

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- 3. Allowable projections in accordance with Section 1003.3.
- 4. Stair headroom in accordance with Section 1009.2.
- 5. Door height in accordance with Section 1008.1.1.

1003.3 Protruding objects. Protruding objects shall comply with the requirements of Sections 1003.3.1 through 1003.3.4.

1003.3.1 Headroom. Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 provided a minimum headroom of 80 inches (2032 mm) shall be provided for any walking surface, including walks, corridors, aisles and passageways. Not more than 50 percent of the ceiling area of a means of egress shall be reduced in height by protruding objects.

Exception: Door closers and stops shall not reduce headroom to less than 78 inches (1981 mm).

A barrier shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the floor.

1003.3.2 Free-standing objects. A free-standing object mounted on a post or pylon shall not overhang that post or pylon more than 4 inches (102 mm) where the lowest point of the leading edge is more than 27 inches (686 mm) and less than 80 inches (2032 mm) above the walking surface. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the lowest edge of such sign or obstruction shall be 27 inches (685 mm) maximum or 80 inches (2030 mm) minimum above the finished floor or ground.

Exception: This requirement shall not apply to sloping portions of handrails serving stairs and ramps.

1003.3.3 Horizontal projections. Elements cannot project over a walking surface more than 4 inches (102 mm) when they are located between 27 and 80 inches (686 and 2032 mm) above the floor. Handrails can project up to $4^{1}/_{2}$ inches (114 mm) from the wall.

1003.3.4 Clear width. For accessibility provisions related to protruding objects, refer to Section 11-4.4 as provided in Section 1003.3.

1003.4 Floor surface. Walking surfaces shall be slip resistant under foreseeable conditions. The walking surface of each element in the means of egress shall be uniformly slip resistant along the natural path of travel.

1003.5 Elevation change. Change in level in the means of egress shall be either by a ramp or a stair. The presence and location of ramped walkways shall be readily apparent.

1003.5.1 Where a change in level means of egress not exceeding 21 inches (533 mm) is achieved by a stair, the minimum tread depth of such stair shall be 13 inches (330 mm) and the presence and location of each step shall be readily apparent.

Exception: Within dwelling level.

1003.5.2 Where change in elevation of 12 inches (305 mm) or less occurs in exit access corridors, exits and exit

discharge, ramps complying with Section 1010 shall be provided.

Exception: Within dwelling level.

1003.5.3 Accessibility. For accessibility provisions related to changes in levels, see Section 11-4.3.8.

1003.6 Means of egress continuity. The path of egress travel along a means of egress shall not be interrupted by any building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the required width of a means of egress except projections permitted by this chapter. The required capacity of a means of egress system shall not be diminished along the path of egress travel.

1003.7 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

Exception: Elevators used as an accessible means of egress in accordance with Section 1007.4.

SECTION 1004 OCCUPANT LOAD

1004.1 Design occupant load. In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. Where occupants from accessory areas egress through a primary space, the calculated occupant load for the primary space shall include the total occupant load of the primary space plus the number of occupants egressing through it from the accessory area.

Exceptions:

- 1. In a special purpose factory-industrial occupancy, the occupant load shall be the maximum number of persons to occupy the area under any probable conditions.
- The occupant load for towers shall be the number of persons expected to occupy the space, with spaces not subject to human occupancy because of machinery or equipment excluded from the gross area calculation.

1004.1.1 Areas without fixed seating. The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.1. For areas without fixed seating, the occupant load shall not be less than that number determined by dividing the floor area under consideration by the occupant per unit of area factor assigned to the occupancy as set forth in Table 1004.1.1. Where an intended use is not listed in Table 1004.1.1, the building official shall establish a use based on a listed use that most nearly resembles the intended use.

Exception: Where approved by the building official, the actual number of occupants for whom each occupied space, floor or building is designed, although less than those determined by calculation, shall be permitted to be used in the determination of the design occupant load.

1004.2 Increased occupant load. The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.1.1,

provided that all other requirements of the code are also met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m^2) of occupiable floor space. Where required by the building official, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the building official, such diagram shall be posted.

1004.3 Posting of occupant load. Every room or space that is an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.

1004.4 Exiting from multiple levels. Where exits serve more than one floor, only the occupant load of each floor considered individually shall be used in computing the required capacity of the exits at that floor, provided that the exit capacity shall not decrease in the direction of egress travel.

1004.5 Egress convergence. Where means of egress from floors above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two floors.

MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT			
FUNCTION OF SPACE	FLOOR AREA IN SQ FT PER OCCUPANT		
Accessory storage areas, mechanical equipment room	300 gross		
Agricultural building	300 gross		
Aircraft hangars	500 gross		
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	20 gross 300 gross 100 gross 15 gross		
Assembly Gaming floors (keno, slots, etc.)	11 gross		
Assembly with fixed seats	See Section 1004.7		
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	7 net 5 net 15 net		
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net		
Business areas	100 gross		
Courtrooms—other than fixed seating areas	40 net		
Day care	20 net		
Dormitories	50 gross		
Educational Classroom area Shops and other vocational room areas	20 net 50 net		

TABLE 1004.1.1

(continued)

TABLE 1004.1.1—continued MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Exercise rooms with equipment	50 gross
Exercise rooms without equipment	15 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	50 net 100 gross
Locker rooms	50 gross
Mercantile Areas on other floors Basement and grade floor areas	60 gross 30 gross
Multiple street floors - each (Note 1)	40 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool	50 gross
Swimming pool deck	30 gross
Swimming pool water surface	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m^2 .

- 1. For the purpose of determining occupant load in mercantile occupancies where, due to differences in grade of streets on different sides, two or more floors directly accessible from streets exist, each such floor shall be considered a street floor. The occupant load factor shall be one person for each 40 square feet (3.7 m^2) of gross floor area of sales space.
- 2. For any food court or other assembly use areas located in the mall that are not included as a portion of the gross leasable area of the mall buildings, the occupant load is calculated based on the occupant load factor for that use as specified in Table 1004.1.1. The remaining mall area is not required to be assigned an occupant load.

1004.6 Mezzanine levels. The occupant load of a mezzanine level with egress onto a room or area below shall be added to that room or area's occupant load, and the capacity of the exits shall be designed for the total occupant load thus established.

1004.7 Fixed seating. For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces and wheel-chair spaces, shall be determined in accordance with Section 1004.1.1 and added to the number of fixed seats.

For areas having fixed seating without dividing arms, the occupant load shall not be less than the number of seats based on one person for each 18 inches (457 mm) of seating length.

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Exceptions:

- 1. Towers occupied by three or fewer persons shall be exempt from emergency lighting requirements.
- 2. Locations in towers not routinely inhabited by humans shall be exempt from emergency lighting requirements.
- 3. When approved by the building official, illumination of means of egress shall not be required in towers that are occupied only during daylight hours, with windows arranged to provide the required level of illumination on all portions of the means of egress during these hours.
- 4. Water-surrounded structures in locations not routinely inhabited by humans shall be exempt from emergency lighting requirements.
- 5. When approved by the building official, illumination of means of egress shall not be required in water-surrounded structures that are occupied only during daylight hours, with windows arranged to provide the required level of illumination on all portions of the means of egress during these hours.

1006.2.2 Where maintenance of illumination depends upon changing from one energy source to another, a delay of not more than 10 seconds shall be permitted.

1006.2.3 Performance of system.

1006.2.3.1 Emergency illumination shall be provided for a period of hours $1^{1/2}$ in the event of failure of normal lighting. Emergency lighting facilities shall be arranged to provide initial illumination that is at least an average of 1 footcandle (10 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40:1 shall not be exceeded.

1006.2.3.2 The emergency lighting system shall be arranged to provide the required illumination automatically in the event of any interruption of normal lighting, such as any failure of public utility or other outside electrical power supply; opening of a circuit breaker or fuse or any manual act(s), including accidental opening of a switch controlling normal lighting facilities.

1006.2.3.3 Emergency generators providing power to emergency lighting systems shall be installed in accordance with NFPA 110. Stored electrical energy systems where required in this code shall be installed and tested in accordance with NFPA 111.

1006.2.3.4 Battery-operated emergency lights shall use only reliable types of rechargeable batteries provided with suitable facilities for maintaining them in a properly

charged condition. Batteries used in such lights or units shall be approved for their intended use and shall comply with Chapter 27 of the *Florida Building Code*, *Building*.

1006.2.3.5 The emergency lighting system shall be either continuously in operation or shall be capable of repeated automatic operation without manual intervention.

1006.2.4 Standby power. High-rise buildings shall be provided with Class 1, Type 60 standby power in accordance with Chapter 27 of the *Florida Building Code*, *Building* and NFPA 110. The standby power system shall have a capacity and rating sufficient to supply all required equipment. Selective load pickup and load shedding shall be permitted in accordance with Chapter 27 of the *Florida Building Code*, *Building*. The standby power system shall be connected to the following:

- 1. Emergency lighting system.
- 2. At least one elevator serving all floors and transferable to any elevator.
- 3. Mechanical equipment for smokeproof enclosures.

(See Section 403 for additional requirements for standby power in high-rise structures.)

1006.3 Exit signs.

1006.3.1 Exits shall be marked by an approved sign readily visible from any direction of exit access. Every exit sign shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be visible in both normal and emergency lighting.

Exception: Main exterior exit doors that obviously and clearly are identifiable as exits.

1006.3.2 New sign placement shall be such that no point in an exit access corridor is in excess of the rated viewing distance or 100 feet (30 m) whichever is less, from the nearest sign.

1006.3.3 Every required sign shall be located and of such size, distinctive color and design as to be readily visible and shall provide contrast with interior finish or other signs. No equipment that impairs visibility of an exit sign shall be permitted, nor shall there be any brightly illuminated sign or object in or near the line of vision of the required exit sign. Floor proximity signs, where required, shall be in accordance with Section 1006.3.8.2 or 1006.3.8.3.

1006.3.4 Exit stair door or tactile signage. Tactile signage stating "EXIT" and complying with ICC/ANSI A117.1, shall be installed adjacent to the latch side of the door 60 inches (1524 mm) above the finished floor to the center line of the sign.

1006.3.5 Externally illuminated signs shall have the word "EXIT" or other appropriate wording in plainly legible letters not less than 6 inches (15 2 mm) high with the principal strokes of letters not less than $3/_4$ inches (19 mm) wide. The word "EXIT" shall have letters of a width not less than 2 inches (51 mm), except the letter "I," and the minimum spacing between letters shall be not less than $3/_8$ inches (10

mm). Signs larger than the minimum established in this paragraph shall have letter widths, strokes and spacing in proportion to their height. Externally illuminated signs shall be illuminated by not less than 5 footcandles (50 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5.

Exceptions:

- 1. Marking required by Section 1009.5.4.
- 2. Group R-3 and Group R-4 (small facility) occupancies.

1006.3.6 Internally illuminated signs shall be listed in accordance with UL 924, *Standard for Safety Emergency Lighting Power Equipment*. The visibility of an internally illuminated sign shall be the equivalent of an externally illuminated sign that complies with Section 1006.3.5.

Exceptions:

- 1. Marking required by Section 1009.5.4.
- 2. Signs in compliance with Sections 1006.3.4 and 1006.3.8.2.

1006.3.7 Where emergency lighting facilities are required by Section 1006.2, the exit signs shall be illuminated by the emergency lighting facilities. The level of illumination of the exit sign shall be at the levels provided in accordance with Section 1006.3.5 for the required emergency lighting time duration as specified in Section 1006.2.3.1, but shall be permitted to decline to 60 percent of the illumination level at the end of the emergency lighting time duration.

1006.3.8 Where the direction of travel to reach the nearest exit is not apparent, a directional sign complying with Sections 1006.3.5 or 1006.3.6 reading "EXIT," or a similar designation with a directional indicator showing the direction of travel shall be placed in every location. Directional signs shall be listed.

1006.3.8.1 The directional indicator shall be located outside of the "EXIT" legend, not less than $\frac{3}{8}$ inches (10 mm) from any letter. The directional indicator shall be of a chevron type and shall be identifiable as a directional indicator at a minimum distance of 40 feet (12.2 m). A directional indicator larger than the minimum established in this section shall be proportionately increased in height, width and stroke. The directional indicators shall be located at the end of the sign for the direction indicated.

1006.3.8.2 Where floor proximity exit signs are required, exit signs shall be placed near the floor level in addition to those signs required for doors or corridors. These signs shall be illuminated in accordance with Section 1006.3. Externally illuminated signs shall be sized in accordance with Section 1006.3.5. The bottom of the sign shall be at least 6 inches (152 mm) and no more than 8 inches (203 mm) above the floor. For exit doors, the sign shall be mounted on the door or adjacent to the door with the nearest edge of the sign within 4 inches (102 mm) of the door frame.

1006.3.8.3 Where floor proximity egress path marking is required, a listed and approved floor proximity egress

path marking system that is internally illuminated shall be installed within 18 inches (457 mm) of the floor. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors or other such architectural features. The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration and continuity of operation of the system shall be in accordance with Section 1006.2.

1006.3.9 Signs installed as projections from a wall or ceiling within the means of egress shall provide vertical clearance no less than 80 inches (2134 mm) from the walking surface.

1006.4 Performance of system. Reserved.

SECTION 1007 ACCESSIBLE MEANS OF EGRESS

1007.1 Accessible means of egress. Accessible means of egress shall be provided in accordance with Sections 11-4.1.3(8), 11-4.1.3(9) and 11-4.3(10).

1007.2 Continuity and components. Reserved.

1007.3 Exit stairways. Reserved.

1007.4 Elevators. Reserved.

1007.5 Platform lifts. Reserved.

1007.6 Areas of refuge. Reserved.

1007.7 Signage. Reserved.

1007.8 Exterior area for assisted rescue. Reserved.

SECTION 1008 DOORS, GATES AND TURNSTILES

1008.1 Doors. Means of egress doors shall meet the requirements of this section. Doors serving a means of egress system shall meet the requirements of this section and Section 1017.2. || Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section. For accessibility provisions related to doors, refer to Sections 11-4.1.3, 11-4.3.9 and 11-4.13.

Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

1008.1.1 Size of doors. The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf

shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). The height of doors shall not be less than 80 inches (2032 mm).

Exceptions:

- 1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
- 2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
- 3. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum width.
- 4. Width of door leafs in revolving doors that comply with Section 1008.1.3.1 shall not be limited.
- 5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
- 6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
- 7. Reserved.

8. Reserved.

1008.1.1.1 Projections into clear width. There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

1008.1.2 Door swing. Egress doors shall be side-hinged swinging.

Exceptions:

- 1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
- 2. Group I-3 occupancies used as a place of detention.
- 3. Critical or intensive care patient rooms within suites of health care facilities.
- 4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
- 5. In other than Group H occupancies, revolving doors complying with Section 1008.1.3.1.

- 6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.3.3 are permitted in a means of egress.
- 7. Power-operated doors in accordance with Section 1008.1.3.2.
- 8. Doors serving a bathroom within an individual sleeping unit in Group R-1.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.

The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full-open position when subjected to a 15-pound (67 N) force. Forces shall be applied to the latch side.

1008.1.3 Special doors. Special doors and security grilles shall comply with the requirements of Sections 1008.1.3.1 through 1008.1.3.5.

1008.1.3.1 Revolving doors. Revolving doors shall comply with the following:

- 1. Each revolving door shall be capable of collapsing into a bookfold position with parallel egress paths providing an aggregate width of 36 inches (914 mm).
- 2. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.
- 3. The revolutions per minute (rpm) for a revolving door shall not exceed those shown in Table 1008.1.3.1.
- 4. Each revolving door shall have a side-hinged swinging door which complies with Section 1008.1 in the same wall and within 10 feet (3048 mm) of the revolving door, unless one of the following conditions applies:
 - a. Revolving doors shall be permitted without adjacent swinging doors, as required by Section 1008.1.3.1(4) in street floor elevator lobbies, provided that no stairways or doors from other parts of the building discharge through the lobby and the lobby has no occupancy other than as means of travel between the elevators and the street.
 - b. The requirement of Section 1008.1.3.1(4) shall not apply to existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 240 inches (6100 mm) of the revolving doors.

INSIDE DIAMETER (feet-inches)	POWER-DRIVEN-TYPE SPEED CONTROL (rpm)	MANUAL-TYPE SPEED CONTROL (rpm)
6-6	11	12
7-0	10	11
7-6	9	11
8-0	9	10
8-6	8	9
9-0	8	9
9-6	7	8
10-0	7	8

TABLE	1008.1.3	.1
REVOLVING	DOOR S	PEEDS

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

1008.1.3.1.1 Egress component. A revolving door used as a component of a means of egress shall comply with Section 1008.1.3.1 and the following three conditions:

- 1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
- 2. Each revolving door shall be credited with no more than a 50-person capacity.
- 3. Each revolving door shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

1008.1.3.1.2 Other than egress component. A revolving door used as other than a component of a means of egress shall comply with Section 1008.1.3.1. The collapsing force of a revolving door not used as a component of a means of egress shall not be more than 180 pounds (801 N).

Exception: A collapsing force in excess of 180 pounds (801 N) is permitted if the collapsing force is reduced to not more than 130 pounds (578 N) when at least one of the following conditions is satisfied:

- 1. There is a power failure or power is removed to the device holding the door wings in position.
- 2. There is an actuation of the automatic sprinkler system where such system is provided.
- 3. There is an actuation of a smoke detection system which is installed in accordance with Section 907 to provide coverage in areas within the building which are within 75 feet (22 860 mm) of the revolving doors.
- 4. There is an actuation of a manual control switch, in an approved location and clearly defined, which reduces the holding force to below the 130-pound (578 N) force level.

1008.1.3.2 Power-operated doors. Where means of egress doors are operated by power, such as doors with a

photoelectric-actuated mechanism to open the door upon the approach of a person, or doors with power-assisted manual operation, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit means of egress travel or closed where necessary to safeguard means of egress. The forces required to open these doors manually shall not exceed those specified in Section 1008.1.2, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Full-power-operated doors shall comply with BHMA A156.10. Power-assisted and low-energy doors shall comply with BHMA A156.19. On the egress side of each door, there shall be a readily visible, durable sign that reads: "IN EMERGENCY PUSH TO OPEN."

The sign shall be in letters not less than 1 inch (25 mm) high on a contrasting background.

Exceptions:

- 1. Occupancies in Group I-3.
- 2. Horizontal sliding doors complying with Section 1008.1.3.3.
- 3. Sliding, power-operated doors in exit access serving an occupant load of fewer than 50 that manually opens in the direction of door travel with forces not more than required in Section 1008 shall not be required to have a swing-out feature. The required sign shall state, "IN EMERGENCY, SLIDE TO OPEN."
- 4. In the emergency breakout mode, a door leaf located within a two-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement, provided the clear width of the single leaf is at least 30 inches (762 mm).
- 5. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1008.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

1008.1.3.3 Horizontal sliding doors. In other than Group H occupancies, horizontal sliding doors permitted to be a component of a means of egress in accordance with Exception 6 to Section 1008.1.2 shall comply with all of the following criteria:

- 1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.
- 2. The doors shall be openable by a simple method from both sides without special knowledge or effort.

1008.3.1 High turnstile. Turnstiles more than 39 inches (991 mm) high shall meet the requirements for revolving doors.

1008.3.2 Additional door. Where serving an occupant load greater than 300, each turnstile that is not portable shall have a side-hinged swinging door which conforms to Section 1008.1 within 50 feet (15 240 mm).

SECTION 1009 STAIRWAYS

1009.1 Stairway width. The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.1 for accessible means of egress stairways.

Exceptions:

- 1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
- 2. Spiral stairways as provided for in Section 1009.8.
- 3. Aisle stairs complying with Section 1025.
- 4. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

1009.2 Headroom. Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

Exception: Spiral stairways complying with Section 1009.8 are permitted a 78-inch (1981 mm) headroom clearance.

1009.3 Stair treads and risers. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

Exceptions:

- 1. Alternating tread devices in accordance with Section 1009.9.
- 2. Spiral stairways in accordance with Section 1009.8.

- 3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
- 4. In occupancies in Group R-3, as applicable in Section 101.2, within dwelling units in occupancies in Group R-2, as applicable in Section 101.2, and in occupancies in Group U, which are accessory to an occupancy in Group R-3, as applicable in Section 101.2, the maximum riser height shall be 7.75 inches (197 mm) and the minimum tread depth, exclusive of nosing, shall be not less than 9 inches (229 mm), the minimum winder tread depth at the walk line shall be 10 inches (254 mm), and the minimum winder tread depth shall be 6 inches (152 mm). Treads and risers of stairs shall be permitted to be so proportioned that the sum of two risers and a tread, exclusive of projection of nosing, is not less than 24 inches (610 mm) nor more than 25 inches (635 mm). Every tread less than 10 inches (254 mm) wide shall have a nosing, or effective projection, of approximately 1 inch (25 mm) over the level immediately below that tread.
- 5. See the *Florida Building Code, Existing Building* for the replacement of existing stairways.
- 6. Industrial equipment access stairs and landings that serve as a component of the means of egress from the involved equipment and do not serve more than 20 people shall be permitted to have a minimum clear width of 22 inches (559 mm), minimum tread depth of 10 inches (254 mm), maximum riser height of 9 inches (229 mm), minimum headroom of 6 feet 8 inches (2032 mm), and a maximum height between landings of 12 feet (36 576 mm).

1009.3.1 Winder treads. Winder treads are not permitted in means of egress stairways except within a dwelling unit.

Exceptions:

- 1. Curved stairways in accordance with Section 1009.7.
- 2. Spiral stairways in accordance with Section 1009.8.

1009.3.2 Dimensional uniformity. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 0.375 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the 12-inch (305 mm) walk line within any flight of stairs shall not exceed the smallest by more than 0.375 inch (9.5 mm) measured at a right angle to the tread's leading edge.

Exceptions:

- 1. Nonuniform riser dimensions of aisle stairs complying with Section 1025.11.2.
- 2. Consistently shaped winders, complying with Section 1009.3, differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and

serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8.333-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2

1009.3.3 Profile. The radius of curvature at the leading edge of the tread shall be not greater than 0.5 inch (12.7 mm). Beveling of nosings shall not exceed 0.5 inch (12.7 mm). Risers shall be solid and vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 degrees (0.52 rad) from the vertical. The leading edge (nosings) of treads shall project not more than 1.25 inches (32 mm) beyond the tread below and all projections of the leading edges shall be of uniform size, including the leading edge of the floor at the top of a flight.

Exceptions:

inches (51 mm).

- 1. Solid risers are not required for stairways that are not required to comply with Section 1007.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
- 2. Solid risers are not required for occupancies in Group I-3.

1009.3.4 Tread slope shall not be more than $\frac{1}{4}$ inch per foot (21 mm/m).

1009.4 Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 48 inches (1219 mm) where the stairway has a straight run.

Exceptions:

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- 1. Aisle stairs complying with Section 1025.11.
 - 2. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing.
 - 3. In one- and two-family dwellings, a door at the top of a stair shall be permitted to open directly at a stair, provided the door does not swing over the stair and the door serves an area with an occupant load of fewer than 50 persons.

1009.5 Stairway construction. All stairways shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.

1009.5.1 Stairway walking surface. The walking surface of treads and landings of a stairway shall not be sloped

Exception: In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of 1.125 inches (29 mm) cannot pass through the opening.

1009.5.2 Outdoor conditions. Outdoor stairways and outdoor approaches to stairways shall be designed so that water will not accumulate on walking surfaces.

1009.5.3 Enclosures under stairways. The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stair enclosure.

Exception: Spaces under stairways serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with 0.5-inch (12.7 mm) gypsum board.

There shall be no enclosed usable space under exterior exit stairways unless the space is completely enclosed in 1-hour fire-resistance-rated construction. The open space under exterior stairways shall not be used for any purpose.

1009.5.4 Stair identification. An approved sign shall be located at each floor level landing in all enclosed stairways of buildings four or more stories in height. The sign shall indicate the floor level and the availability of roof access from that stairway and an identification of the stairway. The sign shall also state the floor level of and direction to exit discharge. The sign shall be located approximately 5 feet (1524 mm) above the floor landing in a position which is readily visible when the door is in the open or closed position. The floor level designation shall also be tactile in accordance with Chapter 11.

1009.6 Vertical rise. A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exception: Aisle stairs complying with Section 1025.

1009.7 Curved stairways. Curved stairways with winder treads shall have treads and risers in accordance with Section 1009.3 and the smallest radius shall not be less than twice the required width of the stairway.

Exceptions:

- 1. The radius restriction shall not apply to curved stairways for occupancies in Group R-3 and within individual dwelling units in occupancies in Group R-2.
- 2. In Group R-3 occupancies, circular stairs may have a minimum tread depth of 9 inches (229 mm) with 1 inch (25.4 mm) of nosing, and the smaller radius may be less than twice the width of the stairway.

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1009.8 Spiral stairways. Where permitted by this section or in specific occupancies in accordance with Sections 1024 and 1026 through 1033, spiral stairs complying with this section shall be permitted as a component in a means of egress.

1009.8.1 Spiral stairs complying with the following shall be permitted:

- 1. Riser heights shall not exceed 7 inches (178 mm).
- 2. The stairway shall have a tread depth of not less than 11 inches (279 mm) for a portion of the stairway width sufficient to provide the egress capacity for the occupant load served in accordance with Section 1004.1.
- 3. At the outer side of the stairway, an additional $10^{1}/_{2}$ inches (267 mm) of width shall be provided clear to the other handrail, and this width shall not be included as part of the required egress capacity.
- 4. Handrails complying with Section 1009.11 shall be provided on both sides of the spiral stairway.
- 5. The inner handrail shall be located within 24 inches (610 mm), measured horizontally, of the point where a tread depth not less than 11 inches (279 mm) is provided.
- 6. The turn of the stairway shall be such that descending users have the outer handrail at their right side.

1009.8.2 Where the occupant load served does not exceed three and from mezzanines not exceeding 250 square feet (23 m^2) and an occupant load of three or less, spiral stairs meeting the following conditions shall be permitted:

- 1. The clear width of the stairs shall be not less than 26 inches (660 mm).
- 2. The height of the risers shall not exceed $9^{1}/_{2}$ inches (241 mm).
- 3. Headroom shall be not less than 6 feet 6 inches (1981 mm).
- 4. Treads shall have a depth not less than $7^{1}/_{2}$ inches (191 mm) at a point 12 inches (305 mm) from the narrower edge.
- 5. All treads shall be identical.
- 6. Handrails complying with Section 1009.11 shall be provided on both sides of the spiral stairway.

1009.8.3 Within dwellings and dwelling units, guest rooms and guest suites where the occupant load served does not exceed five, spiral stairs meeting the following conditions shall be permitted:

- 1. The minimum stairway width shall be 26 inches (660 mm).
- 2. The height of risers shall not be more than 9¹/₂ inches (241 mm).
- 3. The headroom shall be a minimum of 6 feet 6 inches (1981 mm).
- 4. Treads shall have a depth not less than 7½ inches (190 mm) at a point 12 inches (305 mm) from the narrow edge.

- 5. All treads shall be identical.
- 6. Handrails shall be provided on one side.

1009.9 Alternating tread devices. Alternating tread devices are limited to an element of a means of egress in buildings of Groups F, H and S from a mezzanine not more than 250 square feet (23 m^2) in area and which serves not more than three occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m^2) in area and for access to unoccupied roofs.

1009.9.1 Handrails of alternating tread devices. Handrails shall be provided on both sides of alternating tread devices and shall comply with Section 1012.

1009.9.2 Treads of alternating tread devices. Alternating tread devices shall have a minimum projected tread of 5 inches (127 mm), a minimum tread depth of 8.5 inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser height of 9.5 inches (241 mm). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

Exception: Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m^2) in area which serves not more than five occupants shall have a minimum projected tread of 8.5 inches (216 mm) with a minimum tread depth of 10.5 inches (267 mm). The rise to the next alternating tread surface should not be more than 8 inches (203 mm).

1009.10 Handrails. Stairways shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407.

Exceptions:

- 1. Aisle stairs complying with Section 1025 provided with a center handrail need not have additional handrails.
- 2. Stairways within dwelling units, spiral stairways and aisle stairs serving seating only on one side are permitted to have a handrail on one side only.
- 3. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
- 4. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
- 5. In one- and two-family dwellings and within dwelling units in Group R-2 occupancies, stairways having four or more risers above a floor or finished ground level shall be equipped with handrails located not less than 34 inches (864 mm) or more than 38 inches (965 mm) above the leading edge of a tread.

1009.11 Access to roof. Buildings four stories or more in height, except those with a roof slope greater than 4:12, shall be provided with a stairway to the roof. Such stairway shall be marked at street and floor levels with a sign indicating that it

continues to the roof. Where roofs are used for roof gardens or for other purposes, stairways shall be provided as required for such use or occupancy.

1009.11.1 Roof access. Reserved.

1009.12 Interlocking or scissor stairs shall comply with Sections 1009.12.1 and 1009.12.2.

1009.12.1 New interlocking or scissor stairs shall be permitted to be considered only as a single exit.

1009.12.2 Existing interlocking or scissor stairs shall be permitted to be considered separate exits if they meet the following criteria:

- 1. They are enclosed in accordance with Section 1019.
- 2. They are separated from each other by 2-hour fire-resistance-rated noncombustible construction.
- 3. No protected or unprotected penetrations or communicating openings exist between the stair enclosures.

1009.13 Accessible stairs. Stairs required to be accessible by Section 11-4.1 shall comply with Section 11-4.9. Floor surfaces of stairs along accessible routes and in accessible rooms and spaces shall comply with Section 11-4.5.

SECTION 1010 RAMPS

1010.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

Exceptions:

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- 1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 11-4.7 through 11-4.8, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1025.11.
- 2. Curb ramps shall comply with ICC A117.1.
- 3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 11-4.7 through 11.4-8 when they are not an accessible route serving accessible parking spaces, other required accessible elements or part of an accessible means of egress.

1010.2 Slope. Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units hori-

I zontal (8.333-percent slope). The slope of other ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

Exceptions:

- 1. Aisle ramp slope in occupancies of Group A shall comply with Section 1025.11.
- 2. Ramps that provide access to vehicles, vessels, mobile structures and aircraft shall not be required to comply with the maximum slope or maximum rise for a single ramp run.

1010.3 Cross slope. The slope measured perpendicular to the direction of travel of a ramp shall not be steeper than one unit vertical in 50 units horizontal (2-percent slope).

1010.4 Vertical rise. The rise for any ramp run shall be 30 inches (762 mm) maximum.

1010.5 Minimum dimensions. The minimum dimensions of means of egress ramps shall comply with Sections 1010.5.1 through 1010.5.3.

1010.5.1 Width. The minimum width of a means of egress ramp shall not be less than that required for corridors by Section 1017.2. The clear width of a ramp and the clear width between handrails, if provided, shall be 36 inches (914 mm) minimum.

Exception: Ramps that are part of a required means of egress shall not be less than 44 inches (1118 mm) wide.

1010.5.2 Headroom. The minimum headroom in all parts of the means of egress ramp shall not be less than 80 inches (2032 mm).

1010.5.3 Restrictions. Means of egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches (1067 mm).

1010.6 Landings. Ramps shall have landings at the bottom and top of each ramp, points of turning, entrance, exits, at doors and || in accordance with Section 11- 4.8.4. Landings shall comply || with Sections 1010.6.1 through 1010.6.5.

1010.6.1 Slope. Landings shall have a slope not steeper than one unit vertical in 50 units horizontal (2-percent slope) in **||** any direction. Changes in level are not permitted.

1010.6.2 Width. The landing shall be at least as wide as the widest ramp run adjoining the landing.

1010.6.3 Length. The landing length shall be 60 inches (1525 mm) minimum.

Exceptions:

- 1. Landings in nonaccessible Group R-2 and R-3 individual dwelling units are permitted to be 36 inches (914 mm) minimum.
- 2. Where the ramp is not a part of an accessible route, the length of the landing shall not be required to be more than 48 inches (1220 mm) in the direction of travel.
- 3. Accessible landings shall comply with Section 11-4.8.4.

1010.6.4 Change in direction. Where changes in direction of travel occur at landings provided between ramp runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

Exception: Landings in nonaccessible Group R-2 and R-3 individual dwelling units are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

1010.6.5 Doorways. Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ICC A117.1 are permitted to overlap the required landing area.

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1010.7 Ramp construction. All ramps shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction. Ramps used as an exit shall conform to the applicable requirements of Sections 1020.1 through 1020.1.3 for exit enclosures.

1010.7.1 Ramp surface. The surface of ramps shall be of slip-resistant materials that are securely attached.

1010.7.2 Outdoor conditions. Outdoor ramps and outdoor approaches to ramps shall be designed so that water will not accumulate on walking surfaces.

1010.7.3 All ramps that serve as required means of egress shall be of permanent, fixed construction.

1010.7.4 The ramp floor and landings shall be solid and without perforations.

1010.8 Handrails. Handrails shall be provided along both sides of a ramp run with a rise greater than 6 inches (152 mm) and shall conform to the requirements in Section 1012. If handrails are not continuous, they shall extend at least 18 inches (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. Ends of handrails shall be either rounded or returned smoothly to floor, wall or post. Handrails shall not rotate within their fittings. Top of the handrail gripping surface shall be not less than 34 inches (864 mm) nor more than 38 inches (965 mm) above the ramp surface.

Exceptions:

- 1. Handrails are not required when the total ramp run rise is 6 inches (152 mm) or less and the horizontal projection is 72 inches or less, except where required to be accessible.
- 2. Aisles in Group A occupancies (see Section 1025).
- 3. In dwelling units not required to be accessible by Chapter 11, handrails are not required to extend beyond the top and bottom of the ramp segment.
- 4. Handrails are not required on curb ramps.

1010.9 Edge protection. Edge protection complying with Section 1010.9.1 or 1010.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

Exceptions:

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- 1. Edge protection is not required on ramps that are not required to have handrails, provided they have flared sides that comply with Section 11-4.8.7, curb ramp.
- 2. Edge protection is not required on the sides of ramp landings serving an adjoining ramp run or stairway.
- 3. Edge protection is not required on the sides of ramp landings having a vertical dropoff of not more than 0.5 inch (12.7 mm) within 10 inches (254 mm) horizon-tally of the required landing area.

1010.9.1 Curb, rail, wall or barrier. A curb, rail, wall or barrier shall be provided that prevents the passage of a 4-inch-diameter (102 mm) sphere, where any portion of the sphere is within 4 inches (102 mm) of the floor or ground surface.

1010.9.2 Extended floor or ground surface. The floor or ground surface of the ramp run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a handrail complying with Section 1012.

1010.10 Guards. Guards shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013.

SECTION 1011 EXIT SIGNS

1011.1 Where required. See Section 1006.3.

SECTION 1012 HANDRAILS

1012.1 Where required. Handrails for stairways and ramps shall be adequate in strength and attachment in accordance with Section 1607.7. Handrails required for stairways by Section 1009.10 shall comply with Sections 1012.2 through 1012.8. Handrails required for ramps by Section 1010.8 shall comply with Sections 1012.2 through 1012.7.

1012.2 Height. Handrail height, measured above stair tread nosings, or finish surface of ramp slope shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

Exception: Handrails for stairs not required to be accessible that form part of a guardrail may be 42 inches (1067 mm) high.

1012.3 Handrail graspability. Handrails with a circular cross-section shall have an outside diameter of at least 1.25 inches (51 mm) and not greater than 2 inches (51 mm) or shall provide equivalent graspability. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6.25 inches (160 mm) with a maximum cross-section dimension of 2.25 inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Exception: Accessible handrails shall meet the requirements of Section 11-4.26.2.

1012.4 Continuity. Handrail-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

- 1. Handrails within dwelling units are permitted to be interrupted by a newel post at a stair or ramp landing.
- Within a dwelling unit, the use of a volute, turnout or starting easing is allowed on the lowest tread.
- 3. Handrail brackets or balusters attached to the bottom surface of the handrail shall not be considered obstructions to graspability, provided that the following conditions are met:
 - 3.1. They do not project horizontally beyond the sides of the handrail within 11/2 inches (38 mm) of the bottom of the handrail and provided that, for each 1/2 inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of $1\frac{1}{2}$ inches (38 mm) can be reduced by $\frac{1}{8}$ inch (.3 mm).

- 3.2. They have edges with a radius of not less than .01 inch (0.25 mm).
- 3.3. They obstruct not in excess of 20 percent of the handrail length.

1012.5 Handrail extensions. Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight or ramp run. At stairways where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs,

the handrails shall extend horizontally above the landing 18 inches (457 mm) minimum beyond the top and bottom of ramp runs.

Exceptions:

- 1. Handrails within a dwelling unit that is not required to be accessible need extend only from the top riser to the bottom riser.
- 2. Aisle handrails in Group A occupancies in accordance with Section 1025.13.
- 3. Accessible handrail extensions shall be as per Section 11-4.8.5(2).

1012.6 Clearance. Clear space between a handrail and a wall or other surface shall be a minimum of 1.5 inches (38 mm). A handrail and a wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements.

Exception: Accessible handrails shall comply with Section 11-4.8.5(3).

1012.7 Projections. On ramps, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stairways and ramps at each handrail shall not exceed 4.5 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1009.2.

1012.8 Intermediate handrails. Handrails shall be provided within 30 inches (762 mm) of all portions of the stair width required for egress capacity in accordance with Table 1005.1. The required egress width shall be along the natural path of travel.

1012.8.1 Where new intermediate handrails are provided in accordance with Section 1012.8, the minimum clear width between handrails shall be 20 inches (510 mm).

1012.9 For provisions related to handrails on stairs which are required to be accessible, refer to Sections 11-4.9.1 and 11-4.9.4.

SECTION 1013 GUARDS

1013.1 Where required. Guards shall be located along open-sided walking surfaces, mezzanines, industrial equipment platforms, stairways, ramps and landings that are located more than 30 inches (762 mm) above the floor or grade below. Guards shall be adequate in strength and attachment in accordance with Section 1607.7. Where glass is used to provide a guard or as a

portion of the guard system, the guard shall also comply with Section 2407. Guards shall also be located along glazed sides of stairways, ramps and landings that are located more than 30 inches (762 mm) above the floor or grade below where the glazing provided does not meet the strength and attachment requirements in Section 1607.7.

Exception: Guards are not required for the following locations:

- 1. On the loading side of loading docks or piers.
- 2. On the audience side of stages and raised platforms, including steps leading up to the stage and raised platforms.
- 3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations.
- 4. At vertical openings in the performance area of stages and platforms.
- 5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
- 6. Along vehicle service pits not accessible to the public.
- 7. In assembly seating where guards in accordance with Section 1025.14 are permitted and provided.

1013.2 Height. Guards shall form a protective barrier not less than 42 inches (1067 mm) high, measured vertically above the leading edge of the tread, adjacent walking surface or adjacent seatboard.

Exceptions:

- 1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards whose top rail also serves as a handrail shall have a height not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from the leading edge of the stair tread nosing.
- 2. The height in assembly seating areas shall be in accordance with Section 1025.14.

1013.3 Opening limitations. Open guards shall have balusters or ornamental patterns such that a 4-inch-diameter (102 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm). From a height of 34 inches (864 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, a sphere 8 inches (203 mm) in diameter shall not pass.

- 1. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches (152 mm) in diameter cannot pass through the opening.
- 2. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.
- 3. In areas that are not open to the public within occupancies in Group I-3, F, H or S, balusters, horizontal intermediate rails or other construction shall not per-

Exception: For areas serving not more than 50 occupants, the common path of travel shall not exceed 75 feet (22 880 mm).

1014.4.3 Seating at tables. Where seating is located at a table or counter and is adjacent to an aisle or aisle accessway, the measurement of required clear width of the aisle or aisle accessway shall be made to a line 19 inches (483 mm) away from and parallel to the edge of the table or counter. The 19-inch (483 mm) distance shall be measured perpendicular to the side of the table or counter. In the case of other side boundaries for aisle or aisle accessways, the clear width shall be measured to walls, edges of seating and tread edges, except that handrail projections are permitted.

Exception: Where tables or counters are served by fixed seats, the width of the aisle accessway shall be measured from the back of the seat.

1014.4.3.1 Aisle accessway for tables and seating. Aisle accessways serving arrangements of seating at tables or counters shall have sufficient clear width to conform to the capacity requirements of Section 1005.1 but shall not have less than the appropriate minimum clear width specified in Section 1014.4.3.2.

1014.4.3.2 Table and seating accessway width. Aisle accessways shall provide a minimum of 12 inches (305 mm) of width plus 0.5 inch (12.7 mm) of width for each additional 1 foot (305 mm), or fraction thereof, beyond 12 feet (3658 mm) of aisle accessway length measured from the center of the seat farthest from an aisle.

Exception: Portions of an aisle accessway having a length not exceeding 6 feet (1829 mm) and used by a total of not more than four persons.

1014.4.3.3 Table and seating aisle accessway length. The length of travel along the aisle accessway shall not exceed 30 feet (9144 mm) from any seat to the point where a person has a choice of two or more paths of egress travel to separate exits.

1014.5 Egress balconies. Balconies used for egress purposes shall conform to the same requirements as corridors for width, headroom, dead ends and projections.

1014.5.1 Wall separation. Exterior egress balconies shall be separated from the interior of the building by walls and opening protectives as required for corridors.

Exception: Separation is not required where the exterior egress balcony is served by at least two stairs and a dead-end travel condition does not require travel past an unprotected opening to reach a stair.

1014.5.2 Openness. The long side of an egress balcony shall be at least 50 percent open, and the open area above the guards shall be so distributed as to minimize the accumulation of smoke or toxic gases.

SECTION 1015 EXIT AND EXIT ACCESS DOORWAYS

1015.1 Exit or exit access doorways required. Two exits or exit access doorways from any space shall be provided where one of the following conditions exists:

- 1. The occupant load of the space exceeds the values in Table 1015.1.
- 2. The common path of egress travel exceeds the limitations of Section 1014.3.
- 3. Where required by Sections 1015.3, 1015.4 and 1015.5.

Exception: Group I-2 occupancies shall comply with Section 1014.2.2.

OCCUPANCY	MAXIMUM OCCUPANT LOAD		
A, B, E, F, M, U, R-2, R-3	49	*	
H-1, H-2, H-3	3		
D, H-4, H-5, I-1, I-3, R-1, R-4	10	*	
S	29		
		- LI	

	TAB	LE 1	015.1			
SPACES \	NITH ON	IE M	EANS	OF	EGRE	SS

1015.1.1 Three or more exits. Access to three or more exits shall be provided from a floor area where required by Section 1019.1.

1015.2 Exit or exit access doorway arrangement. Required exits shall be located in a manner that makes their availability obvious. Exits shall be unobstructed at all times. Exit and exit access doorways shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.

1015.2.1 Two exits or exit access doorways. Where two exits or exit access doorways are required from any portion of the exit access, the exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways. Interlocking or scissor stairs shall be counted as one exit stairway.

- 1. Where exit enclosures are provided as a portion of the required exit and are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section 1017, the required exit separation shall be measured along the shortest direct line of travel within the corridor.
- 2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the exit doors or exit access doorways shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.
- 3. In Group R-1 and R-2 occupancies, the distance between exits is not applicable to common

nonlooped exit access corridors in a building that has corridor doors from the guestroom or guest suite or dwelling unit, which are arranged so that the exits are located in opposite directions from such doors.

1015.2.2 Three or more exits or exit access doorways. Where access to three or more exits is required, at least two exit doors or exit access doorways shall be arranged in accordance with the provisions of Section 1015.2.1.

1015.3 Boiler, incinerator and furnace rooms. Two exit access doorways are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m^2) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two exit access doorways are required, one is permitted to be a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.

1015.4 Refrigeration machinery rooms. Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two exits or exit access doors. Where two exit access doorways are required, one such doorway is permitted to be served by a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an exit or exit access doorway. An increase in travel distance is permitted in accordance with Section 1016.1.

Doors shall swing in the direction of egress travel, regardless of the occupant load served. Doors shall be tight fitting and self-closing.

1015.5 Refrigerated rooms or spaces. Rooms or spaces having a floor area of 1,000 square feet (93 m^2) or more, containing a refrigerant evaporator and maintained at a temperature below 68° F (20°C), shall have access to not less than two exits or exit access doors.

Travel distance shall be determined as specified in Section 1016.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access door where such rooms are not protected by an approved automatic sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *Florida Building Code, Mechanical.*

1015.6 Stage means of egress. Where two means of egress are required, based on the stage size or occupant load, one means of egress shall be provided on each side of the stage.

1015.6.1 Gallery, gridiron and catwalk means of egress. The means of egress from lighting and access catwalks, galleries and gridirons shall meet the requirements for occupancies in Group F-2.

Exceptions:

- 1. A minimum width of 22 inches (559 mm) is permitted for lighting and access catwalks.
- 2. Spiral stairs are permitted in the means of egress.

- 3. Stairways required by this subsection need not be enclosed.
- 4. Stairways with a minimum width of 22 inches (559 mm), ladders, or spiral stairs are permitted in the means of egress.
- 5. A second means of egress is not required from these areas where a means of escape to a floor or to a roof is provided. Ladders, alternating tread devices or spiral stairs are permitted in the means of escape.
- 6. Ladders are permitted in the means of egress.

SECTION 1016 EXIT ACCESS TRAVEL DISTANCE

1016.1 Travel distance limitations. Exits shall be so located on each story such that the maximum length of exit access travel, measured from the most remote point within a story to the entrance to an exit along the natural and unobstructed path of egress travel, shall not exceed the distances given in Table 1016.1.

Where the path of exit access includes unenclosed stairways or ramps within the exit access or includes unenclosed exit ramps or stairways as permitted in Section 1020.1, the distance of travel on such means of egress components shall also be included in the travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stairway.

Exceptions:

- 1. Travel distance in open parking garages is permitted to be measured to the closest riser of open stairs.
- 2. In outdoor facilities with open exit access components and open exterior stairs or ramps, travel distance is permitted to be measured to the closest riser of a stair or the closest slope of the ramp.
- 3. Where an exit stair is permitted to be unenclosed in accordance with Exception 8 or 9 of Section 1020.1, the travel distance shall be measured from the most remote point within a building to an exit discharge.

1016.2 Roof vent increase. In buildings that are one story in height, equipped with automatic heat and smoke roof vents complying with Section 910 and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the maximum exit access travel distance shall be 400 feet (122 m) for occupancies in Group F-1 or S-1.

1016.3 Exterior egress balcony increase. Travel distances specified in Section 1016.1 shall be increased up to an additional 100 feet (30 480 mm) provided the last portion of the exit access leading to the exit occurs on an exterior egress balcony constructed in accordance with Section 1014.5. The length of such balcony shall not be less than the amount of the increase taken.

TABLE 1016.1 **EXIT ACCESS TRAVEL DISTANCE^a** WITHOUT SPRINKLER WITH SPRINKLER SYSTEM SYSTEM OCCUPANCY (feet) (feet) \mathbf{R}^{d} 100^{e} 200^{b} 250^c Μ 150 250^b A, F-1, I-1 200 200 300^c В S-1 400° 200 400 F-2, S-2, U 300 H-1 Not Permitted 75[°] 100° H-2 Not Permitted H-3 Not Permitted 150^c H-4 Not Permitted 175^c H-5 Not Permitted 200° E, D, S-2^f Ш 150 200^c I-2, I-3

For SI: 1 foot = 304.8 mm.

 See the following sections for modifications to exit access travel distance requirements:

Section 402: For the distance limitation in malls.

Section 404: For the distance limitation through an atrium space.

Section 1016.2 For increased limitations in Groups F-1 and S-1.

Section 1025.7: For increased limitation in assembly seating.

Section 1025.7: For increased limitation for assembly open-air seating. Section 1019.2: For buildings with one exit.

Chapter 31: For the limitation in temporary structures.

- b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems in accordance with Section 903.3.1.2 are permitted.
- Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- d. Travel within a guestroom, guest suite or dwelling unit shall not be included when calculating the travel distance. See Section 1014.3, Exception 4 for common path within.
- e. For exterior 200 feet is allowed without sprinkler.
- f. Enclosed parking garage.

SECTION 1017 CORRIDORS

1017.1 Construction. Corridors shall be fire-resistance rated in accordance with Table 1017.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

Exceptions:

- 1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has at least one door directly to the exterior and rooms for assembly purposes have at least one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
- 2. A fire-resistance rating is not required for corridors contained within a dwelling or sleeping unit in an occupancy in Group R.
- 3. A fire-resistance rating is not required for corridors in open parking garages.
- 4. A fire-resistance rating is not required for corridors in an occupancy in Group B which is a space requiring only a single means of egress complying with Section 1015.1.

1017.2 Corridor width. The minimum corridor width shall be as determined in Section 1005.1, but not less than 44 inches (1118 mm).

Exceptions:

- 1. Twenty-four inches (610 mm)—For access to and utilization of electrical, mechanical or plumbing systems or equipment.
- 2. Thirty-six inches (914 mm)—With a required occupant capacity of less than 50.
- 3. Thirty-six inches (914 mm)—Within a dwelling unit.
- 4. Seventy-two inches (1829 mm)—In Group E with a corridor having a required capacity of 100 or more.

TABLE 1017.1 CORRIDOR FIRE-RESISTANCE RATING

		REQUIRED FIRE-RESISTANCE RATING (hours)	
OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	Without sprinkler system	With sprinkler system
H-1, H-2, H-3	All	1	1
A, H-4, H-5	Greater than 30	1	1
B, D, E ^c , F, M, S, U	Greater than 30	1	0
R	Greater than 10	1	1
I-2 ^a	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1 ^b

a. For requirements for occupancies in Group I-2, see Section 407.3.

b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

c. In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903, corridor walls shall not be required to be rated, provided that such walls form smoke partitions in accordance with the *Florida Fire Prevention Code*.

- 5. Seventy-two inches (1829 mm)—In corridors serving surgical Group I, health care centers for ambulatory patients receiving outpatient medical care, which causes the patient to be not capable of self-preservation.
- 6. Ninety-six inches (2438 mm)—In Group I-2 in areas where required for bed movement.

1017.3 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet (6096 mm) in length.

Exceptions:

- 1. In occupancies in Group I-3 of Occupancy Condition 2, 3 or 4 (see Section 308.4), the dead end in a corridor shall not exceed 50 feet (15 240 mm).
- 2. In occupancies in Groups B and F where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of dead-end corridors shall not exceed 50 feet (15 240 mm).
- 3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

1017.4 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

- 1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
- 2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
- 3. Where located within tenant spaces of 1,000 square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.

1017.4.1 Corridor ceiling. Use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

- 1. The corridor is not required to be of fire-resistance-rated construction;
- 2. The corridor is separated from the plenum by fire-resistance-rated construction;
- 3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by the *Florida Building Code*, *Mechanical*.
- 4. The air-handling system serving the corridor is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an automatic sprinkler system; or

5. The space between the corridor ceiling and the floor or roof structure above the corridor is used as a component of an approved engineered smoke control system.

1017.5 Corridor continuity. Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

Exception: Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.

SECTION 1018 EXITS

1018.1 General. Exits shall comply with Sections 1018 through 1023 and the applicable requirements of Sections 1003 through 1013. An exit shall not be used for any purpose that interferes with its function as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge.

1018.2 Exterior exit doors. Buildings or structures used for human occupancy shall have at least one exterior door that meets the requirements of Section 1008.1.1.

1018.2.1 Detailed requirements. Exterior exit doors shall comply with the applicable requirements of Section 1008.1.

1018.2.2 Arrangement. Exterior exit doors shall lead directly to the exit discharge or the public way.

SECTION 1019 NUMBER OF EXITS AND CONTINUITY

1019.1 Minimum number of exits. All rooms and spaces within each story shall be provided with and have access to the minimum number of approved independent exits required by Table 1019.1 based on the occupant load of the story, except as modified in Section 1015.1 or 1019.2. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. The required number of exits from any story, basement or individual space shall be maintained until arrival at grade or the public way.

Exception: A fenced outdoor assembly occupancy shall have at least two widely separated means of egress from the enclosure. If more than 6,000 persons are to be served by such means of egress, there shall be at least three means of egress; if more than 9,000 persons are to be served, there shall be at least four means of egress.

TABLE 1019.1	
MINIMUM NUMBER OF EXITS FOR OCCUPANT	LOAD

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

1019.1.1 Parking structures. Parking structures shall not have less than two exits from each parking tier, except that only one exit is required where vehicles are mechanically

	INCHES OF CLEAR WIDTH PER SEAT SERVED			
SEATS IN THE SMOKE- PROTECTED ASSEMBLY OCCUPANCY	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than 1 in 10 in slope	Ramps steeper than 1 in 10 in slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

TABLE 1025.6.2 WIDTH OF AISLES FOR SMOKE-PROTECTED ASSEMBLY

For SI: 1 inch = 25.4 mm.

the roof deck not less than 15 feet (4572 mm) above the highest aisle or aisle accessway.

Exception: A roof canopy in an outdoor stadium shall be permitted to be less than 15 feet (4572 mm) above the highest aisle or aisle accessway provided that there are no objects less than 80 inches (2032 mm) above the highest aisle or aisle accessway.

1025.6.2.3 Automatic sprinklers. Enclosed areas with walls and ceilings in buildings or structures containing smoke-protected assembly seating shall be protected with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

Exceptions:

- 1. The floor area used for contests, performances or entertainment provided the roof construction is more than 50 feet (15 240 mm) above the floor level and the use is restricted to low fire hazard uses.
- 2. Press boxes and storage facilities less than 1,000 square feet (93 m²) in area.
- 3. Outdoor seating facilities where seating and the means of egress in the seating area are essentially open to the outside.

1025.6.3 Width of means of egress for outdoor smoke-protected assembly. The clear width in inches (mm) of aisles and other means of egress shall be not less than the total occupant load served by the egress element multiplied by 0.08 (2.0 mm) where egress is by aisles and stairs and multiplied by 0.06 (1.52 mm) where egress is by ramps, corridors, tunnels or vomitories.

Exception: The clear width in inches (mm) of aisles and other means of egress shall be permitted to comply with Section 1025.6.2 for the number of seats in the outdoor smoke-protected assembly where Section 1025.6.2 permits less width.

1025.7 Travel distance. Exits and aisles shall be so located that the travel distance to an exit door shall not be greater than 200 feet measured along the line of travel in nonsprinklered buildings. Travel distance shall not be more than 250 feet in sprinklered buildings. Where aisles are provided for seating,

the distance shall be measured along the aisles and aisle accessway without travel over or on the seats.

Exceptions:

- 1. Smoke-protected assembly seating: The travel distance from each seat to the nearest entrance to a vomitory or concourse shall not exceed 200 feet (60 960 mm). The travel distance from the entrance to the vomitory or concourse to a stair, ramp or walk on the exterior of the building shall not exceed 200 feet (60 960 mm).
- Open-air seating: The travel distance from each seat to the building exterior shall not exceed 400 feet (122 m). The travel distance shall not be limited in facilities of Type I or II construction.
- 3. The travel distance within an exhibit booth or exhibit enclosure to an exit access aisle shall not be greater than 50 feet (15 240 mm).

1025.8 Common path of egress travel. A common path of travel shall be permitted for the 20 feet (6096 mm) from any point where serving any number of occupants and for the first 75 feet (22 860 mm) from any point where serving not more than 50 occupants.

Exception:

1. For smoke-protected assembly seating, the common path of travel shall not exceed 50 feet (1524 mm) from any seat to a point where a person has a choice of two directions of egress travel.

1025.8.1 Path through adjacent row. Where one of the two paths of travel is across the aisle through a row of seats to another aisle, there shall be not more than 24 seats between the two aisles, and the minimum clear width between rows for the row between the two aisles shall be 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row between aisles.

Exception: For smoke-protected assembly seating there shall not be more than 40 seats between the two aisles and the minimum clear width shall be 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat.

1025.9 Assembly aisles are required. Every occupied portion of any occupancy in Group A that contains seats, tables, dis-

plays, similar fixtures or equipment shall be provided with aisles leading to exits or exit access doorways in accordance with this section. Aisle accessways for tables and seating shall comply with Section 1014.4.3.

1025.9.1 Minimum aisle width. The minimum clear width for aisles serving seating not at tables shall be as shown:

1. Forty-eight inches (1219 mm) for aisle stairs having seating on each side.

Exception: Thirty-six inches (914 mm) where the aisle serves less than 50 seats.

- 2. Thirty-six inches (914 mm) for aisle stairs having seating on only one side.
- 3. Twenty-three inches (584 mm) between an aisle stair handrail or guard and seating where the aisle is subdivided by a handrail.
- 4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

Exceptions:

- 1. Thirty-six inches (914 mm) where the aisle serves less that 50 seats.
- 2. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.
- 5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

Exceptions:

- 1. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.
- 2. Twenty-three inches (584 mm) between an aisle stair handrail and seating where an aisle does not serve more than five rows on one side.

1025.9.1.1 The minimum width of aisles serving seating at tables shall be 44 inches (1118 mm).

Exception: Thirty-six inches (914 mm) where serving an occupant load of not more than 50.

1025.9.2 Means of egress capacity. The capacity of means of egress shall be in accordance with Section 1005. The width of aisles and other means of egress serving theater-type seating or similar seating arranged in rows shall provide sufficient capacity in accordance with Sections 1025.9.2.1 and 1025.9.2.2.

1025.9.2.1 Minimum clear widths of aisles and other means of egress serving theater-type seating, or similar seating arranged in rows, shall be in accordance with Table 1025.9.2.1.

TABLE 1025.9.2.1 CAPACITY FACTORS

	NOMINAL	INCH OF CLEAR WIDTH PER SEAT SERVED	
NO. OF SEATS	FLOW TIME (sec)	STAIRS PASSAGEWAYS, RAM	
Unlimited	200	0.300 AB	0.220 C

1025.9.2.2 The minimum clear widths shown in Table 1025.9.2.1 shall be modified in accordance with all of the || following:

1. If risers exceed 7 inches (178 mm) in height, multiply the stair width in the table by factor A, where

A = 1+
$$\frac{\text{(riser height - 7 inches)}}{5}$$

- 2. Stairs not having a handrail within a 30-inch (762 mm) horizontal distance shall be 25 percent wider than otherwise calculated (i.e., multiply by factor B = 1.25).
- 3. Ramps steeper than 1:10 slope where used in ascent shall have their width increased by 10 percent (i.e., multiply by factor C = 1.10).

Exceptions:

- 1. Lighting and access catwalks shall meet the requirements for Group F occupancies.
- 2. Grandstands, bleachers and folding and telescopic seating as permitted by Section 1025.6.2.

1025.9.2.3 Clear width shall be measured to walls, edges of seating and tread edges except for permitted projections.

1025.9.3 Converging aisles. Where aisles converge to form a single path of egress travel, the required egress capacity of that path shall not be less than the combined required capacity of the converging aisles.

1025.9.4 Uniform width. Those portions of aisles, where egress is possible in either of two directions, shall be uniform in required width.

1025.9.5 Assembly aisle termination. Each end of an aisle shall terminate at cross aisle, foyer, doorway, vomitory or concourse having access to an exit.

- 1. Dead-end aisles shall not be greater than 20 feet (6096 mm) in length.
- 2. Dead-end aisles longer than 20 feet (6096 mm) are permitted where seats beyond the 20-foot (6096 mm) dead-end aisle are no more than 24 seats from another aisle, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row.
- 3. For smoke-protected assembly seating, the dead-end aisle length of vertical aisles shall not exceed a distance of 21 rows.
- 4. For smoke-protected assembly seating, a longer dead-end aisle is permitted where seats beyond the 21-row dead-end aisle are not more than 40 seats from another aisle, measured along a row of seats having an aisle accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row.

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1025.9.6 Assembly aisle obstructions. There shall be no obstructions in the required width of aisles except for handrails as provided in Section 1025.13.

1025.10 Aisle accessways. The aisle accessway between rows of seating shall have a clear width of not less than 12 inches (305 mm), and the minimum width shall be increased in accordance with Sections 1025.10.2 for seating not at tables and Section 1025.10.2.2 for seating at tables. The width of aisle accessways shall be the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. Where chairs have automatic or self-rising seats that comply with ASTM F 851, the measurement shall be made with seats in the raised position. Where any chair in the row does not have an automatic or self-rising seat, the measurements shall be made with the seat in the down position. For seats with folding tablet arms, row spacing shall be determined with the tablet in the useable position.

Exception: When not more than four persons are served, there shall be no minimum clear width requirement for the portion of the aisle accessway having a length not exceeding 6 feet (1829 mm) measured from the center of the seat farthest from the aisle.

1025.10.1 Dual access. Reserved.

1025.10.2 Single access. For rows of seating not at tables served by aisles or doorways at both ends there shall be no more than 100 seats per row and the 12 inches (305 mm) minimum clear width of aisle accessways shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14, but the minimum clear width shall not be required to exceed 22 inches (559 mm).

Exception: For smoke-protected assembly seating, the row length limits for a 12-inch-wide (305 mm) aisle accessway, beyond which the aisle accessway minimum clear width shall be increased, are in Table 1025.10.2.

1025.10.2.1 For rows of seating not at tables served by an aisle or doorway at one end only, the 12 inches (305 mm) minimum clear width of aisle accessways shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven, but the minimum clear width shall not be required to exceed 22 inches (559 mm).

Exception: For smoke-protected assembly seating, the row length limits for a 12-inch-wide (305 mm) aisle accessway, beyond which the aisle accessway minimum clear width shall be increased, are in Table 1025.10.2.

TABLE 1025.10.2 SMOKE-PROTECTED ASSEMBLY AISLE ACCESSWAYS

TOTAL NUMBER OF	MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TO HAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY		
PROTECTED ASSEMBLY OCCUPANCY	Aisle or doorway at both ends of row	Aisle or doorway at one end of row only	
Less than 4,000	14	7	
4,000	15	7	
7,000	16	8	
10,000	17	8	
13,000	18	9	
16,000	19	9	
19,000	20	10	
22,000 and greater	21	11	

For SI: 1 inch = 25.4 mm.

1025.10.2.1.2 For rows of seating not at tables served by an aisle or doorway on one end only, the path of travel shall not exceed 30 feet (9144 mm) from any seat to a point where a person has a choice of two paths of travel to two exits.

1025.10.2.2 Aisle accessways serving seating at tables shall have a minimum clear width of 12 inches (305 mm).

1025.10.2.2.1 Where nonfixed seating is located between a table and an aisle accessway, the measurement of required clear width of the aisle accessway shall be made to a line 19 inches (483 mm) away from the edge of the table. The 19-inch (483 mm) distance shall be measured perpendicularly to the edge of the table.

1025.10.2.2.2 The minimum 12-inch (305 mm) width required for an aisle accessway shall be increased by 0.5 inch (13 mm) for each additional 12 inches (305 mm) or fraction thereof beyond 12 feet (3658 mm) of aisle accessway length where measured from the center of the seat farthest from an aisle.

1025.10.2.2.3 The path of travel along the aisle accessway shall not exceed 36 feet (10 973 mm) from any seat to the closest aisle or egress doorway.

1025.11 Assembly aisle walking surfaces. Aisles with a slope not exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a ramp having a slip-resistant walking surface. Aisles with a slope exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a series of risers and treads that extends across the full width of aisles and complies with Sections 1025.11.1 through 1025.11.3.

1025.11.1 Treads. Tread depths shall be a minimum of 11 inches (279 mm) and shall have dimensional uniformity.

Exception: The tolerance between adjacent treads shall not exceed 0.188 inch (4.8 mm).

1025.11.2 Risers. Where the gradient of aisle stairs is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more

than 8 inches (203 mm) and shall be uniform within each flight.

Exceptions:

- 1. The riser height of aisle stairs in folding and telescopic seating shall be permitted to be not less than $3^{1}/_{2}$ inches (89 mm) and shall not exceed 11 inches (279 mm).
- 2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

1025.11.3 Tread contrasting marking stripe. A contrasting marking stripe shall be provided on each tread at the nosing or leading edge such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide.

Exception: The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

1025.12 Seat stability. In places of assembly, the seats shall be securely fastened to the floor.

Exceptions:

- 1. In places of assembly or portions thereof without ramped or tiered floors for seating and with 200 or fewer seats, the seats shall not be required to be fastened to the floor.
- 2. In places of assembly or portions thereof with seating at tables and without ramped or tiered floors for seating, the seats shall not be required to be fastened to the floor.
- 3. In places of assembly or portions thereof without ramped or tiered floors for seating and with greater than 200 seats, the seats shall be fastened together in groups of not less than three or the seats shall be securely fastened to the floor.
- 4. In places of assembly where flexibility of the seating arrangement is an integral part of the design and function of the space and seating is on tiered levels, a maximum of 200 seats shall not be required to be fastened to the floor. Plans showing seating, tiers and aisles shall be submitted for approval.
- 5. Groups of seats within a place of assembly separated from other seating by railings, guards, partial height walls or similar barriers with level floors and having no more than 14 seats per group shall not be required to be fastened to the floor.
- 6. Seats intended for musicians or other performers and separated by railings, guards, partial height walls or similar barriers shall not be required to be fastened to the floor.
- 7. Restaurants, cafeterias, cafetoriums, gymnasiums, gymnatoriums and similar multipurpose assembly occupancies.

- 8. Movable seating in rows with seats fastened together in groups of not less than three nor more than seven.
- 9. Seats in balconies, galleries, railed in enclosures, boxes or loges with level floor surfaces and having occupant loads not exceeding 14.
- Assembly occupancies in accordance with Exception 1 or 3 shall not have more than one seat for 15 square feet (1.4 m²) of net floor area and shall provide adequate aisles to reach exits.

1025.13 Handrails. Ramped aisles having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and aisle stairs shall be provided with handrails located either at the side or within the aisle width. Handrails shall not be required where otherwise permitted by the following:

- 1. Handrails shall not be required for ramped aisles having a gradient not steeper than 1:8 and having seating on both sides where the aisle does not serve as an accessible route.
- 2. The requirement for a handrail shall be satisfied by the use of a guard provided with a rail that complies with the graspability requirements for handrails and located at a consistent height between 34 inches and 42 inches (865 mm and 1065 mm), measured using one of the following methods:
 - 2.1. Vertically from the top of the rail to the leading edge (nosing) of stair treads.
 - 2.2. Vertically from the top of the rail to the adjacent walking surface in the case of a ramp.

1025.13.1 Discontinuous handrails. Where there is seating on both sides of the aisle, the handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the handrail shall have rounded terminations or bends.

1025.13.2 Intermediate handrails. Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate handrail located approximately 12 inches (305 mm) below the main handrail.

1025.14 Assembly guards. Assembly guards shall comply with Sections 1025.14.1 through 1025.14.3.

1025.14.1 Cross aisles. Cross aisles located more than 30 inches (762 mm) above the floor or grade below shall have guards in accordance with Section 1013.

Where an elevation change of 30 inches (762 mm) or less occurs between a cross aisle and the adjacent floor or grade below, guards not less than 26 inches (660 mm) above the aisle floor shall be provided.

Exception: Where the backs of seats on the front of the cross aisle project 24 inches (610 mm) or more above the adjacent floor of the aisle, a guard need not be provided.

1025.14.2 Sightline-constrained guard heights. Unless subject to the requirements of Section 1025.14.3, a fascia or railing system in accordance with the guard requirements of

Section 1013 and having a minimum height of 26 inches (660 mm) shall be provided where the floor or footboard elevation is more than 30 inches (762 mm) above the floor or grade below and the fascia or railing would otherwise interfere with the sightlines of immediately adjacent seating. At bleachers, a guard must be provided where the floor or footboard elevation is more than 24 inches (610 mm) above the floor or grade below and the fascia or railing would otherwise interfere with the sightlines of the immediately adjacent seating.

1025.14.3 Guards at the end of aisles. A fascia or railing system complying with the guard requirements of Section 1013 shall be provided for the full width of the aisle where the foot of the aisle is more than 30 inches (762 mm) above the floor or grade below. The fascia or railing shall be a minimum of 36 inches (914 mm) high and shall provide a minimum 42 inches (1067 mm) measured diagonally between the top of the rail and the nosing of the nearest tread.

1025.15 Bench seating. Where bench seating is used, the number of persons shall be based on one person for each 18 inches (457 mm) of length of the bench.

SECTION 1026 EMERGENCY ESCAPE AND RESCUE

1026.1 General. In addition to the means of egress required by this chapter, provisions shall be made for emergency escape and rescue in Group R and I-1 occupancies. Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way. The emergency escape and rescue opening shall be permitted to open into a screen enclosure, open to the atmosphere, where a screen door is provided leading away from the residence. Such opening shall be operational from the inside without the use of special knowledge, keys or tools.

Exceptions:

- 1. In other than Group R-3 occupancies, buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- 2. In other than Group R-3 occupancies, sleeping rooms provided with a door to a fire-resistance-rated corridor having access to two remote exits in opposite directions.
- 3. The emergency escape and rescue opening is permitted to open onto a balcony within an atrium in accordance with the requirements of Section 404, provided the balcony provides access to an exit and the dwelling unit or sleeping unit has a means of egress that is not open to the atrium.

- 4. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue windows.
- 5. High-rise buildings in accordance with Section 403.
- 6. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior exit balcony that opens to a public way.
- 7. Basements without habitable spaces and having no more than 200 square feet (18.6m2) in floor area shall not be required to have emergency escape windows.
- 8. Security and hurricane devices installed in accordance with Section 1008.1.3.6.

1026.2 Minimum size. Emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.53 m^2) .

Exception: The minimum net clear opening for emergency escape and rescue grade-floor openings shall be 5 square feet (0.46 m^2) .

1026.2.1 Minimum dimensions. The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The net clear opening dimensions shall be the result of normal operation of the opening.

1026.3 Maximum height from floor. Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches (1118 mm) measured from the floor.

1026.4 Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with Section 1026.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. See Section 1008.1.3.6 for provisions related to hurricane protection devices. Where such bars, grilles, grates or similar devices are installed in existing buildings, smoke alarms shall be installed in accordance with Section 907.2.10 regardless of the valuation of the alteration.

1026.4.1 Every room or space greater than 250 square feet (23.2 m^2) in educational occupancies used for classroom or other educational purposes or normally subject to student occupancy and every room or space normally subject to client occupancy, other than bathrooms, in Group D occupancies shall have not less than one outside window for emergency rescue that complies with the following:

- 1. Such windows shall be openable from the inside without the use of tools and shall provide a clear opening of not less than 20 inches (508 mm) in width, 24 inches (610 mm) in height, and 5.7 square feet (0.53 m^2) in area.
- 2. The bottom of the opening shall be not more than 44 inches (1118 mm) above the floor, and any latching

device shall be capable of being operated from not more than 54 inches (1372 mm) above the finished floor.

Exceptions:

- 1. Buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903.3.1.1.
- 2. Where the room or space has a door leading directly to the outside of the building.

1026.5 Window wells. An emergency escape and rescue opening with a finished sill height below the adjacent ground level shall be provided with a window well in accordance with Sections 1026.5.1 and 1026.5.2.

1026.5.1 Minimum size. The minimum horizontal area of the window well shall be 9 square feet (0.84 m^2) , with a minimum dimension of 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

1026.5.2 Ladders or steps. Window wells with a vertical depth of more than 44 inches (1118 mm) shall be equipped with an approved permanently affixed ladder or steps. Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center (o.c.) vertically for the full height of the window well. The ladder or steps shall not encroach into the required dimensions of the window well by more than 6 inches (152 mm). The ladder or steps shall not be obstructed by the emergency escape and rescue opening. Ladders or steps required by this section are exempt from the stairway requirements of Section 1009.

SECTION 1027 BUSINESS

1027.1 Doors. Egress doors shall conform to the requirements of Section 1008, except doors serving office areas with an occupant load of 10 or less need not be side-swinging type.

1027.2 Handrails and guardrails. Handrails and guardrails shall be in accordance with Sections 1012 and 1013.

Exception: In areas not accessible to the public and in fully enclosed stairways in office buildings not serving a Group A, E or R occupancy, the clear distance between rails or ornamental pattern shall be such as to prevent the passage of a 21-inch (533 mm) diameter sphere.

1027.3 Stairs. Spiral stairs complying with Section 1009.8 shall be permitted as a component in a means of egress.

1027.4 Common path of travel. In Group B buildings which are sprinklered throughout, a common path of travel not exceeding 100 feet (30 480 mm) shall be permitted.

SECTION 1028 EDUCATIONAL

1028.1 Exterior corridors or balconies.

1028.1.1 A corridor roofed over and enclosed on its long sides and open to the atmosphere at the ends may be considered an exterior corridor provided:

- 1. Clear story openings not less than one-half the height of the corridor walls are provided on both sides of the corridor and above adjacent roofs or buildings, or
- 2. The corridor roof has unobstructed openings to the sky with the open area not less than 50 percent of the area of the roof. Openings shall be equally distributed with any louvers fixed open. The clear area of openings with fixed louvers shall be based on the actual openings between louver vanes.

1028.1.2 The minimum width of such corridors shall be sufficient to accommodate the occupant load but shall in no case be less than 6 feet (1829 mm).

1028.2 Panic and fire exit hardware.

1028.2.1 Each door in a means of egress from an area of Group E occupancy having an occupant load of 100 or more may be provided with a latch or lock only if it is panic hardware or fire exit hardware, which releases when a force of no more than 15 pounds (67 N) is applied to the releasing devices in the direction of exit travel. Such releasing devices may be bars or panels extending not less than one-half the width of the door and placed at heights suitable for the service required, but not less than 34 inches (864 mm) nor more than 48 inches (1219 mm) above the floor. Whenever panic hardware is used on a labeled fire door, the panic hardware shall be labeled as fire exit hardware.

1028.2.2 If balanced doors are used and panic hardware is required, the panic hardware shall be of the pushpad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

1028.3 Doors that swing into an exit access corridor shall be recessed to prevent interference with corridor traffic; any doors not recessed shall open 180 degrees (3.1 rad) to stop against the wall. Doors in any position shall not reduce the required corridor width by more than one-half.

SECTION 1029 FACTORY-INDUSTRIAL

1029.1 Handrails and guardrails. Handrails and guardrails shall be installed in accordance with Sections 1009.12 and 1013.

Exception: In areas not accessible to the public in Group F, the clear distance between rails or ornamental pattern shall be such as to prevent the passage of a 21-inch (533 mm) diameter sphere.

1029.2 Stairs. Spiral stairs complying with Section 1009.8 shall be permitted as a component in a means of egress.

1029.3 Common path of travel. Common paths of travel in Group F, special purpose occupancies shall not exceed 50 feet (15 240 mm).

Exception: In Group F buildings, which are sprinklered throughout, a common path of travel not exceeding 100 feet (30 486 mm) shall be permitted.

SECTION 1030 INSTITUTIONAL

1030.1 Locks. Patient rooms or tenant space egress doors in Group I occupancies shall not be lockable.

Exceptions:

- 1. In places of restraint or detention.
- 2. Door locking arrangements without delayed egress shall be permitted in Groups I-1 and I-2, or portions of such occupancies, where the clinical needs of the patients require specialized security measures for their safety, provided that staff can readily unlock such doors at all times.
- 3. Key locking devices that restrict access from the corridor and that are operable only by staff from the corridor side shall be permitted. Such devices shall not restrict egress from the room.

1030.2 Arrangement of means of egress.

1030.2.1 Every habitable room shall have an exit access door leading directly to an exit access corridor.

Exceptions:

- 1. If there is an exit door opening directly to the outside from the room at ground level.
- 2. Patient sleeping rooms shall be permitted to have one intervening room if the intervening room is not used as an exit access for more than eight patient sleeping beds.
- 3. Special nursing suites shall be permitted to have one intervening room where the arrangement allows for direct and constant visual supervision by nursing personnel.
- 4. For rooms other than patient sleeping rooms, one or more adjacent rooms shall be permitted to intervene in accordance with Section 1030.8.

1030.3 Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m^2) shall have at least two exit access doors remotely located from each other.

1030.4 Any room or any suite of rooms, other than patient sleeping rooms, of more than 2,500 square feet (230 m^2) shall have at least two exit access doors remotely located from each other.

1030.5 Any suite of rooms that complies with the requirements of Section 1030.3 shall be permitted to be subdivided with nonfire-rated, noncombustible or limited-combustible partitions.

1030.6 Suites of sleeping rooms shall not exceed 5,000 square feet (460 m^2).

1030.7 Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (930 m^2).

1030.8 Suites of rooms, other than patient sleeping rooms, shall be permitted to have one intervening room if the travel distance within the suite to the exit access door is not greater than 100 feet (30 480 mm) and shall be permitted to have two intervening rooms where the travel distance within the suite to the exit access door is not greater than 50 feet (15 240 mm).

1030.9 Every corridor shall provide access to at least two approved exits without passing through any intervening rooms or spaces other than corridors or lobbies.

1030.10 Every exit or exit access shall be arranged so that no corridor, aisle or passageway has a pocket or dead end exceeding 20 feet (6096 mm).

1030.11 Travel distance.

1030.11.1 Travel distance shall not exceed that specified in Table 1016.1.

1030.11.2 Travel distance shall comply with Section 1030.11.2.1 through 1030.11.2.4.

1030.11.2.1 The travel distance between any room door required as an exit access and an exit shall not exceed 150 feet (45 720 mm).

1030.11.2.2 The travel distance between any point in a room and an exit shall not exceed 200 feet (60 960 mm).

1030.11.2.3 The travel distance between any point in a health care sleeping room and an exit access door in that room shall not exceed 50 feet (15 240 mm).

1030.11.2.4 The travel distance between any point in a suite of sleeping rooms as permitted by Section 1030.2 and an exit access door of that suite shall not exceed 100 feet (30 480 mm) and shall meet the requirements of Section 1030.11.2.2.

1030.12 Measurement of travel distance to exits. Travel distance shall be determined in accordance with Section 1016, but shall not exceed:

- 1. One-hundred feet (30 480 mm) between any room door required as exit access and an exit.
- 2. One-hundred-and-fifty feet (45 720 mm) between any point in a room and an exit.
- 3. Fifty feet (15 240 mm) between any point in a sleeping room and the door of that room.

Exceptions:

- 1. The travel distance above may be increased by 50 feet (15 240 mm) in rooms other than sleeping rooms when the building is protected throughout by an approved automatic sprinkler system or smoke control system.
- 2. The maximum permitted travel distance shall be increased to 100 feet (30 480 mm) in sprinklered or unsprinklered open dormitories where the enclosing walls of the dormitory space are of smoketight construction. Where travel distance to the exit access door from any point within the dormitory exceeds 50 feet (15 240 mm), a minimum of two exit access doors remotely located from each other shall be provided.

1030.13 Stairs.

1030.13.1 Spiral stairs meeting the requirements of Section 1009.8 are permitted for access to and between staff locations.

1030.13.2 Alternating tread stairways meeting the requirements of Section 1009.9 are permitted for access to and between staff locations subject to occupancy by no more than three persons all capable of using the alternating tread stairway.

1030.13.3 Solid risers, intermediate handrails, latticework or similar facilities required by Sections 1009.3.3 and 1013.3 which would interfere with visual supervision of residents are not required.

SECTION 1031 MERCANTILE

1031.1 Stairs. Spiral stairs complying with Section 1009.8 shall be permitted as a component in a means of egress.

1031.2 Handrails and guardrails. Handrails and guardrails shall be installed in accordance with Sections 1009.12 and 1013.

Exception: In areas not accessible to the public and in fully enclosed stairways in Group M not serving a Group A, E or R occupancy, the clear distance between rails or ornamental pattern shall be such as to prevent the passage of a 21-inch (533 mm) diameter sphere.

1031.3 Common path of travel. In Group M buildings which are sprinklered throughout, a common path of travel not exceeding 100 feet (30 480 mm) shall be permitted.

SECTION 1032 RESIDENTIAL

1032.1 Stairways not part of the required means of egress and providing access from the outside grade level to the basement in Group R-3 occupancies shall be exempt from Section 1009 when the maximum height from the basement finished floor level to grade adjacent to the stair does not exceed 8 feet (2438 mm) and the grade level opening to the stair is covered by hinged doors or other approved means.

1032.2 Common path of travel. In Group R-1 and R-2 occupancies no common path of travel shall exceed 35 feet (10 668 mm). Travel within a guest room, guest suite or dwelling unit shall not be included when calculating common path of travel.

Exception: In buildings protected throughout by an approved, automatic sprinkler system a common path of travel shall not exceed 50 feet (15 240 mm).

1032.3 Travel distance in group R1 and R2 occupancies. In group R-1 and R-2 occupancies travel distance within a guest room, guest suite or dwelling unit to a corridor door shall not exceed 75 feet (22 860 mm) and allowed to be increased to125 feet when the building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903.3.1.1.

SECTION 1033 STORAGE

1033.1 Aircraft servicing hangars.

1033.1.1 Exits from aircraft servicing areas shall be provided at intervals of not more than 150 feet (45 720 mm) on

all exterior walls. There shall be a minimum of two means of egress from each aircraft servicing area. Horizontal exits through interior fire walls shall be provided at intervals of not more than 100 feet (30 480 mm) along the wall.

Exception: Dwarf or "smash" doors in doors used for accommodating aircraft shall be permitted for compliance with these requirements.

1033.1.2 Means of egress from mezzanine floors in aircraft servicing areas shall be arranged so that the maximum travel distance to reach the nearest exit from any point on the mezzanine shall not exceed 75 feet (23 m). Such means of egress shall lead directly to a properly enclosed stair discharging directly to the exterior, to a suitable cutoff area or to outside stairs.

1033.2 Stairs. Spiral stairs complying with Section 1009.8 shall be permitted as a component in a means of egress.

1033.3 Handrails and guardrails. Handrails and guardrails shall be installed in accordance with Sections 1009.12 and 1013.

Exception: In areas not accessible to the public in Group S, the clear distance between rails or ornamental pattern shall be such as to prevent the passage of a 21-inch (533 mm) diameter sphere.

1033.4 Common path of travel.

1033.4.1 In Group S-1 storage, occupancies common path of travel shall not exceed 50 feet (15 240 mm).

Exception: Common paths of travel shall not exceed 100 feet (30 480 mm) in buildings protected by an approved automatic sprinkler system.

1033.4.2 In Group S-2 storage, occupancies common paths of travel shall not be limited.

1033.4.3 A common path of travel for the first 50 feet (15 240 mm) from any point shall be permitted in parking structures.

SECTION 1034 DAY CARE

1034.1 Panic and fire exit hardware.

1034.1.1 Any door in a required means of egress from an area having an occupant load of 100 or more persons shall be permitted to be provided with a latch or lock only if it is panic hardware or fire exit hardware which releases when a force of no more than 15 pounds (67 N) is applied to the releasing devices in the direction of exit travel. Such releasing devices may be bars or panels extending not less than one-half the width of the door and placed at heights suitable for the service required, but not less than 34 inches (864 mm) nor more than 48 inches (1219 mm) above the floor. Whenever panic hardware is used on a labeled fire door, the panic hardware shall be labeled as fire exit hardware.

1034.1.2 If balanced doors are used and panic hardware is required, the panic hardware shall be of the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

1034.2 Doors and corridors.

1034.2.1 Every room or space with an occupant load of more than 50 persons or an area of more than 1,000 square feet (93 m^2) shall have at least two exit access doorways as remotely located from each other as practicable. Such doorways shall provide access to separate exits, but where egress is through corridors, they shall be permitted to open onto a common corridor leading to separate exits located in opposite directions.

1034.2.2 Where the two exit accesses from a day care occupancy in an apartment building enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire-resistance rating constructed in accordance with Section 709. The smoke barrier shall be located so that it has an exit on each side.

1034.2.3 Doors designed to be normally closed shall comply with Section 715.4.7.

1034.3 A travel distance of 200 feet (60 960 mm) in unsprinklered buildings and 250 feet (76 200 mm) in buildings protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the following.

- 1. The travel distance between any room door intended as an exit access and an exit shall not exceed 100 feet (30 480 mm); and
- 2. The travel distance between any point in a room and an exit shall not exceed 150 feet (45 720 mm); and
- 3. The travel distance between any point in a sleeping room and an exit access door in that room shall not exceed 50 feet (15 240 mm).

Exception: The travel distance in Items 1 and 2 above may be increased by 50 feet (15 240 mm) in buildings protected throughout by an approved supervised automatic sprinkler system.

1034.4 Illumination and marking of means of egress. Illumination and marking of means of egress shall comply with Section 1006.

1034.5 Emergency lighting. Emergency lighting in accordance with Section 1006.2 shall be provided in the following areas:

- 1. Interior stairs and corridors.
- 2. Normally occupied spaces.

Exception: Administrative areas, general classrooms, mechanical rooms and storage areas.

- 3. Flexible and open plan buildings.
- 4. Interior or windowless portions of buildings.
- 5. Shops and laboratories.

1034.6 Special means of egress features. Every room or space normally subject to client occupancy, other than bathrooms, shall have at least one outside window for emergency rescue and ventilation. Such window shall be openable from the inside without the use of tools and shall provide a clear opening of not less than 20 inches (508 mm) in width, 24 inches (610 mm) in height, and 5.7 square feet (0.53 m²) in area. The bottom of the

opening shall be not more than 44 inches (1118 mm) above the floor. The clear opening shall permit a rectangular solid, with a minimum width and height that provides the required 5.7 square foot (0.53 m^2) opening and a minimum depth of 20 inches (8 mm), to pass fully through the opening.

Exceptions:

- 1. In buildings protected throughout by an approved, automatic sprinkler system.
- 2. Where the room or space has a door leading directly to the outside of the building.

1034.7 Flexible plan and open plan buildings. In day care occupancies, each room occupied by more than 300 persons shall have two or more means of egress entering into separate atmospheres. If three or more means of egress are required, not more than two of them shall enter into a common atmosphere.

1034.8 Group day care homes means of escape requirements.

1034.8.1 The provisions of Chapter 10 shall be applicable to means of escape in day care homes except as modified in this section.

1034.8.2 In group day care homes, every story occupied by clients shall have not less than two remotely located means of escape. Maximum travel distance shall be as specified in Section 1034.3.

1034.8.3 In group day care homes, every room used for sleeping, living or dining purposes shall have at least two means of escape, at least one of which shall be a door or stairway that provides a means of unobstructed travel to the outside of the building at street or ground level. The second means of escape may be a window in accordance with Section 1034.6. No room or space that is accessible only by a ladder or folding stairs or through a trap door shall be occupied for living or sleeping purposes.

1034.8.4 In group day care homes where spaces on the story above the story of exit discharge are used by clients, at least one means of escape shall be an exit discharging directly to the outside. The second means of escape may be a window in accordance with Section 1034.6.

1034.8.5 In group day care homes where clients occupy a story below the level of exit discharge, at least one means of escape shall be an exit discharging directly to the outside. The second means of escape may be a window in accordance with Section 1034.6. No facility shall be located more than one story below the ground. In day care homes, any stairway to the story above shall be cut off by a fire barrier containing a door that has at least a 20-minute fire protection rating and is equipped with a self-closing device.

1034.8.6 In group day care homes, every room or space normally subject to client occupancy, other than bathrooms, shall have at least one outside window for emergency rescue and ventilation complying with Section 1034.6.

Exceptions:

1. In buildings protected throughout by an approved, automatic sprinkler system.

2. Where the room or space has a door leading directly to the outside of the building.

1034.8.7 Where the two exit accesses from a group day care home in an apartment building enter the same corridor as the apartment occupancy, the exit accesses shall be separated in the corridor by a smoke barrier having not less than a 1-hour fire-resistance rating constructed in accordance with Section 709. The smoke barrier shall be located so that it has an exit on each side.

SECTION 1035 BOILER, FURNACE AND MECHANICAL EQUIPMENT ROOMS

1035.1 Single means of egress. Stories used exclusively for boilers, furnaces or mechanical equipment shall be permitted to have a single means of egress where the travel distance to an exit on that story does not exceed the common path of travel stipulated in Section 1035.2.

1035.2 Common path of travel. Boiler rooms, furnace rooms, mechanical equipment rooms and similar spaces shall have a common path of travel not exceeding 50 feet (15 240 mm).

- 1. In buildings protected throughout with an approved automatic sprinkler system boiler rooms, furnace rooms, mechanical equipment rooms and similar spaces shall be permitted to have a common path of travel not exceeding 100 feet (30 480 mm).
- 2. Mechanical equipment rooms with no fuel-fired equipment shall be permitted to have a common path of travel not exceeding 100 feet (30 480 mm).

- (i) Listed in or eligible for listing in the National Register of Historic Places; or
- (ii) Designated as historic under an appropriate state or local law.

(2) Procedures.

(a) Alterations to qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act.

(i) Section 106, Process. Section 106 of the National Historic Preservation Act (16 U.S.C. 470 f) requires that a federal agency with jurisdiction over a federal, federally assisted, or federally licensed undertaking consider the effects of the agency's undertaking on buildings and facilities listed in or eligible for listing in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking prior to approval of the undertaking.

(ii) ADA application. Where alterations are undertaken to a qualified historic building or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. If the state historic preservation officer or Advisory Council on Historic Preservation agrees that compliance with the requirements for accessible routes (exterior and interior), ramps, entrances, or toilets would threaten or destroy the historic significance of the building or facility, the alternative requirements in Section 11-4.1.7(3) may be used for the feature.

(b) Alterations to qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act. Where alterations are undertaken to a qualified historic building or facility that is not subject to Section 106 of the National Historic Preservation Act, if the entity undertaking the alterations believes that compliance with the requirements for accessible routes (exterior and interior), ramps, entrances, or toilets would threaten or destroy the historic significance of the building or facility and that the alternative requirements in Section 11-4.1.7(3) should be used for the feature, the entity should consult with the state historic preservation officer. If the state historic preservation officer agrees that compliance with the accessibility requirements for accessible routes (exterior and interior), ramps, entrances or toilets would threaten or destroy the historical significance of the building or facility, the alternative requirements in Section 11-4.1.7(3) may be used.

(c) Consultation with interested persons. Interested persons should be invited to participate in the consultation process, including state or local accessibility officials, individuals with disabilities, and organizations representing individuals with disabilities.

(d) Certified local government historic preservation programs. Where the state historic preservation officer has delegated the consultation responsibility for purposes of this section to a local government historic preservation program that has been certified in accordance with Section 101(c) of the National Historic Preservation Act of 1966 [16 U.S.C. 470a (c)] and implementing regulations (36 CFR 61.5), the responsibility may be carried out by the appropriate local government body or official.

(3) Historic preservation: Minimum requirements.

(a) At least one accessible route complying with Section 11-4.3 from a site access point to an accessible entrance shall be provided.

Exception: A ramp with a slope no greater than 1:6 for a run not to exceed 2 feet (610 mm) may be used as part of an accessible route to an entrance.

(**b**) At least one accessible entrance complying with Section 11-4.14 which is used by the public shall be provided.

Exception: If it is determined that no entrance used by the public can comply with Section 11-4.14, then access at any entrance not used by the general public but open (unlocked) with directional signage at the primary entrance may be used. The accessible entrance shall also have a notification system. Where security is a problem, remote monitoring may be used.

- (c) If toilets are provided, then at least one toilet facility complying with Sections 11-4.22 and 11-4.1.6 shall be provided along an accessible route that complies with Section 11-4.3. Such toilet facility may be unisex in design.
- (d) Accessible routes from an accessible entrance to all publicly used spaces on at least the level of the accessible entrance shall be provided. Access shall be provided to all levels of a building or facility in compliance with Section 11-4.1 whenever practical.
- (e) Displays and written information, documents, etc., should be located where they can be seen by a seated person. Exhibits and signage displayed horizontally (e.g., open books), should be no higher than 44 inches (1120 mm) above the floor surface.

11-4.1.8 Accessible buildings, structures and facilities: Architectural barrier removal.

- (1) Removal of architectural barriers, pursuant to 28 C.F.R. Subpart C S. 36.304, from buildings, structures or facilities to which this code applies shall comply with Section 11-4.1 to Section 11-4.35 unless compliance would render the removal not readily achievable. In no instance shall the removal of an architectural barrier create a significant risk to the health or safety of an individual with disabilities or others.
- (2) Barriers at common or emergency entrances and exits of business establishments conducting business with the general public that are existing, under construction, or under contract for construction which would prevent a person from using such entrances or exits shall be removed.

(3) The removal of architectural barriers from a parking facility in accordance with 28 C.F.R. Section 36.304 or with Section 553.508, Florida Statutes, must comply with this section unless compliance would cause the barrier removal not to be readily achievable. If compliance would cause the barrier removal not to be readily achievable, a facility may provide parking spaces at alternative locations for persons who have disabilities and provide appropriate signage directing persons who have disabilities to the alternative parking if readily achievable. The facility may not reduce the required number or dimensions of those spaces, nor may it unreasonably increase the length of the accessible route from a parking space to the facility. The removal of an architectural barrier must not create a significant risk to the health or safety of an individual with disabilities or others.

11-4.2 Space allowance and reach ranges.

11-4.2.1 Wheelchair passage width. The minimum clear width for single wheelchair passage shall be 32 inches (815 mm) at a point and 36 inches (915 mm) continuously [see Figure 1 and Figure 24(e)].

11-4.2.2 Width for wheelchair passing. The minimum width for two wheelchairs to pass is 60 inches (1525 mm) (see Figure 2).

11-4.2.3 Wheelchair turning space. The space required for a wheelchair to make a 180-degree turn is a clear space of 60 inches (1525 mm) diameter [see Figure 3(a)] or a T-shaped space [see Figure 3(b)].

11-4.2.4 Clear floor or ground space for wheelchairs.

11-4.2.4.1 Size and approach. The minimum clear floor or ground space required to accommodate a single, stationary wheelchair and occupant is 30 inches by 48 inches (760 mm by 1220 mm) [see Figure 4(a)]. The minimum clear floor or ground space for wheelchairs may be positioned for forward or parallel approach to an object [see Figure 4(b) and Figure 4(c)]. Clear floor or ground space for wheelchairs may be part of the knee space required under some objects.

11-4.2.4.2 Relationship of maneuvering clearance to wheelchair spaces. One full unobstructed side of the clear floor or ground space for a wheelchair shall adjoin or overlap an accessible route or adjoin another wheelchair clear floor space. If a clear floor space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearances shall be provided as shown in Figure 4(d) and Figure 4(e).

11-4.2.4.3 Surfaces for wheelchair spaces. Clear floor or ground spaces for wheelchairs shall comply with Section 11-4.5.

11-4.2.5 Forward reach. If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches (1220 mm). The minimum low forward reach is 15 inches (380 mm) [see Figure 5(a)]. If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figure 5(b).

11-4.2.6 Side reach. If the clear floor space allows parallel approach by a person in a wheelchair, the maximum high side reach allowed shall be 54 inches (1370 mm) and the low side reach shall be no less than 9 inches (230 mm) above the floor [see Figure 6(a) and Figure 6(b)]. If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure 6(c).

11-4.3 Accessible route.

11-4.3.1 General. All walks, halls, corridors, aisles, skywalks, tunnels, and other spaces that are part of an accessible route shall comply with Section 11-4.3.

11-4.3.2 Location.

- (1) At least one accessible route within the boundary of the site shall be provided from public transportation stops, accessible parking, and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance they serve. The accessible route shall, to the maximum extent feasible, coincide with the route for the general public.
- (2) At least one accessible route shall connect accessible buildings, facilities, elements, and spaces that are on the same site.
- (3) At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements and with all accessible dwelling units within the building or facility.
- (4) An accessible route shall connect at least one accessible entrance of each accessible dwelling unit with those exterior and interior spaces and facilities that serve the accessible dwelling unit.

11-4.3.3 Width. The minimum clear width of an accessible route shall be 36 inches (915 mm) except at doors (see Section 11-4.13.5 and 11-4.13.6). If a person in a wheelchair must make a turn around an obstruction, the minimum clear width of the accessible route shall be as shown in Figure 7(a) and Figure 7(b).

Exceptions:

- 1. Curb ramps that are a part of a required means of egress shall be not less than 44 inches (1118 mm) wide.
- **2.** All spaces must be located on an accessible route no less than 44 inches (1118 mm) wide so that users will not be compelled to walk or wheel behind parked vehicles.

11-4.3.4 Passing space. If an accessible route has less than 60 inches (1525 mm) clear width, then passing spaces at least 60 inches by 60 inches (1525 mm) shall be located at reasonable intervals not to exceed 200 feet (61 m). A T-intersection of two corridors or walks is an acceptable passing place.

11-4.3.5 Headroom. Accessible routes shall comply with Section 11-4.4.2.

11-4.3.6 Surface textures. The surface of an accessible route shall comply with Section 11-4.5.

11-4.3.7 Slope. An accessible route with a running slope greater than 1:20 is a ramp and shall comply with Section 11-4.8. Nowhere shall the cross slope of an accessible route exceed 1:50.

11-4.3.8 Changes in level. Changes in levels along an accessible route shall comply with Section 11-4.5.2. If an accessible route has changes in level greater than $\frac{1}{2}$ inch (13 mm), then a curb ramp, ramp, elevator, or platform lift (as permitted in Section 11-4.1.3 and 11-4.1.6) shall be provided that complies with Section 11-4.7, 11-4.8, 11-4.10, or 11-4.11, respectively. An accessible route does not include stairs, steps, or escalators. See definition of "Egress, means of" in Section 11-3.5 [see Figure 7(c) and Figure 7(d)].

11-4.3.9 Doors. Doors along an accessible route shall comply with Section 11-4.13.

11-4.3.10 Egress. Accessible routes serving any accessible space or element shall also serve as a means of egress for emergencies or connect to an accessible area of rescue assistance.

11-4.3.11 Areas of rescue assistance.

11-4.3.11.1 Location and construction. An area of rescue assistance shall be one of the following:

- (1) A portion of a stairway landing within a smokeproof enclosure (complying with local requirements).
- (2) A portion of an exterior exit balcony located immediately adjacent to an exit stairway when the balcony complies with local requirements for exterior exit balconies. Openings to the interior of the building located within 20 feet (6 m) of the area of rescue assistance shall be protected with fire assemblies having a ³/₄ hour fire protection rating.
- (3) A portion of a 1-hour fire-resistive corridor (complying with local requirements for fire-resistive construction and for openings) located immediately adjacent to an exit enclosure.
- (4) A vestibule located immediately adjacent to an exit enclosure and constructed to the same fire-resistive standards as required for corridors and openings.
- (5) A portion of a stairway landing within an exit enclosure which is vented to the exterior and is separated from the interior of the building with not less than 1-hour fire-resistive doors.
- (6) When approved by the appropriate local authority, an area or a room which is separated from other portions of the building by a smoke barrier. Smoke barriers shall have a fire-resistive rating of not less than one hour and shall completely enclose the area or room. Doors in the smoke barrier shall be tight-fitting smoke-and-draft control assemblies having a fire protection rating of not less than 20 minutes and shall be self-closing or automatic closing. The area or room shall be provided with an exit directly to an exit enclosure. Where the room or area exits into an exit enclosure which is required to be of more than 1-hour fire-resistive construction, the room or area shall have the same fire-resistive

construction, including the same opening protection, as required for the adjacent exit enclosure.

(7) An elevator lobby when elevator shafts and adjacent lobbies are pressurized as required for smokeproof enclosures by local regulations and when complying with requirements herein for size, communication, and signage. Such pressurization system shall be activated by smoke detectors on each floor located in a manner approved by the appropriate local authority. Pressurization equipment and its duct work within the building shall be separated from other portions of the building by a minimum 2-hour fire-resistive construction.

11-4.3.11.2 Size. Each area of rescue assistance shall provide at least two accessible areas each being not less than 30 inches by 48 inches (760 mm by 1220 mm). The area of rescue assistance shall not encroach on any required exit width. The total number of such 30-inch by 48-inch (760 mm by 1220 mm) areas per story shall be not less than one for every 200 persons of calculated occupant load served by the area of rescue assistance.

Exception: The appropriate local authority may reduce the minimum number of 30-inch by 48-inch (760 mm by 1220 mm) areas to one for each area of rescue assistance on floors where the occupant load is less than 200.

11-4.3.11.3 Stairway width Each stairway adjacent to an area of rescue assistance shall have a minimum clear width of 48 (1220 mm) inches between handrails.

11-4.3.11.4 Two-way communication. A method of two-way communication, with both visible and audible signals, shall be provided between each area of rescue assistance and the primary entry. The fire department or appropriate local authority may approve a location other than the primary entry.

11-4.3.11.5 Identification. Each area of rescue assistance shall be identified by a sign, which states "AREA OF RES-CUE ASSISTANCE" and displays the International Symbol of Accessibility. The sign shall be illuminated when exit sign illumination is required. Signage shall also be installed at all inaccessible exits and where otherwise necessary to clearly indicate the direction to areas of rescue assistance. In each area of rescue assistance, instructions on the use of the area under emergency conditions shall be posted adjoining the two-way communication system.

11-4.4 Protruding objects.

11-4.4.1 General. Objects projecting from walls (for example, telephones) with their leading edges between 27 inches and 80 inches (685 mm and 2030 mm) above the finished floor shall protrude no more than 4 inches (102 mm) into walks, halls, corridors, passageways, or aisles [see Figure 8(a)]. Objects mounted with their leading edges at or below 27 inches (685 mm) above the finished floor may protrude any amount [see Figure 8(a) and Figure 8(b)]. Free-standing objects mounted on posts or pylons may overhang 12 in (305 mm) maximum from 27 inches to 80 inches (685 mm to 2030 mm) above the ground or finished floor [see Figure 8(c) and Figure 8(d)]. Protruding objects shall not reduce the clear width of an accessible route or maneuvering space [see Figure 8(e)].

11-4.4.2 Headroom. Walks, halls, corridors, passageways, aisles, or other circulation spaces shall have 80 inches (2030 mm) minimum clear head room [see Figure 8(a)]. If vertical clearance of an area adjoining an accessible route is reduced to less than 80 inches (2032 mm) (nominal dimension), a barrier to warn blind or visually-impaired persons shall be provided [see Figure 8(c-1)].

11-4.5 Ground and floor surfaces.

11-4.5.1 General. Ground and floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, slipresistant, and shall comply with Section 11-4.5.

11-4.5.2 Changes in level. Changes in level up to $\frac{1}{4}$ inches (6 mm) may be vertical and without edge treatment [see Figure 7(c)]. Changes in level between $\frac{1}{4}$ inch and $\frac{1}{2}$ inch (6 mm and 13 mm) shall be beveled with a slope no greater than 1:2 [see Figure 7(d)]. Changes in level greater than $\frac{1}{2}$ inch (13 mm) shall be accomplished by means of a ramp that complies with Section 11-4.7 or 11-4.8.

11-4.5.3 Carpet. If carpet or carpet tile is used on a ground or floor surface, then it shall be securely attached; have a firm cushion, pad, or backing, or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum pile thickness shall be $\frac{1}{2}$ inch (13 mm) [see Figure 8(f)]. Exposed edges of carpet shall be fastened to floor surfaces and have trim along the entire length of the exposed edge. Carpet edge trim shall comply with Section 11-4.5.2.

11-4.5.4 Gratings. If gratings are located in walking surfaces, then they shall have spaces no greater than $\frac{1}{2}$ inch (13 mm) wide in one direction [see Figure 8(g)]. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel [see Figure 8(h)].

11-4.6 Parking and passenger loading zones.

11-4.6.1 Minimum number. Parking spaces required to be accessible by Section 11-4.1 shall comply with Sections 11-4.6.2 through Section 11-4.6.5. Passenger loading zones required to be accessible by Section 11-4.1 shall comply with Section 11-4.6.5 and 11-4.6.6.

11-4.6.2 Location. Accessible parking spaces serving a particular building shall be located on the shortest safely accessible route of travel from adjacent parking to an accessible entrance. In parking facilities that do not serve a particular building, accessible parking shall be located on the shortest accessible route of travel to an accessible pedestrian entrance of the parking facility. In buildings with multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located closest to the accessible entrances.

- (1) All spaces must be located on an accessible route no less than 44 inches (1118 mm)wide so that users will not be compelled to walk or wheel behind parked vehicles.
- (2) If a theme park or entertainment complex [as defined in Section 509.013(9), see definitions] provides park-

ing in several lots or areas from which access to the theme park or entertainment complex is provided, a single lot or area may be designated for parking by persons who have disabilities, if the lot or area is located on the shortest safely accessible route to an accessible entrance to the theme park or entertainment complex or to transportation to such accessible entrance.

(3) On-street parallel parking spaces must be located either at the beginning or end of a block or adjacent to alley entrances.

11-4.6.3 Parking spaces. Each parking space must be no less than 12 feet (3658 mm) wide.Parking access aisles must be no less than 5 feet (1524 mm) wide and must be part of an accessible route to the building or facility entrance. Two accessible spaces may share a common access aisle [see Figure 9(a)]. The access aisle shall be striped diagonally to designate it as a no-parking zone. Curb ramps must be located outside of the disabled parking spaces and access aisles.

Exception: If a theme park or entertainment complex in which are provided continuous attendant services for directing individuals to marked accessible parking spaces or designated lots for parking by persons who have disabilities, the park or complex may provide parking spaces that comply with the alternatives specified in Section 11-12.

Parked vehicle overhangs shall not reduce the clear width of an accessible route. Parking spaces and access aisles shall be level with surface slopes not exceeding 1:50 (2 percent) in all directions.

Parallel parking spaces must be even with surface slopes, may match the grade of the adjacent travel lane, and must not exceed a cross slope of 1:50, where feasible. Such spaces shall be designed per Sections 11-4.6.2 through 11-4.6.5.

Exception: Access aisles are not required.

Curbs adjacent to such spaces must be of a height that will not interfere with the opening and closing of motor vehicle doors.

11-4.6.4 Signage. Each such parking space must be prominently outlined with blue paint, and must be repainted when necessary, to be clearly distinguishable as a parking space designated for persons who have disabilities and must be posted with a permanent above-grade sign of a color and design approved by the Department of Transportation which is placed on or at a distance of 84 inches (2133 mm) above the ground to the bottom of the sign and which bears the international symbol of accessibility, ADAAG Section 4.30.7 and the caption "PARKING BY DIS-ABLED PERMIT ONLY." Such sign erected after October 1, 1996, must indicate the penalty for illegal use of the space.

Van accessible parking spaces located within a parking structure shall have an additional sign reading "VAN ACCESSIBLE" mounted below the symbol of accessibility. Such signs shall be located so they cannot be obscured by a vehicle parked in the space.

A theme park or an entertainment complex as defined in Section 509.013(9), *Florida Statutes*, in which accessible parking is located in designated lots or areas, the signage indicating the lot as reserved for accessible parking may be lo-

TABLE 1 GRAPHIC CONVENTIONS




CHAPTER 11 REQUEST FOR WAIVER FROM ACCESSIBILITY REQUIREMENTS CHAPTER 553, PART V, FLORIDA STATUTES August 1999 PART C

See www.floridabuilding.org for the Waiver from Accessibility Requirements form and Florida Administrative Code Chapter 9B-7.

CHAPTER 11 PART D Section 553.501-513, Florida Statutes ACCESSIBILITY BY HANDICAPPED PERSONS

553.501 Short title. Sections 553.501-553.513 may be cited as the "Florida Americans With Disabilities Accessibility Implementation Act."

History.—s. 1, ch. 93-183.

553.502 Intent. The purpose and intent of Sections 553.501 through 553.513 is to incorporate into the law of this state the accessibility requirements of the Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 42 U.S.C. ss. 12101 et seq., and to obtain and maintain United States Department of Justice certification of the *Florida Accessibility Code for Building Construction* as equivalent to federal standards for accessibility of buildings, structures, and facilities. All state laws, rules, standards, and codes governing facilities covered by the guidelines shall be maintained to assure certification of the state's construction standards and codes. Nothing in Sections 553.501 through 553.513 is intended to expand or diminish the defenses available to a place of public accommodation under the Americans with Disabilities Act and the federal Americans with Disabilities Act Accessibility Guidelines (ADAAG), including, but not limited to, the readily achievable standard, and the standards applicable to alterations to places of public accommodation.

History.—s. 1, ch. 93-183; s. 1, ch. 97-76.

553.503 Adoption of guidelines. Subject to the exceptions in Section 553.504, the federal Americans with Disabilities Act Accessibility Guidelines, as adopted by reference in 28 C.F.R., part 36, subparts A and D, and Title II of Pub. L. No. 101-336, are hereby adopted and incorporated by reference as the law of this state. The guidelines shall establish the minimum standards for the accessibility of buildings and facilities built or altered within this state. The 1997 *Florida Accessibility Code for Building Construction* must be adopted by the Florida Building Commission in accordance with Chapter 120.

History.—s. 1, ch. 93-183; s. 2, ch. 97-76; s. 65, ch. 2000-141; s. 59, ch. 2000-154.

553.504 Exceptions to applicability of the guidelines. Notwithstanding the adoption of the ADAAG in Section 553.503, all buildings, structures, and facilities in this state shall meet the following additional requirements when they provide increased accessibility:

(1) All new or altered buildings and facilities subject to Sections 553.501 through 553.513 which may be frequented in, lived in, or worked in by the public shall comply with Section 553.501through 553.513.

(2) All new single-family houses, duplexes, triplexes, condominiums, and townhouses shall provide at least one bathroom, located with maximum possible privacy, where bathrooms are provided on habitable grade levels, with a door that has a 29-inch (737 mm) clear opening. However, if only a toilet room is provided at grade level, such toilet room shall have a clear opening of not less than 29 inches.

(3) All required doors and walk-through openings in buildings excluding single-family homes, duplexes, and triplexes not covered by the Americans with Disabilities Act of 1990 or the Fair Housing Act shall have at least 29 inches (737 mm) of clear width except under Sections 553.501 through 553.513.

(4) In addition to the requirements in reference 4.8.4 of ADAAG, all landings on ramps shall be not less than 60 inches (1524 mm) clear, and the bottom of each ramp shall have not less than 72 inches (1829 mm) of straight and level clearance.

(5) All curb ramps shall be designed and constructed in accordance with the following requirements:

(a) Notwithstanding the requirements of reference 4.8.5.2 of ADAAG, handrails on ramps which are not continuous shall extend not less than 18 inches (457 mm) beyond the sloped segment at both the top and bottom, and shall be parallel to the floor or ground surface.

(b) Notwithstanding the requirements of references 4.3.3 and 4.8.3 of ADAAG, curb ramps that are part of a required means of egress shall be not less than 44 inches (1118 mm) wide.

(c) Notwithstanding the requirements of reference 4.7.5 of ADAAG, curb ramps located where pedestrians must use them and all curb ramps which are not protected by handrails or guardrails shall have flared sides with a slope not exceeding a ratio of 1:12.

(6) Notwithstanding the requirements in reference 4.13.11 of ADAAG, exterior hinged doors shall be so designed that such doors can be pushed or pulled open with a force not exceeding 8.5 foot pounds.

(7) Notwithstanding the requirements in reference 4.33.1 of ADAAG, all public food service establishments, all establishments licensed under the Beverage Law for consumption on the premises, and all facilities governed by reference 4.1 of the guidelines shall provide seating or spaces for seating in accordance with the following requirements:

(a) For the first 100 fixed seats, accessible and usable spaces must be provided consistent with the following table:

Capacity of Seating In Assembly Areas	Number of Required Wheelchair Locations
1 to 25	1
26 to 50	2
51 to 100	4

(b) For all remaining fixed seats, there shall be not less than one such accessible and usable space for each 100 fixed seats or fraction thereof.

(8) Notwithstanding the requirements in references 4.32.1-4.32.4 of ADAAG, all fixed seating in public food service establishments, in establishments licensed under the Beverage Law for consumption on the premises, and in all other facilities governed by reference 4.1 of ADAAG shall be designed and constructed in accordance with the following requirements:

(a) All aisles adjacent to fixed seating shall provide clear space for wheelchairs.

(b) Where there are open positions along both sides of such aisles, the aisles shall be not less than 52 inches (1321 mm) wide.

(9) In motels and hotels a number of rooms equaling at least 5 percent of the guestrooms minus the number of accessible rooms required by ADAAG shall provide the following special accessibility features:

(a) Grab rails in bathrooms and toilet rooms that comply with Section 4.16.4 of ADAAG.

(b) All beds in designed accessible guest rooms shall be open-frame type to permit passage of lift devices.

(c) All standard water closet seats shall be at a height of 15 inches (381 mm), measured vertically from the finished floor to the top of the seat, with a variation of plus or minus $1/_2$ inch (12.7 mm). A portable or attached raised toilet seat shall be provided in all designated handicapped accessible rooms.

All buildings, structures, or facilities licensed as a hotel, motel, or condominium pursuant to Chapter 509 shall be subject to the provisions of this subsection. Nothing in this subsection shall be construed as relieving the owner of the responsibility of providing accessible rooms in conformance with Sections 9.1 through 9.5 of ADAAG.

(10) Notwithstanding the requirements in reference 4.29.2 of the guidelines, all detectable warning surfaces required by the guidelines shall be governed by the requirements of ANSI A117.1-1986.

(11) Notwithstanding the requirements in references 4.31.2 and 4.31.3 of the guidelines, the installation and placement of all public telephones shall be governed by the rules of the Florida Public Service Commission.

(12) Notwithstanding the requirements in references 4.1.3(11) and 4.16-4.23 of ADAAG, required restrooms and toilet rooms in new construction shall be designed and constructed in accordance with the following requirements:

(a) The standard accessible restroom stall shall contain an accessible lavatory within it, the size of such lavatory to be not less than 19 inches wide by 17 inches (483 mm by 432 mm) deep, nominal size, and wall-mounted. The lavatory shall be mounted so as not to overlap the clear floor space areas required by Section 4.17, Figure 30(a) of ADAAG for the standard accessible stall and to comply with Section 4.19 of ADAAG. Such lavatories shall be counted as part of the required fixture count for the building.

(b) The accessible water closet shall be located in the corner, diagonal to the door.

(c) The accessible stall door shall be self-closing.

(13) All customer checkout aisles not required by the guidelines to be handicapped accessible shall have at least 32 inches (813 mm) of clear passage.

(14) Turnstiles shall not be used in occupancies which serve fewer than 100 persons, but turnstiles may be used in occupancies which serve at least 100 persons if there is an unlocked alternate passageway on an accessible route affording not less than 32 inches (813 mm) of clearance, equipped with latching devices in accordance with the guidelines.

(15) Barriers at common or emergency entrances and exits of business establishments conducting business with the general public that are existing, under construction, or under contract for construction which would prevent a person from using such entrances or exits shall be removed.

History.—s. 1, ch. 93-183; s. 3, ch. 97-76.

553.5041 Parking spaces for persons who have disabilities.

(1) This section is not intended to expand or diminish the defenses available to a place of public accommodation under the Americans with Disabilities Act and the federal ADAAG, including, but not limited to, the readily achievable standard, and the standards applicable to alterations to places of public accommodation. Subject to the exceptions described in subsections (2), (4), (5), and (6), when the parking and loading zone requirements of the federal ADAAG, as adopted by reference in 28 C.F.R. part 36, subparts A and D, and Title II of Pub. L. No. 101-336, provide increased accessibility, those requirements are adopted and incorporated by reference as the law of this state.

(2) State agencies and political subdivisions having jurisdiction over street parking or publicly owned or operated parking facilities are not required to provide a greater right-of-way width than would otherwise be planned under regulations, guidelines, or practices normally applied to new development.

(3) If parking spaces are provided for self-parking by employees or visitors, or both, accessible spaces shall be provided in each such parking area. Such spaces shall be designed and marked for the exclusive use of those individuals who have a severe physical disability and have permanent or temporary mobility problems that substantially impair their ability to ambulate and who have been issued either a disabled parking permit under Section 316.1958 or 320.0848 or a license plate under Section 320.084, 320.0842, 320.0843 or 320.0845.

(4) The number of accessible parking spaces must comply with the parking requirements in ADAAG Section 4.1 and the following:

(a) There must be one accessible parking space in the immediate vicinity of a publicly owned or leased building that houses a governmental entity or a political subdivision, including, but not limited to, state office buildings and courthouses, if no parking for the public is provided on the premises of the building.

(b) There must be one accessible parking space for each 150 metered on-street parking spaces provided by state agencies and political subdivisions.

(c) The number of parking spaces for persons who have disabilities must be increased on the basis of demonstrated and documented need.

(5) Accessible perpendicular and diagonal accessible parking spaces and loading zones must be designed and located in conformance with the guidelines set forth in ADAAG ss. 4.1.2 and 4.6 and Appendix A4.6.,3 "Universal Parking Design."

(a) All spaces must be located on an accessible route no less than 44 inches (1118 mm) wide so that users will not be compelled to walk or wheel behind parked vehicles.

(b) Each space must be located on the shortest safely accessible route from the parking space to an accessible entrance. If there are multiple entrances or multiple retail stores, the parking spaces must be dispersed to provide parking at the nearest accessible entrance. If a theme park or an entertainment complex as defined in Section 509.013(9) provides parking in several lots or areas from which access to the theme park or entertainment complex is provided, a single lot or area may be designated for parking by persons who have disabilities, if the lot or area is located on the shortest safely accessible route to an accessible entrance to the theme park or entertainment

complex or to transportation to such an accessible entrance.

(c)

1. Each parking space must be no less than 12 feet (3658 mm) wide. Parking access aisles must be no less than 5 feet (1524 mm) wide and must be part of an accessible route to the building or facility entrance. In accordance with ADAAG Section 4.6.3, access aisles must be placed adjacent to accessible parking spaces; however, two accessible parking spaces may share a common access aisle. The access aisle must be striped diagonally to designate it as a no-parking zone.

2. The parking access aisles are reserved for the temporary exclusive use of persons who have disabled parking permits and who require extra space to deploy a mobility device, lift, or ramp in order to exit from or enter a vehicle. Parking is not allowed in an access aisle. Violators are subject to the same penalties that are imposed for illegally parking in parking spaces that are designated for persons who have disabilities. A vehicle may not be parked in an access aisle, even if the vehicle owner or passenger is disabled or owns a disabled parking permit.

3. Any provision of this subsection to the contrary notwithstanding, a theme park or an entertainment complex as defined in Section 509.013(9) in which are provided continuous attendant services for directing individuals to marked accessible parking spaces or designated lots for parking by persons who have disabilities, may, in lieu of the required parking space design, provide parking spaces that comply with ADAAG Sections 4.1 and 4.6.

(d) On-street parallel parking spaces must be located either at the beginning or end of a block or adjacent to alley entrances. Such spaces must be designed in conformance with the guidelines set forth in ADAAG Sections 4.6.2 through 4.6.5.

Exception: Access aisles are not required.

Curbs adjacent to such spaces must be of a height that will not interfere with the opening and closing of motor vehicle doors. This subsection does not relieve the owner of the responsibility to comply with the parking requirements of ADAAG Sections 4.1 and 4.6.

(e) Parallel parking spaces must be even with surface slopes, may match the grade of the adjacent travel lane, and must not exceed a cross slope of 1:50, where feasible.

(f) Curb ramps must be located outside of the disabled parking spaces and access aisles.

(**g**)

1. The removal of architectural barriers from a parking facility in accordance with 28 C.F.R. Section 36.304 or with Section 553.508 must comply with this section unless compliance would cause the barrier removal not to be readily achievable. If compliance would cause the barrier removal not to be readily achievable, a facility may provide parking spaces at alternative locations for persons who have disabilities and provide appropriate signage directing persons who have disabilities to the alternative parking if readily achievable. The facility may not reduce the required number or dimensions of those spaces, nor may it unreasonably increase the length of the accessible route from a parking space to the facility. The removal of an architectural barrier must not create a significant risk to the health or safety of a person who has a disability or to that of others.

2. A facility that is making alterations under Section 553.507(2)(b) must comply with this section to the maximum extent feasible. If compliance with parking location requirements is not feasible, the facility may provide parking spaces at alternative locations for persons who have disabilities and provide appropriate signage directing persons who have a disability to alternative parking. The facility may not reduce the required number or dimensions of those spaces, nor may it unnecessarily increase the length of the accessible route from a parking space to the facility. The alteration must not create a significant risk to the health or safety of a person who has a disability or to that of others.

(6) Each such parking space must be prominently outlined with blue paint, and must be repainted when necessary, to be clearly distinguishable as a parking space designated for persons who have disabilities and must be posted with a permanent above-grade sign of a color and design approved by the Department of Transportation, which is placed on or at a distance of 84 inches (2134 mm) above the ground to the bottom of the sign and which bears the international symbol of accessibility meeting the requirements of ADAAG Section 4.30.7 and the caption "PARKING BY DISABLED PER-MIT ONLY." Such a sign erected after October 1, 1996, must indicate the penalty for illegal use of the space. Any provision of this section to the contrary notwithstanding, in a theme park or an entertainment complex as defined in Section 509.013(9) in which accessible parking is located in designated lots or areas, the signage indicating the lot as reserved for accessible parking may be located at the entrances to the lot in lieu of a sign at each parking place. This subsection does not relieve the owner of the responsibility of complying with the signage requirements of ADAAG Section 4.30.

History.—s. 66, ch. 2000-141.

553.505 Exceptions to applicability of the Americans with Disabilities Act. Notwithstanding the Americans with Disabilities Act of 1990, private clubs are governed by Sections 553.501 through 553.513. Parking spaces, parking lots, and other parking facilities are governed by Section 553.5041 when that section provides increased accessibility.

History.—s. 1, ch. 93-183; s. 14, ch. 96-200; s. 4, ch. 97-76; s. 23, ch. 2001-186.

553.506 Powers of the commission. In addition to any other authority vested in the Florida Building Commission by law,

the commission, in implementing Sections 553.501 through 553.513, may, by rule, adopt revised and updated versions of the ADAAG in accordance with Chapter 120.

History.—s. 1, ch. 93-183; s. 67, ch. 2000-141; s. 60, ch. 2000-154.

553.507 Exemptions. Sections 553.501 through 553.513 do not apply to any of the following:

(1) Buildings, structures, or facilities that were either under construction or under contract for construction on October 1, 1997.

(2) Buildings, structures, or facilities that were in existence on October 1, 1997, unless:

(a) The building, structure, or facility is being converted from residential to nonresidential or mixed use, as defined by local law;

(b) The proposed alteration or renovation of the building, structure, or facility will affect usability or accessibility to a degree that invokes the requirements of Section 303(a) of the Americans with Disabilities Act of 1990; or

(c) The original construction or any former alteration or renovation of the building, structure, or facility was carried out in violation of applicable permitting law.

History.—s. 1, ch. 93-183; s. 5, ch. 97-76; s. 31, ch. 2001-63; s. 24, ch. 2001-186.

553.508 Architectural barrier removal. Removal of architectural barriers, pursuant to 28 C.F.R. Section 36.304, from buildings, structures, or facilities to which this act applies shall comply with Sections 553.501 through 553.513 unless compliance would render the removal not readily achievable. In no instance shall the removal of an architectural barrier create a significant risk to the health or safety of an individual with a disability or others.

History.—s. 1, ch. 93-183.

553.509 Vertical accessibility. Nothing in Sections 553.501 through 553.513 or the guidelines shall be construed to relieve the owner of any building, structure, or facility governed by those sections from the duty to provide vertical accessibility to all levels above and below the occupiable grade level, regardless of whether the guidelines require an elevator to be installed in such building, structure, or facility, except for:

(1) Elevator pits, elevator penthouses, mechanical rooms, piping or equipment catwalks, and automobile lubrication and maintenance pits and platforms;

(2) Unoccupiable spaces, such as rooms, enclosed spaces, and storage spaces that are not designed for human occupancy, for public accommodations, or for work areas; and

(3) Occupiable spaces and rooms that are not open to the public and that house no more than five persons, including, but not limited to, equipment control rooms and projection booths.

However, buildings, structures, and facilities must, as a minimum, comply with the requirements in the ADAAG.

History.—s. 1, ch. 93-183; s. 6, ch. 97-76.

553.511 Parking facilities; minimum height clearance requirement. Every nonresidential structure built on or after January 1, 1991, which is designed to use covered or underground parking as the primary available parking space shall design the covered or underground parking facility to maintain a minimum height for the portion of the street-accessible level of the parking facility directly over van-accessible parking spaces and for providing ingress and egress to such parking spaces of at least 8 feet 2 inches (2489 mm). Signs shall be posted to warn operators of handicap-equipped vans that they cannot pass beyond a certain point due to height limitations. If compliance with this minimum height clearance requirement will cause the structure to exceed local height limitations imposed by local zoning, planning, or fire ordinances, or will result in the imposition of any additional requirements of such ordinances, the structure may exceed the height limitation specified in those particular codes as necessary to comply with the requirements of this section and is exempt from such additional requirements. Structures for which the plans were sealed by an architect prior to January 1, 1991, are exempt from this section.

History.—s. 2, ch. 90-250; s. 2, ch. 93-183; s. 7, ch. 97-76.

Note.—Former s. 553.482.

553.512 Modifications and waivers; advisory council.

(1) The Florida Building Commission shall provide by regulation criteria for granting individual modifications of, or exceptions from, the literal requirements of this part upon a determination of unnecessary, unreasonable, or extreme hardship, provided such waivers shall not violate federal accessibility laws and regulations and shall be reviewed by the Accessibility Advisory Council. Notwithstanding any other provision of this subsection, if an applicant for a waiver demonstrates economic hardship in accordance with 28 C.F.R. Section 36.403(f)(1), a waiver shall be granted. The commission may not consider waiving any of the requirements of s. 553.5041 unless the applicant first demonstrates that she or he has applied for and been denied waiver or variance from all local government zoning, subdivision regulations, or other ordinances that prevent compliance therewith. Further, the commission may not waive the requirement of Section 553.5041(5)(a) and (c)1. governing the minimum width of accessible routes and minimum width of accessible parking spaces.

(2) The Accessibility Advisory Council shall consist of the following seven members, who shall be knowledgeable in the area of accessibility for persons with disabilities. The Secretary of Community Affairs shall appoint the following: a representative from the Advocacy Center for Persons with Disabilities, Inc.; a representative from the Division of Blind Services; a representative from the Division of Vocational Rehabilitation; a representative from a statewide organization representing the physically handicapped; a representa-

tive from the hearing impaired; a representative from the President, Florida Council of Handicapped Organizations; and a representative of the Paralyzed Veterans of America. The terms for the first three council members appointed subsequent to October 1, 1991, shall be for 4 years, the terms for the next two council members appointed shall be for three years, and the terms for the next two members shall be for two years. Thereafter, all council member appointments shall be for terms of four years. No council member shall serve more than two four-year terms subsequent to October 1, 1991. Any member of the council may be replaced by the secretary upon three unexcused absences. Upon application made in the form provided, an individual waiver or modification may be granted by the commission so long as such modification or waiver is not in conflict with more stringent standards provided in another chapter.

(3) Members of the council shall serve without compensation, but shall be entitled to reimbursement for per diem and travel expenses as provided by Section 112.061.

(4) Meetings of the advisory council shall be held in conjunction with the regular meetings of the commission.

History.—s. 3, ch. 78-333; s. 1, ch. 82-46; s. 2, ch. 83-265; s. 25, ch. 86-220; s. 5, ch. 89-97; ss. 1, 5, 6, ch. 91-172; s. 5, ch. 91-429; s. 2, ch. 93-183; s. 10, ch. 97-76; s. 68, ch. 2000-141; s. 61, ch. 2000-154; s. 13, ch. 2002-293.

Note.-Former s. 553.49.

553.513 Enforcement. It shall be the responsibility of each local government and each code enforcement agency established pursuant to Section 553.80 to enforce the provisions of this part. This act expressly preempts the establishment of handicapped accessibility standards to the state and supersedes any county or municipal ordinance on the subject. However, nothing in this section shall prohibit municipalities and counties from enforcing the provisions of this act.

History.—s. 6, ch. 89-97; s. 2, ch. 93-183.

Note.—Former s. 553.495.

CHAPTER 12 INTERIOR ENVIRONMENT

SECTION 1201 GENERAL

1201.1 Scope. The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodent proofing associated with the interior spaces of buildings.

SECTION 1202 DEFINITIONS

1202.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SUNROOM

- 1. A room with roof panels that include sloped glazing that is a one-story structure added to an existing dwelling with an open or glazed area in excess of 40 percent of the gross area of the sunroom structure's exterior walls and roof.
- 2. A one-story structure added to a dwelling with structural roof panels without sloped glazing. The sunroom walls may have any configuration, provided the open area of the longer wall and one additional wall is equal to at least 65 percent of the area below 6 feet 8 inches of each wall, measured from the floor.

For the purposes of this code the term sunroom as used herein shall include conservatories, sunspaces, solariums, and porch or patio covers or enclosures.

SUNROOM ADDITION. Reserved.

THERMAL ISOLATION. A separation of conditioned spaces, between a sunroom addition and a dwelling unit, consisting of existing or new wall(s), doors and/or windows.

SECTION 1203 VENTILATION

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *Florida Building Code*, *Mechanical*.

1203.2 Attic spaces. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than $\frac{1}{150}$ of the area of the space venti-

lated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

Exceptions:

- 1. The minimum required net free ventilating area shall be ${}^{1}\!/_{300}$ of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding 1 perm in accordance with ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents.
- 2. Attic spaces, designed by a Florida-licensed engineer or registered architect to eliminate the attic venting.

1203.2.1 Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be covered with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material that will prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. The openings therein shall be a minimum of $1/_8$ inch (3.2 mm) and shall not exceed $1/_4$ inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *Florida Building Code, Mechanical.*

1203.3 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by a basement or cellar shall be provided with ventilation openings through foundation walls or exterior walls. Such openings shall be placed so as to provide cross ventilation of the under-floor space.

1203.3.1 Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m² for each 100 m²) of crawl-space area. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall not exceed $\frac{1}{4}$ inch (6 mm):

- 1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
- 2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
- 3. Cast-iron grilles or gratings.
- 4. Extruded load-bearing vents.
- 5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.

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6. Corrosion-resistant wire mesh, with the least dimension not exceeding ${}^{1}\!/_{8}$ inch (3.2 mm).

1203.3.2 Exceptions. The following are exceptions to Sections 1203.3 and 1203.3.1:

- 1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
- 2. The total area of ventilation openings is permitted to be reduced to $\frac{1}{1,500}$ of the under-floor area where the ground surface is treated with an approved vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.
- 3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m²) of crawl-space floor area and the ground surface is covered with an approved vapor retarder.
- 4. Ventilation openings are not required when the ground surface is covered with an approved vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with Chapter 13 of *Florida Building Code, Building*.
- 5. Crawl spaces, designed by a Florida-licensed engineer or registered architect to eliminate the venting.

1203.4 Natural ventilation. Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

1203.4.1 Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

1203.4.1.1 Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2) . The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m²). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

1203.4.1.2 Openings below grade. Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of

the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

1203.4.2 Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *Florida Building Code, Mechanical* and the *Florida Fire Prevention Code*.

1203.4.2.1 Bathrooms. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *Florida Building Code, Mechanical.*

1203.4.3 Openings on yards or courts. Where natural ventilation is to be provided by openings onto yards or courts, such yards or courts shall comply with Section 1206.

1203.5 Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *Florida Building Code, Mechanical* or the *Florida Fire Prevention Code* shall be provided as required by both codes.

SECTION 1204 TEMPERATURE CONTROL

1204.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of $68^{\circ}F(20^{\circ}C)$ at a point 3 feet (914 mm) above the floor on the design heating day.

Exception: Interior spaces where the primary purpose is not associated with human comfort.

SECTION 1205 LIGHTING

1205.1 General. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1205.2 or shall be provided with artificial light in accordance with Section 1205.3. Exterior glazed openings shall open directly onto a public way or onto a yard or court in accordance with Section 1206.

1205.2 Natural light. The minimum net glazed area shall not be less than 8 percent of the floor area of the room served.

1205.2.1 Adjoining spaces. For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room or 25 square feet (2.32 m^2) , whichever is greater.

Exception: Openings required for natural light shall be permitted to open into a thermally isolated sunroom addition or patio cover where the common wall provides a glazed area of not less than one-tenth of the floor area of the interior room or 20 square feet (1.86 m^2), whichever is greater.

CHAPTER 13 ENERGY EFFICIENCY

SUBCHAPTER 13-1 ADMINISTRATION AND ENFORCEMENT

SECTION 13-100 GENERAL

13-100.1 Title. This chapter shall be known as the *Florida Energy Efficiency Code for Building Construction*, and may be cited as such. It will be referred to herein as "the code" or "this code."

13-100.2 Intent. The provisions of this code shall regulate (1) the design of building envelopes for adequate thermal resistance and low air leakage and (2) the design and selection of mechanical, electrical, and illumination systems and equipment which will enable the effective use of energy in new building construction, additions, alterations or any change in building configuration.

It is intended that these provisions provide flexibility to permit the use of innovative approaches and techniques to achieve effective utilization of energy. These provisions are structured to permit compliance with the intent of this code by the following design paths as applicable for the type of construction and date permitted.

- 1. Subchapter 13-4, Commercial Building Compliance Methods.
- 2. Subchapter 13-6, Residential Building Compliance Methods.

Compliance with these paths meets the intent of this chapter as allowed by Sections 13-101.1 and 13-101.2 of this chapter.

This code is not intended to abridge any safety or health requirements mandated under any other applicable codes or ordinances.

SECTION 13-101 SCOPE

13-101.0 General. This code is a statewide uniform code and shall not be made more stringent or lenient by local government. The code provides for a uniform standard of energy efficiency by, at a minimum, setting forth minimum requirements for exterior envelopes, lighting, electrical distribution, and selection of heating, lighting, ventilating, air conditioning and service water heating systems. It shall apply to all new buildings, to additions to existing buildings and manufactured homes, to renovations to existing buildings, both public and private, with certain exceptions, to changes of occupancy type, to the site-installed components and features of manufactured homes at their first set-up, and to the installation or replacement of building systems and components with new products for which thermal efficiency standards are set by this code. New buildings, with the exception of those exempted below, and in accordance with the specific exceptions of individual sections shall be designed to comply with Subchapter 13-4 or 13-6 of this code.

13-101.1 Commercial buildings.

13-101.1.1 New construction.

Subchapter 13-4, Commercial building compliance methods. Commercial buildings of any size and multiple-family residential buildings greater than three stories shall comply with Subchapter 13-4 of the code. This chapter contains two compliance methods:

Method A: Whole Building Performance Method

Method B: Building Prescriptive Method

13-101.1.2 Additions. Additions to existing commercial buildings are considered new building construction and shall comply with Method A of Subchapter 13-4 of this code as allowed in Section 13-101.1.1.

Additions to existing nonresidential buildings that are unable to comply with code requirements for the addition alone may comply with the code by bringing the entire building into compliance with the requirements for new buildings.

13-101.1.3 Renovations. Renovated commercial buildings shall, when applicable (see Section 13-202), comply with Method B of Subchapter 13-4 for insulation, HVAC systems, lighting, water heating systems and exterior envelope components being retrofitted or replaced.

13-101.1.4 Buildings with multiple occupancy types. When a building contains more than one occupancy type, each portion of the building shall conform to the requirements for the occupancy housed therein.

Exceptions:

- 1. Where minor occupancy use does not occupy more than 5 percent of the floor area of the building, the major use shall be considered the building occupancy.
- 2. Residential dwelling units such as congregate living facilities that are part of a larger commercial occupancy type and are three stories or less may comply with Subchapter 13-4.

13-101.1.5 Limited or special use buildings. Buildings determined by the Florida Building Commission to have a limited energy use potential based on size, configuration or time occupied, or to have a special use requirement shall be considered limited or special use buildings and shall comply with the code by Method B of Subchapter 13-4. Code com-

pliance requirements shall be adjusted by the commission to handle such cases when warranted.

13-101.1.6 Shell buildings. Nonresidential buildings that are permitted prior to design completion or which will be finished in sections at a time after construction of the shell shall comply with either Method B (envelope prescriptive requirements only) or Method A of Subchapter 13-4 of the code prior to granting of a permit to build. If Method A is used, all assumptions made about features not installed until later that are not on the building plans shall be listed and appended to the compliance form submitted to the building department. Unless the building is completed as per all assumptions made in the original code compliance submittal, a revised code submittal(s) using Method A shall be submitted when completion of the building (or part of the building) is permitted. If Method B is used, a code submittal(s) using Method A shall be submitted when completion of the building (or part of the building) is permitted.

13-101.2 Residential buildings.

13-101.2.1 New construction. New residential construction shall comply with this code by using the following compliance methods.

Subchapter 13-4, Commercial buildings compliance methods. Multiple-family buildings greater than three stories shall comply with Subchapter 13-4 of the code.

Subchapter 13-6, Residential buildings compliance methods. Single-family residential buildings and Multiple-family buildings of three stories or less shall comply with this chapter of the code. This subchapter contains two compliance methods:

Method A: Whole Building Performance Method

Method B: Component Prescriptive Method

13-101.2.2 Additions. Additions to existing residential buildings shall be considered new building construction and shall comply with the requirements of either Method A or B of Subchapter 13-6, as applicable. Additions to residential buildings over three stories shall comply by Subchapter 13-4.

Additions to existing residential buildings that are unable to comply with code requirements for the addition alone may comply with the code by bringing the entire building into compliance with the requirements for new buildings given in Section 13-101.4.2.

13-101.2.3 Renovations. Renovated buildings shall, when applicable (see Section 13-202), meet the prescriptive requirements contained in Method B of Subchapter 13-6 for residential applications of the code for insulation, HVAC systems, lighting, water heating systems and exterior envelope for those components being retrofitted or replaced.

13-101.2.4 Manufactured homes. Site-installed components of manufactured homes and residential manufactured buildings shall meet the prescriptive requirements contained in Method B of Subchapter 13-6 for those components.

13-101.2.5 Buildings permitted together.

13-101.2.5.1 Residences in which two buildings are permitted together that are not connected by conditioned space shall be considered separate residences for the purposes of compliance with this code if the following conditions apply:

- 1. The secondary building has its own bathroom and kitchenette or bar; and
- 2. The secondary building is heated and/or cooled by a separate heating and/or cooling system.

13-101.2.5.2 Conditioned workrooms, exercise rooms, play rooms, pool rooms and similar types of rooms that are separated from the main residence and do not meet the conditions in Section 13-101.2.5.1 shall use Subchapter 13-4 to demonstrate compliance with this code.

Exception: If a workroom or other room is separated from the main residence only by enclosed unconditioned space and is heated or cooled by the same system(s) as the primary building, it shall comply with this code as part of the primary building.

13-101.3 Changes of occupancy type.

13-101.3.1 Buildings having a change of occupancy type that were permitted prior to March 15, 1979, shall meet the requirements for renovations in Section 13-101.1.3 or Section 13-101.2.3, as appropriate, for those components which are being retrofitted or replaced.

13-101.3.2 Buildings having a change of occupancy that were permitted after March 15, 1979, shall comply with the requirements of Subchapter 13-4 for commercial applications and multiple-family residential buildings greater than three stories or Subchapter 13-6 for residential applications of three stories or less. Where the efficiency of a building component is unknown, it shall be determined in accordance with the criteria specified in Section 13-101.4.2.1.

13-101.4 Existing buildings.

13-101.4.1 Existing buildings not previously conditioned.

13-101.4.1.1 Previously unconditioned existing buildings which were permitted prior to March 15, 1979 to which heating or cooling systems are added shall meet the prescriptive requirements contained in Method B of Subchapter 13-4 for commercial applications and Method B of Subchapter 13-6 for residential applications of the code for insulation, HVAC system(s), water heating system and/or exterior envelope for those components which are being retrofitted or replaced.

13-101.4.1.2 Existing buildings which were permitted after March 15, 1979 as unconditioned space to which comfort conditioning is added shall be considered additions and shall be brought into full compliance with this code.

13-101.4.2 Nonexempt existing buildings. Existing buildings not exempt from the provisions of this code (see Section 13-101.5.1), for either the entire building or an addition to the building, that are unable to meet one or more current prescriptive code minimum requirements may be exempt

from those minimum requirements if the entire building is brought into compliance with the following chapters and the assumptions in Section 13-101.4.2.1 are used:

- 1. Commercial buildings and residential buildings greater than three stories: Method A of Subchapter 13-4.
- 2. Single-family residential buildings and multiple-family buildings of three or less stories: Method A of Subchapter 13-6.

13-101.4.2.1 Assumptions for existing building efficiencies. The following restrictions apply if the entire building is used to demonstrate code compliance:

- 1. The owner shall demonstrate to the building department's satisfaction that all *R*-values and equipment efficiencies claimed are present. If the building was built after 1980, the original energy code submittal may be used to demonstrate efficiencies.
- 2. If it is apparent from inspection that no insulation is present in the existing walls, floors or ceilings, or if inspection is not possible, an *R*-value of zero (0) shall be used for that component in the calculation. If as part of the addition and renovation project, insulation or equipment in the existing structure is upgraded, the new values may be used in the calculation.
- 3. If, upon inspection, insulation is found but the *R*-value is unknown, then an *R*-value shall be determined by an energy audit utilizing current acceptable practice based on insulation thickness, density and type.
- 4. Equipment efficiencies shall be demonstrated, either from manufacturer's literature or certified equipment directories, or by the procedure provided in Section 13-407.AB.3 or Section 13-607.AB.3 based on system capacity and total on-site energy input. Equipment to be added shall meet the applicable minimum equipment efficiency from Tables 13-407.AB.3.2A through 13-407.AB.3.2D, 13-408.AB.3.2E and 13-408.AB.3.2F for commercial occupancies and from Tables 13-607.AB.3.2A, 13-607.AB.3.2B, 13-607.AB.3.2D, 13-608.AB.3.2E and 13-608.AB.3.2F for residential occupancies. Existing equipment efficiencies not meeting the values given in Tables 13-407.AB.3.2A through 13-407.AB.3.2D, 13-408.AB.3.2E and 13-408.AB.3.2F for commercial occupancies shall utilize the cooling or heating system multipliers provided by the EnergyGauge Summit Fla/Com computer program. Existing residential equipment not meeting the efficiencies in Tables 13-607.AB.3.2A, 13-607.AB.3.2.B, 13-607.AB.3.2D, 13-608.AB.3.2E and 13-608.AB.3.2F shall utilize the cooling or heating system multipliers provided in Tables 13-C4.1.1A to 13-C4.1.1B of Appendix C to this chapter.

5. Any nonvertical roof glass shall be calculated as horizontal glazing.

13-101.5 Exempt buildings. Buildings exempt from compliance with this chapter include those described in Sections 13-101.5.1 through 13-101.5.7.

13-101.5.1 Existing buildings except those considered renovated buildings, changes of occupancy type, or previously unconditioned buildings to which comfort conditioning is added.

13-101.5.2 Any building or portion thereof whose peak design rate of energy usage for all purposes is less than 1 watt (3.4 British thermal units per hour) per square foot of floor area for all purposes.

13-101.5.3 Any building which is neither heated nor cooled by a mechanical system designed to control or modify the indoor temperature and powered by electricity or fossil fuels. Such buildings shall not contain electrical, plumbing or mechanical systems which have been designed to accommodate the future installation of heating or cooling equipment.

13-101.5.4 Any building for which federal mandatory standards preempt state energy codes.

13-101.5.5 Any historical building as described in Section 267.021, *Florida Statutes*.

13-101.5.6 Any building of less than 1,000 square feet (93 m²) whose primary use is not as a principal residence and which is constructed and owned by a natural person for hunting or similar recreational purposes; however, no such person may build more than one exempt building in any 12-month period.

13-101.5.7 Any building where heating or cooling systems are provided which are designed for purposes other than general space comfort conditioning. Buildings included in this exemption include:

- 1. Buildings containing a system(s) designed and sold for dehumidification purposes only and controlled only by a humidistat. No thermostat shall be installed on systems thus exempted from this code. The provisions of Section 13-413 shall apply.
- Commercial service areas where only ceiling radiant heaters or spot coolers are to be installed which will provide heat or cool only to a single work area and do not provide general heating or cooling for the space.
- 3. Buildings heated with a system designed to provide sufficient heat only to prevent freezing of products or systems. Such systems shall not provide heating above 50°F (10°C).
- 4. Pre-manufactured freezer or refrigerated storage buildings and areas where the temperature is set below 40°F (4°C) and in which no operators work on a regular basis.
- 5. Electrical equipment switching buildings which provide space conditioning for equipment only and in which no operators work on a regular basis except that the provisions of Section 13-413 shall apply.

13-101.6 Building systems. Thermal efficiency standards are set for the following building systems where new products are installed or replaced in existing buildings, and for which a permit must be obtained. Such systems shall meet the minimum efficiencies allowed for that system on Form 400B for commercial buildings and on Form 1100B for residential buildings.

- 1. Heating, ventilating or air conditioning systems;
- 2. Service water or pool heating systems;
- 3. Electrical systems and motors;
- 4. Lighting systems.

Exceptions:

- 1. Where part of a functional unit is repaired or replaced. For example, replacement of an entire HVAC system is not required because a new compressor or other part does not meet code when installed with an older system. If the unit being replaced is itself a functional unit, such as a condenser, it does not constitute a repair. Outdoor and indoor units that are not designed to be operated together must meet the U.S. Department of Energy certification requirements contained in Section 13-607.AB.3.1.1. Matched systems are required; this match may be verified by any one of the following means:
 - 1. ARI (AHRI) data
 - 2. Accredited laboratory (example ARL labs)
 - 3. Manufacturer's letter
 - 4. Letter from registered P.E. State of Florida
- 2. Where existing components are utilized with a replacement system, such as air distribution system ducts or electrical wiring for lights, such components or controls need not meet code if meeting code would require that component's replacement.
- 3. Replacement equipment that would require extensive revisions to other systems, equipment or elements of a building where such replacement is a like-for-like replacement, such as through-the-wall condensing units and PTACs, chillers, and cooling towers in confined spaces.
- 4. HVAC equipment sizing calculations are not required for systems installed in existing buildings not meeting the definition of renovation in Section 13-202.

SECTION 13-102 MATERIALS AND EQUIPMENT

13-102.1 Efficiency and maintenance information. An operating and maintenance manual shall be provided to the building owner for all commercial buildings. The manual shall include basic data relating to the design, operation and maintenance of HVAC systems and equipment. Required routine maintenance actions shall be clearly identified. Where applicable, HVAC controls information such as diagrams, schematics, control sequence descriptions, and maintenance and calibration information shall be included. Operations manuals shall be available for inspection by the building official upon request. See Sections 13-413.AB.2.2 and 13-410.AB.4.2.

13-102.2 Alternate materials–Method of construction, design or insulating systems. The provisions of this code are not intended to prevent the use of any material, method of construction, design or insulating system not specifically prescribed herein, provided that such construction, design, or insulating system has been approved by the building official and the Florida Building Commission as meeting the intent of the code. This clause shall not allow disregard of any provision(s) of the code by building departments, nor shall it prevent uniform statewide implementation of the code as required by Florida law (see Section 553.901, *Florida Statutes*).

13-102.3 Air conditioners sold or installed in Florida. All air conditioners installed in new or renovated buildings in the State of Florida shall comply with requirements set forth in Subchapters 13-4 or 13-6, as applicable.

SECTION 103 CODE COMPLIANCE AND PERMITTING

13-103.0 General. Code compliance for all buildings shall be certified by use of approved forms for the compliance method chosen that are specific to the climate zone in which the building will be located (see Figure 13-1).

The only software approved for determining compliance with this code shall be the software developed and maintained by the Florida Building Commission or its designated representative.

Worst-case calculations may be submitted for identical buildings facing different cardinal directions; however, original code certification signatures shall be provided for each building.

13-103.1 Certification of compliance. Code compliance for nonresidential and multiple-family residential applications (except for duplexes, townhouses, or other buildings identified in Sections 481.229 and 471.003, *Florida Statutes*) shall be certified by the owner, project architect (registered in the state of Florida), or other officially designated agent allowed in Section 13-103.2.

13-103.1.1 Code compliance preparation. The person preparing the compliance calculation shall certify that the plans and specifications covered by the calculation, or amendments thereto, are in compliance with Chapter 13 of the *Florida Building Code, Building*.

13-103.1.1.1 Commercial applications. Completion of procedures demonstrating compliance with this code for commercial buildings shall be signed and sealed by an architect or engineer licensed to practice in the state of Florida, with the exception of buildings excluded by Section 481.229, *Florida Statutes*, or Section 471.003, *Florida Statutes*. Calculations for buildings falling within the exception of Section 471.003, *Florida Statutes*, may be performed by air conditioning or mechanical contractors licensed in accordance with Chapter 489, *Florida Statutes*, or by state of Florida certified commercial building energy raters.

Design professionals responsible under Florida law for the design of lighting, electrical, mechanical, and plumbing systems and the building shell, shall certify compliance of those building systems with the code by signing and providing their professional registration number on the energy code form provided as part of the plans and specifications to the building department.

13-103.1.1.2 Residential applications.

13-103.1.1.2.1 Single-family residential, duplexes, townhouses. No license or registration is required to prepare the code compliance form for single-family residential dwellings, duplexes and townhouses.

13-103.1.1.2.2 Multiple-family residential. Form preparation for multiple-family dwellings except duplexes and townhouses shall be signed and sealed by an architect or engineer registered in the state of Florida, with the exception of buildings excluded by Section 481.229, *Florida Statutes*, or Section 471.003, *Florida Statutes*. Calculations for buildings falling within the exception of Section 471.003, *Florida Statutes*, may be performed by air conditioning or mechanical contractors licensed in accordance with Chapter 489, *Florida Statutes*, by state of Florida certified commercial building energy raters.

13-103.1.2 Code compliance certification. The building's owner, the owner's architect, or other authorized agent legally designated by the owner shall certify that the building is in compliance with the code, as per Section 553.907, *Florida Statutes*, prior to receiving the permit to begin construction or renovation.

If, during the building's construction or renovation, alterations are made in the building's design or in materials or equipment installed in the building which would diminish its energy performance, an amended copy of the compliance certification shall be submitted to the building official on or before the date of final inspection by the building owner or his or her legally authorized agent.

13-103.2 Details, plans and specifications. Plans and specifications shall be submitted with each application for a building permit. Energy code calculations shall be made a part of the plans and specifications of the building. The building official shall require, subject to the exceptions in Section 481.229, Florida Statutes, and Section 471.003, Florida Statutes, that plans and specifications be prepared by an engineer or architect licensed to practice in the state of Florida. The plans and specifications, including the energy code calculations, shall show, in sufficient detail, all pertinent data and features of the building and the equipment and systems as herein governed including, but not limited to: design criteria, exterior envelope component materials, U-values of the envelope systems, R-values of insulating materials, size and type of apparatus and equipment, equipment and systems controls and other pertinent data to indicate conformance with the requirements of the code.

13-103.3 Building permits. Prior to receiving the permit to begin construction or renovation, owners, or an agent duly designated by the owner, of all buildings shall certify energy code compliance to the designated local enforcement agency. If, during the building construction or renovation, alterations are made in the design, materials, or equipment which would diminish the energy performance of the building, an amended copy of the compliance certifications shall be submitted to the local enforcement agency on or before the date of final inspection by the building owner or his or her agent.

Building officials or their officially designated representatives shall assure that the compliance forms are complete and without gross errors.

SECTION 13-104 INSPECTIONS

13-104.1 General. All construction or work for which a permit is required shall be subject to inspection by the building official or his or her officially designated representative.

13-104.2 Approvals required. No work shall be done on any part of the building or structure beyond the point indicated in each successive inspection without first obtaining the written approval of the building official. No construction shall be concealed without inspection approval.

13-104.3 Inspections required. There shall be a final inspection for code compliance on all buildings when completed and ready for occupancy.

13-104.4 Information cards required.

13-104.4.1 Energy performance level (EPL) display card. The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, *Florida Statutes*) requires the EPL display card to be included as an addendum to each sales contract executed after January 1, 1994, for both presold and nonpresold residential buildings.

The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building.

13-104.4.2 HVAC efficiency card. The building official shall require that a completed HVAC efficiency card signed by a representative of the heating and cooling equipment contractor be posted in a prominent location on the cabinet of the indoor air handler or furnace of each heating or heating and cooling system installed in the building at the time of installation. Where single package units are installed, the card shall be posted on the unit itself. The card shall be durable, readable and shall contain the following information:

- 1. Manufacturer's name(s);
- 2. Brand name(s);
- 3. Model numbers of the furnace, compressor unit, and air handler (and evaporator coil, if the air handler can be equipped with more than one coil) for each system installed;
- 4. Efficiency ratings of the combined equipment for each system actually installed;

- 5. Name and address of the heating and or cooling company installing the equipment;
- 6. Signature line and date line, preceded by the statement, "With the authorization of the installing contractor I certify that the information entered on this card accurately represents the system installed."
- 7. Signature line and date line, preceded by the statement, "As the building official or the representative of the building official I certify that the information entered on this card accurately represents the system installed."

Exceptions:

- 1. If the information required above has been previously submitted and is included on the plans required at the building site, the HVAC efficiency card need not be provided. However, the plans shall be signed by a representative of the heating and cooling company installing the equipment and shall be available for inspection by building inspectors and by prospective buyers until the time of title transfer.
- 2. The Federal Trade Commission's energy guide label may be used to fulfill this requirement.

13-104.4.3 Insulation certification card. In cases where the *R*-value of insulation installed in either walls, ceilings or floors is not readily apparent, the local building official shall require that an *R*-value certification card signed by the insulation contractor be posted in a prominent location at the time of installation. The card shall contain, at a minimum, the following information:

- 1. Insulation manufacturer's name;
- 2. Insulation type;
- 3. *R*-value of insulation installed;
- 4. Thickness of insulation installed;
- 5. Location of insulation installed;
- 6. Indication that the installation has been checked and does not block attic ventilation.
- 7. Name and address of the contractor installing the insulation;
- 8. Date of installation.

13-104.4.4 Energy guide labels. Energy guide labels required by the U.S. Federal Trade Commission for heating and cooling systems, water heaters and other appliances covered by federal law shall remain on those appliances until time of title transfer.

13-104.4.5 Fenestration energy rating labels. Energy performance values (i.e., *U*-factor, solar heat gain coefficient) of fenestration products (i.e., windows, doors and skylights) shall be determined y an accredited, independent laboratory and labeled and certified by the manufacturer. Such certified and labeled fenestration energy ratings shall be accepted for the purposes of determining compliance with the building envelope requirements of this code.

Where the specified energy performance (U-factor or SHGC) of the fenestration product is not labeled nor readily apparent, the default procedures outlined in Tables B-6, B-7

and B-8 of Appendix 13-B for *U*-factor and SHGC shall be used to determine code compliance for commercial applications and in Table 13-C2.1.1 of Appendix 13-C for residential applications. Product features must be verifiable for the product to qualify for the default value associated with those features. Where the existence of a particular feature cannot be determined with reasonable certainty, the product shall not receive credit for that feature. Where a composite of materials from two different product types are used, the product shall be assigned the worst value.

U-factors (thermal transmittances) of fenestration products (windows, doors and skylights) shall be determined by an accredited, independent laboratory in accordance with NFRC 100: *Procedure for Determining Fenestration Product U-Factors*. The SHGC for glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200: *Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence*.

SECTION 13-105 REPORTING

13-105.0 Reporting to the Department of Community Affairs. A reporting form shall be submitted to the local building department by the owner or owner's agent with the submittal certifying compliance with this code. Reporting forms shall be a copy of the front page of the form applicable for the code chapter under which compliance is demonstrated.

13-105.1 Reporting schedule. It shall be the responsibility of the local building official to forward the reporting section of the proper form to the Department of Community Affairs on a quarterly basis as per the reporting schedule in Table 13-105.1.

REPORTING SCHEDULE				
	Group I*	Group II*	Group III*	
Quarter 1	12/31	1/31	2/28	
Quarter 2	3/31	4/30	5/31	
Quarter 3	6/30	7/31	8/31	
Quarter 4	9/30	10/31	11/30	

TABLE 13-105.1 REPORTING SCHEDULI

*See Appendix 13-A of this chapter for group designations.

13-105.2 Jurisdiction numbers. For data collection purposes, all permitting jurisdictions in the state of Florida have been assigned a six-digit jurisdiction number. The jurisdiction number is required on all energy code forms. Jurisdiction numbers are listed by county in Appendix 13-A.

SECTION 13-106 VALIDITY

13-106.0 Validity. If any section, subsection, sentence, clause, or phrase of this code is, for any reason, held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this code.



FIGURE 13-1 CODE COMPLIANCE CHART

SUBCHAPTER 13-2

DEFINITIONS

SECTION 13-201 GENERAL

13-201.1 Application of terms. For the purpose of this code, certain abbreviations, terms, phrases, words, and their derivatives, shall be construed as set forth in this chapter.

13-201.2 Words not defined. Words not defined herein shall have the meanings stated in the *Webster's Ninth New Collegiate Dictionary*, as revised.

SECTION 13-202 DEFINITIONS

ABOVE-GRADE WALL. See "Wall."

ACCESS HATCH. See "Door."

ACCESSIBLE (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation or other effective means (see "Readily accessible").

ADDITION. An extension or increase in conditioned floor area or height of a building or structure.

ADJACENT WALL, CEILING or FLOOR. A wall, ceiling or floor of a structure that separates conditioned space from enclosed but unconditioned space, such as an unconditioned attached garage, storage or utility room.

ADJUSTED LIGHTING POWER (ALP). Lighting power, assigned to a luminaire(s), that has been reduced by deducting a lighting power control credit based on use of an automatic control device(s).

AEROSOL SEALANT. A closure product for duct and plenum systems, which is delivered internally to leak sites as aerosol particles using a pressurized air stream.

ANNUAL FUEL UTILIZATION EFFICIENCY (AFUE). The ratio of annual output energy to annual input energy including any nonheating season pilot input loss.

AIR BARRIER. Relating to air distribution systems, a material object(s) which impedes or restricts the free movement of air under specified conditions. For fibrous glass duct, the air barrier is its foil cladding; for flexible nonmetal duct, the air barrier is the nonporous core; and for sheet metal duct and air handling units, the air barrier is the metal in contact with the air stream. For mechanical closets, the air barrier may be a uniform panelized material such as gypsum wall board which meets ASTM C 36, or it may be a membrane which alone acts as an air barrier which is attached to a panel, such as the foil cladding of fibrous glass duct board.

Relating to the building envelope, air barriers comprise the planes of primary resistance to air flow between the interior spaces of a building and the outdoors and the planes of primary air flow resistance between adjacent air zones of a building, including planes between adjacent conditioned and unconditioned air spaces of a building. To be classed as an air barrier, a building plane must be substantially leak free; that is, it shall have an air leakage rate not greater than 0.5 cfm/ft² when subjected to an air pressure gradient of 25 pascal. In general, air barriers are made of durable, nonporous materials and are sealed to adjoining wall, ceiling or floor surfaces with a suitable long-life mastic. House wraps and taped and sealed drywall may constitute an air barrier but dropped acoustical tile ceilings (T-bar ceilings) may not. Batt insulation facings and asphalt-impregnated fiberboard and felt paper are not considered air barriers.

AIR CONDITIONING. The process of treating air to control its temperature, humidity, cleanliness and distribution to meet requirements of the conditioned space.

AIR DISTRIBUTION SYSTEMS. Include all building elements (duct systems, air handling units, cavities of the building structure and mechanical closets) through which air is delivered to or from the conditioned spaces.

AIR DUCT. A passageway for conducting air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum. For material requirements see local mechanical codes.

AIR-HANDLING UNIT. The fan unit of a furnace and the fan-coil unit of a split-system, packaged air conditioner or heat pump.

AIR INFILTRATION. See "Infiltration."

AIR POROSITY. The ability to transmit air through minute openings in a substance or material.

ALTERATION. Replacement or addition to a building or its systems and equipment; routine maintenance, repair, and service or a change in the building's use classification or category shall not constitute an alteration.

ANNUAL FUEL UTILIZATION EFFICIENCY (AFUE). Efficiency descriptor of the ratio of annual output energy to annual input energy as developed in accordance with the requirements of U.S. Department of Energy (DOE) 10CFR Part 430.

APPLICATION PART-LOAD VALUE (APLV). A single number part-load efficiency figure of merit calculated in accordance with the method described in ARI 550 or 590 referenced to modified rating conditions described in those standards.

AS-BUILT. Building components to be actually installed in a structure. In some cases, this may be a worst-case condition (see "Worst case").

ASHRAE CLIMATE ZONE 1. Broward, Miami-Dade and Monroe Counties.

ASHRAE CLIMATE ZONE 2. All of Florida except Broward, Miami-Dade and Monroe Counties.

ATTIC. An enclosed unconditioned space located immediately below an uninsulated roof and immediately above the ceiling of a building. For the roof to be considered insulated, roof insulation shall be at least the *R*-value required to meet section 13-404.AB.1 in Subchapter 4 and Section 13-604.AB.1 in Subchapter 6 (see "Under Attic;" "Roof").

ATTIC RADIANT BARRIER. See "Radiant barrier."

AUTHORITY HAVING JURISDICTION. The agency or agent responsible for enforcing this standard.

AUTOMATIC. Self-acting, operating by its own mechanism when actuated by some nonmanual influence, such as a change in current strength, pressure, temperature, or mechanical configuration (see "Manual").

AUTOMATIC CONTROL DEVICE. A device capable of automatically turning loads off and on without manual intervention.

BALANCING, AIR SYSTEM. adjusting air flow rates through air distribution system devices, such as fans and diffusers, by manually adjusting the position of dampers, splitter vanes, extractors, etc., or by using automatic control devices, such as constant air volume or variable air volume boxes.

BALANCING, **HYDRONIC**. Adjusting water flow rates through hydronic distribution system devices, such as pumps and coils, by manually adjusting the position valves, or by using automatic control devices, such as automatic flow control valves.

BALLAST. A device used in conjunction with an electric discharge lamp to cause the lamp to start and operate under the proper circuit conditions of voltage, current, wave form, electrode heat, etc.

- (a) **Electronic ballast**: A ballast constructed using electronic circuitry.
- (b) **Hybrid ballast:** A ballast constructed using a combination of magnetic core and insulated wire winding and electronic circuitry.
- (c) **Magnetic ballast:** A ballast constructed with magnetic core and a winding of insulated wire.

BASELINE. Building component performance target or the total building performance target which is compared with the as-built building performance.

BEDROOM. Any residential room which has an area of 70 square feet (7 m^2) or more and a clothes storage closet, and is not part of the common living area. For the purposes of this code, the number of "main" bedrooms for homes of three bedrooms or more is the total number of bedrooms less one. In one and two bedroom homes, all bedrooms are "main" bedrooms.

BELOW-GRADE WALL. See "Wall."

BOILER. A self-contained low-pressure appliance for supplying steam or hot water.

BOILER CAPACITY. The rate of heat output in Btu/h of the boiler, at the design inlet and outlet conditions and rated fuel or energy input, measured at the boiler outlet, at the design pressure and/or temperature, and rated fuel input.

BOILER, PACKAGED. A boiler that is shipped complete with heating equipment, mechanical draft equipment and auto-

matic controls usually in one or more sections. A packaged boiler includes factory-built boilers manufactured as a unit or system, disassembled for shipment, and reassembled at the site.

BRANCH CIRCUIT. The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s); the final wiring run to the load.

BUDGET (Baseline). Building design: a computer representation of a hypothetical design based on the actual proposed building design. This representation is used as the basis for calculating the Method A energy cost budget.

BTU (**British Thermal Unit**). The standard unit for measuring heat energy, such as the heat content of fuel. It is the amount of heat energy necessary to raise the temperature of one pound of water one degree Fahrenheit. 1 BTU per minute = 17.6 watts.

BTU. Per kilowatt hour (see "Heat rate").

BUILDING. Any structure that includes provision for any of the following or any combination of the following: a space heating system, a space cooling system, or a service water heating system. For each purpose of this code each portion of a building separated from other portions by a rated fire wall shall be considered as a separate building. The term "building" shall be construed as if followed by the words "or part thereof."

BUILDING CONSTRUCTION. Any new building or structure or addition to any existing building or structure.

BUILDING ENTRANCE. Any doorway, set of doors, turnstiles, or other form of portal that is ordinarily used to gain access to the building by its users and occupants.

BUILDING ENVELOPE. The exterior plus the semiexterior portions of a building. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) **Building envelope, exterior:** The elements of a building that separate conditioned spaces from the exterior.
- (b) **Building envelope, semiexterior:** The elements of a building that separate conditioned space from unconditioned space or that enclose semiheated spaces through which thermal energy may be transferred to or from the exterior, or to or from unconditioned spaces, or to or from conditioned spaces.

BUILDING EXIT. Any doorway, set of doors, or other form of portal that is ordinarily used only for emergency egress or convenience exit.

BUILDING GROUNDS LIGHTING. Lighting provided through a building's electrical service for parking lot, site, roadway, pedestrian pathway, loading dock and security applications.

BUILDING MATERIAL. Any element of the building envelope through which heat flows and that is included in the component *U*-factor calculations other than air films and insulation.

BUILDING OFFICIAL. The officer or other designated representative authorized to act on behalf of the authority having jurisdiction.

BUILDING SYSTEMS. See "System."

C-FACTOR (**Thermal conductance**). Time rate of steady state heat flow through unit area of a material or construction, induced by a unit temperature difference between the body surfaces. Units of C are $Btu/h \cdot ft^2 \cdot ^{\circ}F$. Note that the C-factor does not include soil or air films.

CIRCUIT BREAKER. A device designed to open and close a circuit by nonautomatic means and to open the circuit automatically at a predetermined overcurrent without damage to itself when properly applied within its rating.

CLASS OF CONSTRUCTION. For the building envelope, a subcategory of roof, above-grade wall, below-grade wall, floor, slab-on-grade floor, opaque door, vertical fenestration, or skylight (see "Roof," "Wall," "Floor," "Slab-on-grade floor," "Door" and "Fenestration").

CLERESTORY. That part of a building that rises clear of the roofs or other parts and whose walls contain windows for lighting the interior.

CODE OFFICIAL. See "Building official."

COEFFICIENT OF PERFORMANCE (COP) – COOL-ING. The ratio of the rate of heat removal to the rate of energy input, in consistent units, for a complete refrigerating system or some specific portion of that system under designated operating conditions.

COEFFICIENT OF PERFORMANCE (COP) – (HEAT PUMP) – HEATING. Heating: the ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system, including the compressor and, if applicable, auxiliary heat, under designated operating conditions.

COMBUSTION APPLIANCE, DIRECT VENT. A system consisting of: (1) an appliance for indoor installation; (2) combustion air connections between the appliance and the outdoor atmosphere; (3) flue gas connections between the appliance and the vent cap; and (4) vent cap for installation outdoors, supplied by the manufacturer and constructed so that all air for combustion is obtained from the outdoor atmosphere and all flue gases are discharged to the outdoor atmosphere.

COMFORT CONDITIONING. Treating air to control its temperature, relative humidity, cleanliness, and distribution to meet the comfort requirements of the occupants of the conditioned space.

COMFORT ENVELOPE. The area on a psychrometric chart enclosing all those conditions described as being comfortable in Figure 1, ASHRAE Standard 55, *Thermal Environmental Comfort Conditions for Human Occupancy*.

COMMON CEILING. The ceiling/floor assembly separating conditioned tenancies, one above the other.

COMMON WALL. A wall separating conditioned tenancies, one next to the other.

CONDITIONED FLOOR AREA. The horizontal projection (outside measurements) of that portion of space which is conditioned directly or indirectly by an energy-using system (see "Floor area;" "Gross floor area".)

CONDITIONED SPACE. See "Space, (a) conditioned space.

CONDUCTANCE. See "Thermal conductance."

CONSTRUCTION. The fabrication and erection of a new building or any addition to or alteration of an existing building.

CONSTRUCTION DOCUMENTS. Drawings and specifications used to construct a building, building systems, or portions thereof.

CONTINUOUS INSULATION (cont. ins. or ci). Insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior, exterior, or is integral to any opaque surface of the building envelope.

CONTROL. To regulate the operation of equipment.

CONTROL DEVICE. A specialized device used to regulate the operation of equipment.

CONVENTIONAL ATTIC. Traditionally, the space directly below the roof and above the ceiling of the upper story of a building.

COOL DOWN. Reduction of space temperature down to occupied set point after a period of shutdown or setup.

COOLED SPACE. See "Space."

COOLING DEGREE DAY. See "Degree-day."

COOLING DESIGN TEMPERATURE. The outdoor dry-bulb temperature equal to the temperature that is exceeded 1 percent of the number of hours during a typical weather year.

COOLING DESIGN WET-BULB TEMPERATURE. The outdoor wet bulb temperature for sizing cooling systems and evaporative heat rejection systems such as cooling towers.

DEAD BAND. The range of values within which a sensed variable can vary without initiating a change in the controlled process.

DECORATIVE LIGHTING. See "Lighting, decorative."

DEGREE DAY. The difference in temperature between the outdoor mean temperature over a 24-hour period and a given base temperature. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) Cooling degree day base 50°F (10°C), CDD 50: for any one day, when the mean temperature is more than 50°F (10°C), there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and 50°F (10°C). Annual cooling degree days (CDDs) are the sum of the degree-days over a calendar year.
- (b) Heating degree day base 65°F (18°C), HDD 65: for any one day, when the mean temperature is less than 65°F (18°C), there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and 65°F (18°C). Annual heating degree days (HDDs) are the sum of the degree days over a calendar year.

DEMAND. The highest amount of power (average Btu/h over an interval) recorded for a building or facility in a selected time frame.

DESIGN CAPACITY. Output capacity of a system or piece of equipment at design conditions.

DESIGN CONDITIONS. Specified environmental conditions, such as temperature and light intensity, required to be produced and maintained by a system and under which the system must operate.

DESIGN ENERGY COST. The annual energy cost calculated for a proposed design.

DESIGN PROFESSIONAL. An architect or engineer licensed to practice in accordance with applicable state licensing laws.

DIRECT DIGITAL CONTROL (DDC). A type of control where controlled and monitored analog or binary data (e.g., temperature, contact closures) are converted to digital format for manipulation and calculations by a digital computer or microprocessor, then converted back to analog or binary form to control physical devices.

DISCONNECT. A device or group of devices or other means by which the conductors of a circuit can be disconnected from their source of supply.

DISTRIBUTION SYSTEM. Conveying means, such as ducts, pipes, and wires, to bring substances or energy from a source to the point of use. The distribution system includes such auxiliary equipment as fans, pumps, and transformers.

DOOR. All operable opening areas (which are not fenestration) in the building envelope, including swinging and roll-up doors, fire doors, and access hatches. Doors that are more than one-half glass are considered fenestration. (See "Fenestration"). For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) **Nonswinging**. Roll-up, sliding, and all other doors that are not swinging doors.
- (b) **Swinging.** All operable opaque panels with hinges on one side and opaque revolving doors.

DOOR AREA. Total area of the door measured using the rough opening and including the door slab and the frame (see "Fenestration area").

DRAWBAND. A fastener which surrounds and fastens a duct fitting with either the inner lining or the outer jacket of flexible ducts. Tension ties, clinch bands, draw ties, and straps are considered drawbands.

DUCT FITTING. Couplings that join sections of ducting together or to other air distribution system components. When used to join sections of flexible nonmetal duct, duct fittings are typically metal or other rigid material and have a raised bead or indented groove against which the drawband is secured. Terminal fittings join ducting to supply outlets and return inlets at the end of the distribution system and include register and return boots and register and return boxes. Intermediate fittings join flexible nonmetal duct to other sections of flexible nonmetal duct, to sections of other types of ducting, and to mechanical equipment and include collars, take-offs, tap-ins, sleeves, and the supply and return ends of air handlers and furnaces (see "Integral flange duct collar fitting").

DUCTS IN CONDITIONED SPACE. For ductwork to qualify as being in conditioned space, it shall be located interior to both the thermal envelope and the pressure envelope of the building. These spaces shall not require supply or return outlets. See Appendix 13-C, C5.1.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ECONOMIZER, AIR. A duct and damper arrangement and automatic control system that together allow a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

ECONOMIZER, WATER. A system by which the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

EFFECTIVE AIR SPACE EMITTANCE. The radiation heat transfer property E of an air space determined by the emissivity of the surfaces bounding that air space (see the 2001 ASHRAE *Handbook of Fundamentals*, Chapter 38, Table 3).

EFFICIENCY. Performance at specified rating conditions.

EFFICIENCY, HVAC SYSTEM. The ratio of useful energy output (at the point of use) to the energy input in consistent units for a designated time period, expressed in percent.

ELECTRIC METER. A mechanical/electrical device that can measure electric power.

ELECTRIC SUPPLIER. An agency that sells and/or distributes electric power.

EMERGENCY POWER SYSTEM. A system that is required by codes or other laws to automatically supply illumination or power or both in the event of failure of the normal supply or in the event of accidents to such systems. Such systems may also include standby loads incidental to system operations but shall not include systems for optional standby loads only.

EMISSIVITY. The ratio of the total radiant flux emitted by a body to that emitted by an ideal black body at the same temperature.

EMITTANCE. The ratio of the radiant heat flux emitted by a specimen to that emitted by a blackbody at the same temperature and under the same conditions.

ENCLOSED SPACE. A volume substantially surrounded by solid surfaces such as walls, floors, roofs and openable devices such as doors and operable windows.

ENCLOSED SUPPORT PLATFORM. A framed enclosure located inside or outside the conditioned space, which supports a furnace or central heating/air conditioning air handler and which may contain and protect a return duct section of the air distribution system.

ENCLOSURE. The case or housing of an apparatus, or the fence or walls surrounding an installation, to prevent personnel from accidentally contacting energized parts or protect equipment from physical damage.

ENERGY. The capacity for doing work. It takes a number of forms that may be transformed from one into another such as thermal (heat), mechanical (work), electrical, and chemical. Customary measurement units are British thermal units (Btu).

ENERGY COST BUDGET. The annual energy cost for the budget building.

ENERGY EFFICIENCY RATIO (**EER**). The ratio of net cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions [see "Coefficient of performance (COP) —cooling"].

ENERGY FACTOR (EF). A measure of water heater overall efficiency.

ENERGY MANAGEMENT SYSTEM. A control system designed to monitor the environment and the use of energy in a facility and to adjust the parameters of local control loops to conserve energy while maintaining a suitable environment.

ENERGY PERFORMANCE LEVEL. An indicator of the energy-related performance of a building, including, but not limited to, the levels of insulation, the amount and type of glass, and the HVAC and water heating system efficiencies.

ENERGY, RECOVERED. See "Recovered energy."

ENVELOPE PERFORMANCE FACTOR. The trade-off value for the building envelope performance compliance option calculated using the procedures specified in Appendix 13-B for Compliance Methods B and C. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) **Base envelope performance factor:** The building envelope performance factor for the base design.
- (b) **Proposed envelope performance factor:** The building envelope performance factor for the proposed design.

EQUIPMENT. Devices for comfort conditioning, electric power, lighting, transportation, or service water heating including, but not limited to, furnaces, boilers, air conditioners, heat pumps, chillers, water heaters, lamps, luminaires, ballasts, elevators, escalators or other devices or installations.

EXISTING BUILDING. A building or portion thereof that was previously occupied or approved for occupancy by the authority having jurisdiction.

EXISTING EQUIPMENT. Equipment previously installed in an existing building.

EXISTING SYSTEM. A system or systems previously installed in an existing building.

EXFILTRATION. Uncontrolled outward air leakage from inside a building including leakage through cracks and interstices around windows and doors and through any other exterior partition or penetration.

EXTERIOR BUILDING ENVELOPE. See "Building envelope."

EXTERIOR LIGHTING POWER ALLOWANCE. See "Lighting power allowance."

EXTERIOR WALL. A wall of a structure that is exposed to outdoor climate conditions and which forms a boundary between a conditioned and an outdoor space (see "Adjacent wall").

FACADE AREA. Area of the facade, including overhanging soffits, cornices, and protruding columns, measured in eleva-

tion in a vertical plane parallel to the plane of the face of the building. Nonhorizontal roof surfaces shall be included in the calculation of vertical facade area by measuring the area in a plane parallel to the surface.

F-FACTOR. The perimeter heat loss factor for slab-on-grade floors, expressed in Btu/h·ft·°F.

FACTORY-SEALED AIR HANDLING UNIT. A furnace, or an air conditioner or heat pump fan-coil unit which is certified by its manufacturer to withstand, without leakage, an air pressure of 1-inch water gauge, when all air inlets, air outlets and condensate drain port(s), when present, are sealed at an air pressure of 1-inch water gauge with no greater than 2 design CFM discharge.

FAN SYSTEM ENERGY DEMAND (or FAN SYSTEM POWER). The sum of the nominal power demand (nameplate horsepower) of motors of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors.

FEEDER CONDUCTORS. The wires that connect the service equipment to the branch circuit breaker panels.

FENESTRATION. All areas (including the frames) in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, glass doors that are more than one-half glass, and glass block walls (see "Building envelope" and "Door").

- (a) **Skylight:** A fenestration surface having a slope of less than 60 degrees from the horizontal plane. Other fenestration, even if mounted on the roof of a building, is considered vertical fenestration.
- (b) **Vertical fenestration:** All fenestration other than skylights. Trombe wall assemblies, where glazing is installed within 12 inches (305 mm) of a mass wall, are considered walls, not fenestration.

FENESTRATION AREA. Total area of the fenestration measured using the rough opening and including the glazing, sash, and frame. For doors where the glazed vision area is less than 50 percent of the door area, the fenestration area is the glazed vision area. For all other doors, the fenestration area is the door area (see "Door area").

FENESTRATION, VERTICAL. See "Fenestration;" "Sky-light."

FIRE WALL. Fire-resistant wall, having protective openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

FIXTURE. The component of a luminaire that houses the lamp or lamps, positions the lamp, shields it from view, and distributes the light. The fixture also provides for connection to the power supply, which may require the use of a ballast.

FLEXIBLE NONMETAL DUCT. A type of flexible air duct comprised of a wire-reinforced core (usually plastic), an insulation layer and an outer jacket (usually a durable reinforced plastic).

FLOODLIGHTING. A lighting system designated to light an area using projector-type luminaries usually capable of being pointed in any direction.

FLOOR, ENVELOPE. That lower portion of the building envelope, including opaque area and fenestration, that has conditioned or semiheated space above and is horizontal or tilted at an angle of less than 60 degrees from horizontal but excluding slab-on-grade floors. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) Mass floor: A floor with a heat capacity that exceeds (1) 7 Btu/ft².°F or (2) 5 Btu/ft².°F provided that the floor has a material unit mass not greater than 120 pound per cubic foot (lb/ft³)(1922 kg/m³)
- (b) Steel joist floor: A floor that (1) is not a mass floor and (2) that has steel joist members supported by structural members.
- (c) Wood framed and other floors: All other floor types, including wood joist floors (see "Building envelope," "Fenestration," "Opaque area," and "Slab-on-grade floor").

FLOOR AREA, GROSS. The sum of the floor areas of the spaces within the building including basements, mezzanine and intermediate-floored tiers, and penthouses with headroom height of 7.5 feet (2286 mm) or greater. It is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings, but excluding covered walkways, open roofed-over areas, porches and similar spaces, pipe trenches, exterior terraces or steps, chimneys, roof overhangs, and similar features.

- (a) **Gross building envelope floor area:** The gross floor area of the building envelope, but excluding slab-on-grade floors.
- (b) **Gross conditioned floor area:** The gross floor area of conditioned spaces.
- (c) **Gross lighted floor area:** The gross floor area of lighted spaces.
- (d) Gross semiheated floor area: The gross floor area of semiheated spaces (see "Building envelope," "Floor," "Slab-on-grade floor" and "Space").

FLUE DAMPER. A device in the flue outlet or in the inlet of or upstream of the draft control device of an individual, automatically operated, fossil fuel-fired appliance that is designed to automatically open the flue outlet during appliance operation and to automatically close the flue outlet when the appliance is in a standby condition.

FOSSIL FUEL. Fuel derived from a hydrocarbon deposit such as petroleum, coal or natural gas derived from living matter of a previous geologic time.

FUEL. A material that may be used to produce heat or generate power by combustion.

GASKETING. A compressible, resilient elastic packing, made of foam rubber or of a synthetic foam polymer. A gasket is distinct from the components being joined and must be capable of closing all air leakage pathways between the air barriers of the joint and of creating an air-tight seal.

GENERAL LIGHTING. See "Lighting, general."

GENERALLY ACCEPTED ENGINEERING STAN-DARD. A specification, rule, guide, or procedure in the field of engineering, or related thereto, recognized and accepted as authoritative.

GLAZED WALL SYSTEM. A category of site-assembled fenestration products, which includes, but is not limited to, curtainwalls and solariums.

GLAZING. Sunlight-transmitting fenestration, including the area of a sash, curbing or other framing elements, that enclose a conditioned space. Glazing includes the area of sunlight-transmitting fenestration assemblies in walls bounding conditioned basements.

GRADE. The finished ground level adjoining a building at all exterior walls.

GROSS FLOOR AREA. The sum of the floor areas of the conditioned spaces including basements, mezzanine and intermediate-floored tiers and penthouses of headroom height 7.5 feet (2286 mm) or greater. It is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings.

GROSS LIGHTED AREA (GLA). See "Floor area, gross;" "Gross lighted floor area."

GROSS ROOF AREA. See "Roof area, gross."

GROSS WALL AREA. See "Wall area, gross."

HEAT. The form of energy that is transferred by virtue of a temperature difference or a change in the state of a material.

HEAT CAPACITY (HC): The amount of heat necessary to raise the temperature of a given mass $1^{\circ}F$ (-17°C). Numerically, the sum of the products of the mass per unit area of each individual material in the roof, wall, or floor surface multiplied by its individual specific heat (Btu/ft^{2.o}F).

HEAT TRACE. A heating system where the externally applied heat source follows (traces) the object to be heated, e.g., water piping.

HEAT PUMP. A mechanical refrigeration-cycle system which has been designed to accomplish space heating, water heating or both and, when the evaporator and condenser effects are reverse, may be used for space air conditioning or water chilling.

HEAT TRAP. A device or arrangement of the hot water piping leaving the water heater, constructed to counteract the convective forces of the heated water (thermosyphoning) during stand-by periods.

HEATED BUILDING. Any building with heating equipment installed at the time of construction, or designed for the future installation of heating equipment, using electricity or fossil fuels.

HEATED SLAB. A floor, usually constructed of concrete, that has heat energy supplied into the slab to provide heating to an interior space.

HEATED SPACE. See "Space."

HEATING DESIGN TEMPERATURE. The outdoor dry-bulb temperature equal to the temperature that is exceeded

at least 99.6 percent of the number of hours during a typical weather year.

HEATING DEGREE DAY. See "Degree day."

HEATING SEASONAL PERFORMANCE FACTOR (**HSPF**). The total heating output of a heat pump during its normal annual usage period for heating (in Btu) divided by the total electric energy input during the same period.

HISTORIC. A building or space that has been specifically designated as historically significant by the adopting authority or is listed in the National Register of Historic Places or has been determined to be eligible for listing by the U.S. Secretary of the Interior.

HOME INSULATION. Any material, mainly insulation, used to retard the flow of heat through the building envelope that is tested and labeled with an installed *R*-value as required by the Federal Trade Commission rules, 16 U.S. Code of Federal Regulations (CFR) Part 460.

HORSEPOWER (HP). Unit of power; work done at a rate equal to 745.7 Watts, 550 foot pound per second or 33,000 foot pound per minute.

HOT WATER SUPPLY BOILER. A boiler used to heat water for purposes other than space heating.

HUMIDISTAT. An automatic control device used to maintain humidity at a fixed or adjustable set point.

HVAC. Heating, ventilating and air conditioning.

HVAC SYSTEM. The equipment, distribution systems, and terminals that provide, either collectively or individually, the processes of heating, ventilating, or air conditioning to a building or portion of a building.

INDIRECTLY CONDITIONED SPACE. See "Space."

INDOOR. Within the conditioned building envelope.

INFILTRATION. The uncontrolled inward air leakage through cracks and crevices in any building element and around windows and doors of a building caused by pressure differences across these elements due to factors such as wind, inside and outside temperature differences (stack effect), and imbalance between supply and exhaust air systems.

INFILTRATION BARRIER. A product or system designed to limit the free passage of air through a building envelope component (wall, ceiling or floor). Such products and systems are sealed together to form a continuous barrier against air infiltration.

INSTALLED INTERIOR LIGHTING POWER. The power in watts of all permanently installed general, task, and furniture lighting systems and luminaires.

INSULATION. Material mainly used to retard the flow of heat (see "Home insulation").

INSULATION BAFFLE. A device installed at the eave of an attic to prevent insulation from blocking the air flow channel between the soffits and attic.

INSULATION CHUTE. See "Insulation baffle."

INSULATION DAMS. A flexible device used between rafters at the eave line of roof systems that holds loose fill insulation

away from soffit ventilation areas and prevents blockage of natural ventilation flow.

INTEGRAL-FLANGE DUCT COLLAR FITTING. A type of duct collar fitting having a flange that is secured to and sealed to the cylinder or sleeve of the fitting. A function of this flange is to provide a surface which can be sealed to rigid ductboard.

INTEGRATED PART-LOAD VALUE (IPLV). A single-number figure of merit based on part-load EER, COP, or kW/ton expressing part-load efficiency for air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment.

INTERIOR LIGHTING POWER ALLOWANCE (ILPA). See "Lighting power allowance."

ISOLATION DEVICES. Devices that isolate HVAC zones so that they can be operated independently of one another. Isolation devices include, but are not limited to, separate systems, isolation dampers, and controls providing shutoff at terminal boxes.

JOIST, STEEL. Any structural steel member of a building or structure made of hot-rolled or cold-rolled solid or open-web sections.

KILOVOLT-AMPERE (**kVA**). Where the term "kilovoltampere" (kVA) is used in this standard, it is the product of the line current (amperes) times the nominal system voltage (kilovolts) times 1.732 for three-phase currents. For single-phase applications, kVA is the product of the line current (amperes) times the nominal system voltage (kilovolts).

KILOWATT (kW). The basic unit of electric power, equal to 1000 W.

KNEE WALLS. Vertical walls which separate conditioned space from the attic.

LABELED. Devices, appliances, assemblies or materials included in a list published by an approved testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment, appliances, assemblies or material, and whose listing states either that the equipment, appliances, assemblies, or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

LAMP. A generic term for a man-made light source often called a bulb or tube.

- (a) **Compact fluorescent lamp:** A fluorescent lamp of a small compact shape, with a single base that provides the entire mechanical support function.
- (b) **Fluorescent lamp:** A low-pressure electric discharge lamp in which a phosphor coating transforms some of the ultraviolet energy generated by the discharge into light.
- (c) **General service lamp:** A class of incandescent lamps that provide light in virtually all directions. General service lamps are typically characterized by bulb shapes such as A, standard; S, straight side; F, flame; G, globe; and PS, pear straight.

- (d) **High-intensity discharge (HID) lamp:** An electric discharge lamp in that light is produced when an electric arc is discharged through a vaporized metal such as mercury or sodium. Some HID lamps may also have a phosphor coating that contributes to the light produced or enhances the light color.
- (e) **Incandescent lamp:** A lamp in which light is produced by a filament heated to incandescence by an electric current.
- (f) **Reflector lamp:** A class of incandescent lamps that have an internal reflector to direct the light. Reflector lamps are typically characterized by reflective characteristics such as R, reflector; ER, ellipsoidal reflector; PAR, parabolic aluminized reflector; MR, mirrorized reflector; and others.

LIGHTING, DECORATIVE. Lighting that is purely ornamental and installed for aesthetic effect. Decorative lighting shall not include general lighting.

LIGHTING, GENERAL. Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within such area.

LIGHTING SYSTEM. A group of luminaires circuited or controlled to perform a specific function.

LIGHTING POWER ALLOWANCE.

- (a) Interior lighting power allowance: The maximum lighting power in watts allowed for the interior of a building.
- (b) Exterior lighting power allowance: The maximum lighting power in watts allowed for the exterior of a building.

LIGHTING POWER DENSITY (LPD). The maximum lighting power per unit area of a building classification of space function.

LISTED. Equipment, materials or services included in a list published by an organization acceptable to the building official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material or service meets identified standards or has been tested and found suitable for a specified purpose.

LOW-RISE RESIDENTIAL. Single-family houses, multiple-family structures of three stories or fewer above grade, manufactured houses (mobile homes), and manufactured houses (modular).

LUMINAIRE. A complete lighting unit consisting of a lamp or lamps together with the housing designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply.

MANUAL (NONAUTOMATIC). Requiring personal intervention for control. Nonautomatic does not necessarily imply a manual controller, only that personal intervention is necessary (see "Automatic").

MANUFACTURED BUILDING. A closed structure, building assembly, or system of subassemblies, which may include structural, electrical, plumbing, heating, ventilating, or other service systems manufactured for installation or erection, with or without other specified components, as a finished building or as part of a finished building, which shall include, but not be limited to, residential, commercial, institutional, storage, and industrial structures.

MANUFACTURED HOME. As defined by the U.S. Department of Housing and Urban Development, residential units constructed in accordance with Federal Mobile Construction and Safety Standards, pursuant to 42 USC 55.5401, et. seq. and 24 CFR 3282 and 3283.

MANUFACTURER. The company engaged in the original production and assembly of products or equipment or a company that purchases such products and equipment manufactured in accordance with company specifications.

MASS FLOOR. See "Floor."

MASS WALL. See "Wall."

MASTIC. A thick, pliable substance that adheres well to specific materials and is used for sealing different building components together. Mastics are often used in conjunction with fibrous or mesh fabric.

MASTIC RIBBONS. Malleable, putty-like packings which are used in applications akin to those of gasketing; but, they do not have elasticity of gasketing. Such mastics contain nearly 100 percent solids, require no curing in air, and are used without reinforcing fabric.

MEAN TEMPERATURE. One-half the sum of the minimum daily temperature and maximum daily temperature.

MECHANICAL CLOSET. For the purposes of this code, a closet used as an air plenum which contains the blower unit or air handler of a central air conditioning or heating unit.

MECHANICAL EQUIPMENT PLENUM CHAMBER. In an air-distribution system, that part of the casing, or an air chamber furnace, to or from which the air duct system delivers conditioned air.

MECHANICAL HEATING. Raising the temperature of a gas or liquid by use of fossil fuel burners, electric resistance heaters, heat pumps, or other systems that require energy to operate.

MECHANICAL COOLING. Reducing the temperature of a gas or liquid by using vapor compression, absorption, desiccant dehumidification combined with evaporative cooling, or another energy-driven thermodynamic cycle. Indirect or direct evaporative cooling alone is not considered mechanical cooling.

MECHANICAL VENTILATION. The process of supplying or removing air by mechanical means to or from any space.

METAL BUILDING. A complete integrated set of mutually dependent components and assemblies that form a building, which consists of a steel-framed superstructure and metal skin.

METAL BUILDING ROOF. See "Roof."

METAL BUILDING WALL. See "Wall."

METERING. Instruments that measure electric voltage, current, power, etc.

MOTOR POWER, RATED. The rated output power from the motor.

MULTIPLE-FAMILY RESIDENCE. Any residential dwelling unit that is attached to another such unit by a common wall, ceiling or floor such as a duplex, townhouse, condominium or similar unit, regardless of ownership.

MULTIZONE SYSTEM(S). One or more HVAC system(s) designed to supply conditioned air to more than one independently serviced area of a building. Each zone must have separate thermostats and be separated by walls or closable doors not exceeding 40 square feet (4 m²) between zones.

NAMEPLATE RATING. The design load operating conditions of a device as shown by the manufacturer on the nameplate or otherwise marked on the device.

NEW ENERGY. Energy, other than recovered energy, used for the purpose of heating or cooling (See "Energy").

NONAUTOMATIC. See "Manual."

NONDEPLETABLE ENERGY SOURCES. Sources of energy derived from incoming solar radiation, including photosynthetic processes, wind, waves, and tides, lake or pond thermal differences and energy derived from the internal heat of the earth, including nocturnal thermal exchanges.

NONRECIRCULATING SYSTEM. A domestic or service hot water distribution system that is not a recirculating system.

NONRENEWABLE ENERGY. Energy derived from a fossil fuel source.

NONRESIDENTIAL. All occupancies other than residential (see "Residential").

NONSTANDARD PART LOAD VALUE (NPLV). A single number part-load efficiency figure of merit calculated and referenced to conditions other than IPLV conditions, for units that are not designed to operate at ARI Standard Rating Conditions.

NONSWINGING DOOR. See "Door."

NORTH ORIENTED. Facing within 45 degrees of true north (northern hemisphere).

OCCUPANCY. The purpose for which a building, or part thereof, is used or intended to be used. For the purposes of determining changes of occupancy for this code, the occupancy shall be considered the major occupancy group designations established by the locally adopted building code.

OCCUPANT SENSOR. A device that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be regulated accordingly.

OPAQUE. All areas in the building envelope, except fenestration and building service openings such as vents and grilles (see "Building envelope" and "Fenestration").

OPERABLE APERTURE AREAS. Areas of windows, sliding glass doors and screened entry doors that provide access to incoming breezes in their fully extended open position.

OPTIMUM START CONTROLS. Controls that are designed to automatically adjust the start time of an HVAC system each day with the intention of bringing the space to desired

occupied temperature levels immediately before scheduled occupancy.

ORIENTATION. The direction an envelope element faces, i.e., the direction of a vector perpendicular to and pointing away from the surface outside of the element. For vertical fenestration, the two categories are north oriented and all other (see "North oriented").

OUTDOOR. The environment exterior to the building structure.

OUTDOOR (OUTSIDE) AIR. Air that is outside the building envelope or is taken from outside the building that has not been previously circulated through the building.

OUTSIDE. The environment exterior to the conditioned space of the building and may include attics, garages, crawlspaces, etc., but not return air plenums.

OVERCURRENT. Any current in excess of the rated current of equipment or the ampacity of a conductor. It may result from overload, short circuit or ground fault.

OVERHANG HEIGHT. The vertical measure of the distance from the bottom of a window to the bottom of the overhang.

OVERHANG LENGTH. The horizontal measure of how far a window overhang projects out from the glass surface.

OVERHANG SEPARATION. The vertical measure of the distance from the top of a window frame to the bottom of an overhang.

PACKAGED TERMINAL AIR CONDITIONER (PTAC). A factory selected wall sleeve and separate unencased combination of heating and cooling components, assemblies or sections. It may include heating capability by hot water, steam, or electricity and is intended for mounting through the wall to serve a single room or zone.

PACKAGED TERMINAL HEAT PUMP (PTHP). A PTAC capable of using the refrigerating system in a reverse cycle or heat pump mode to provide heat.

PARTY WALL. A fire wall on an interior lot line used or adapted for joint service between two buildings.

PERMANENTLY INSTALLED. Equipment that is fixed in place and is not portable or movable.

PLENUM. A compartment or chamber to which one or more ducts are connected, that forms a part of the air distribution system, and that is not used for occupancy or storage. A plenum often is formed in part or in total by portions of the building.

POOL. Any structure, basin, or tank containing an artificial body of water for swimming, diving, or recreational bathing. The term includes, but is not limited to, swimming pool, whirlpool, spa, or hot tub.

POOL COVER. Sheet of material, typically plastic, designed to cover the water which may prevent water or heat loss through convection, radiation and evaporation.

POSITIVE INDOOR PRESSURE. A positive pressure condition within a conditioned space caused by bringing in more outside air than the amount of air that is exhausted and/or lost through air leakage.

POST OR PIER CONSTRUCTION. Raised wood floor supported above grade on posts or piers with unenclosed space beneath.

POWER. In connection with machines, power is the time rate of doing work. In connection with the transmission of energy of all types, power refers to the rate at which energy is transmitted. It is measured in watts (W) or British thermal units per hour (Btu/h). See "Horsepower".

PRESSURE ENVELOPE. The primary air barrier of a building; that part of the envelope that provides the greatest resistance to air flow to or from the building.

PRESSURE-SENSITIVE TAPE. Tape used for sealing duct system components and air barriers which adheres when pressure is applied and is not heat activated.

PRIMARY AIR SYSTEM. The central air-moving heating and cooling equipment that serves multiple zones through mixing boxes, VAV boxes, or reheat coils.

PRIMARY LIVING AREA. A family room or great room, or a living room if no family room or great room is present. Formal living rooms, where a family room or great room is present, dining rooms and kitchens are not considered primary living areas.

PROCESS ENERGY. Energy consumed in support of a manufacturing, industrial, or commercial process other than conditioning spaces and maintaining comfort and amenities for the occupants of a building.

PROCESS LOAD. The load on a building resulting from the consumption or release of process energy.

PROJECTION FACTOR (PF). The ratio of the horizontal depth of the external shading projection divided by the sum of the height of the fenestration and the distance from the top of the fenestration to the bottom of the farthest point of the external shading projection, in consistent units.

PROPOSED DESIGN. A computer representation of the actual proposed building design or portion thereof used as the basis for calculating the design energy cost.

PUBLIC FACILITY RESTROOM. A restroom used by the transient public.

PUMP SYSTEM ENERGY DEMAND (PUMP SYSTEM POWER). The sum of the nominal power demand (nameplate horsepower) of motors of all pumps that are required to operate at design conditions to supply fluid from the heating or cooling source to all heat transfer devices (e.g., coils, heat exchanger) and return it to the source.

RADIANT BARRIER SYSTEM (RBS). A building construction consisting of a low emittance (normally 0.1 or less) surface (usually aluminum foil) bounded by an open air space. A RBS is used for the sole purpose of limiting heat transfer by radiation and is not specifically intended to reduce heat transfer by convection or conduction.

RADIANT HEATING SYSTEM. A heating system that transfers heat to objects and surfaces within the heated space primarily (greater than 50 percent) by infrared radiation.

RATED LAMP WATTAGE. See "Lamp wattage, rated."

RATED MOTOR POWER. See "Motor power rated."

RATED *R***-VALUE OF INSULATION.** The thermal resistance of the insulation alone as specified by the manufacturer in units of $h \cdot ft^2 \cdot °F/Btu$ at a mean temperature of 75°F (24°C). Rated *R*-value refers to the thermal resistance of the added insulation in framing cavities or insulated sheathing only and does not include the thermal resistance of other building materials or air films (see "Thermal resistance").

READILY ACCESSIBLE. Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc. In public facilities, accessibility may be limited to certified personnel through locking covers or by placing equipment in locked rooms.

RECIRCULATING SYSTEM. A domestic or service hot water distribution system that includes a closed circulation circuit designed to maintain usage temperatures in hot water pipes near terminal devices (e.g., lavatory faucets, shower heads) in order to reduce the time required to obtain hot water when the terminal device valve is opened. The motive force for circulation is either natural (due to water density variations with temperature) or mechanical (recirculation pump).

RECOOLING. Lowering the temperature of air that has been previously heated by a mechanical heating system.

RECORD DRAWINGS. Drawings that record the conditions of the project as constructed. These include any refinements of the construction or bid documents.

RECOVERED ENERGY. Energy utilized which would otherwise be wasted from an energy utilization system.

REFLECTANCE. The ratio of the light reflected by a surface to the light incident upon it.

REHEAT. The application of sensible heat to supply air that has been previously cooled below the temperature of the conditioned space by either mechanical refrigeration or the introduction of outdoor air to provide space cooling.

REHEATING. Raising the temperature of air that has been previously cooled either by mechanical refrigeration or an economizer system.

RENOVATION. Any structural repair, reconstruction or restoration to a structure, the costs of which equals or exceeds, over a one-year period, a cumulative total of 30 percent of the assessed value of the structure when that value is assessed, either:

- 1. Before the improvement or repair is started; or
- 2. Before the damage occurred, if the structure has been damaged.

For the purposes of this code, renovation occurs when the first alteration of any wall, ceiling, floor, or other structural part or mechanical system of the building commences, whether or not that alteration affects the external dimensions of the structure.

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

REPLACEMENT. The installation of part or all of an existing mechanical or electrical system in an existing building.

RESET. Automatic adjustment of the controller set point to a higher or lower value.

RESISTANCE, ELECTRIC. The property of an electric circuit or of any object used as part of an electric circuit that determines for a given circuit the rate at which electric energy is converted into heat or radiant energy and that has a value such that the product of the resistance and the square of the current gives the rate of conversion of energy.

RESIDENTIAL. (Subchapter 13-4 applications only.) Spaces in buildings used primarily for living and sleeping. Residential spaces include, but are not limited to, dwelling units, hotel/motel guest rooms, dormitories, nursing homes, patient rooms in hospitals, lodging houses, fraternity/sorority houses, hostels, prisons and fire stations.

RETROFIT. Modification of existing equipment or systems to incorporate improved performance of operation.

ROOF. The upper portion of the building envelope, including opaque areas and fenestration, that is horizontal or tilted at an angle of less than 60 degrees from horizontal. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) Attic and other roofs: All other roofs, including roofs with insulation entirely below (inside of) the roof structure (i.e., attics, cathedral ceilings, and single-rafter ceilings), roofs with insulation both above and below the roof structure, and roofs without insulation but excluding metal building roofs.
- (b) Metal building roof: a roof that is constructed with (a) a metal, structural, weathering surface, (b) has no ventilated cavity, and (c) has the insulation entirely below deck (i.e., does not include composite concrete and metal deck construction nor a roof framing system that is separated from the superstructure by a wood substrate) and whose structure consists of one or more of the following configurations: (1) metal roofing in direct contact with the steel framing members; (2) insulation between the metal roofing and the steel framing members; or (3) insulated metal roofing panels installed as described in (1) or (2).
- (c) **Roof with insulation entirely above deck:** A roof with all insulation (1) installed above (outside of) the roof structure and (2) continuous (i.e., uninterrupted by framing members).
- (d) **Single-rafter roof:** A subcategory of attic roofs where the roof above and the ceiling below are both attached to the same wood rafter and where insulation is located in the space between these wood rafters.

ROOF AREA, GROSS. The area of the roof measured from the exterior faces of walls or from the centerline of party walls (see "Roof;" "Wall").

ROOF ASSEMBLY. All components of the roof/ceiling envelope through which heat flows, thereby creating building heat loss or gain, where such assembly is exposed to outdoor air and encloses a conditioned space. The gross area of a roof assembly consists of the total interior surface of such assembly, including skylights exposed to the conditioned space. **ROOM AIR CONDITIONER.** An encased assembly designed as a unit to be mounted in a window or through a wall, or as a console. It is designed primarily to provide direct delivery of conditioned air to an enclosed space, room, or zone. It includes a prime source of refrigeration for cooling and dehumidification and a means for circulating and cleaning air. It may also include a means for ventilating and heating.

ROOM CAVITY RATIO (RCR). A factor that characterizes room configuration as a ratio between the walls and ceiling and is based upon room dimensions.

SEAL or SEALING–AIR DUCT. The use of closure products either welds, mastic, mastic plus embedded fabric, adhesives, caulking, gaskets, pressure sensitive tapes, heat-activated tapes or combinations thereof as allowed by specific sections of this code, to close cracks, joints, seams, and other openings in the air barriers of air duct, air handling units, and plenum chambers for the purpose of preventing air leakage. No joint or opening from which a closure product is absent shall be considered sealed unless considered otherwise in specific cases identified by this code. Closeness of fit between mated parts alone shall not be considered a seal.

SEASONAL COEFFICIENT OF PERFORMANCE -

COOLING (SCOPC). The total cooling output of an air conditioner during its normal annual usage period for cooling divided by the total electric energy input during the same period in consistent units (analogous to the SEER but for IP or other consistent units).

SEASONAL COEFFICIENT OF PERFORMANCE – HEATING (SCOPH). The total heating output of a heat pump during its normal annual usage period for heating divided by the total electric energy input during the same period in consistent units (analogous to the HSPF but for IP or other consistent units).

SEASONAL ENERGY EFFICIENCY RATIO (SEER). The total cooling output of an air conditioner during its normal annual usage period for cooling (in Btu) divided by the total electric energy input during the same period (in Wh).

SEMIEXTERIOR BUILDING ENVELOPE. See "Building envelope."

SEMIHEATED FLOOR AREA. See "Floor area."

SEMIHEATED SPACE. See "Space."

SEQUENCE. A consecutive series of common events.

SERVICE. The equipment for delivering energy from the supply or distribution system to the premises served.

SERVICE AGENCY. Agency capable of providing calibration, testing, or manufacture of equipment, instrumentation, metering, or control apparatus, such as a contractor, laboratory, or manufacturer.

SERVICE EQUIPMENT. The necessary equipment, usually consisting of a circuit breaker or switch and fuses and accessories, located near the point of entrance of supply conductors to a building or other structure (or an otherwise defined area) and intended to constitute the main control and means of cutoff of the supply. Service equipment may consist of circuit breakers or fused switches provided to disconnect all undergrounded

conductors in a building or other structure from the service-entrance conductors.

SERVICE WATER HEATING. Heating water for domestic or commercial purposes other than space heating and process requirements.

SETBACK. Reduction of heating (by reducing the set point) or cooling (by increasing the set point) during hours when a building is unoccupied or during periods when lesser demand is acceptable.

SET POINT. Point at which the desired temperature (°F) of the heated or cooled space is set.

SHADING COEFFICIENT (SC). The ratio of solar heat gain at normal incidence through glazing to that occurring through $\frac{1}{8}$ -inch (3.2 mm) thick clear, double-strength glass. Shading coefficient, as used herein, does not include interior, exterior, or integral shading devices.

SHELL BUILDING. A commercial building that is permitted prior to design completion or which will be finished in sections at a time after construction of the shell.

SIMULATION PROGRAM. A computer program that is capable of simulating the energy performance of building systems.

SINGLE-LINE DIAGRAM. A simplified schematic drawing that shows the connection between two or more items. Common multiple connections are shown as one line.

SINGLE PACKAGE VERTICAL AIR CONDITIONER (**SPVAC**). A type of air-cooled small or large commercial package air conditioning and heating equipment; factory assembled as a single package having its major components arranged vertically, which is an encased combination of cooling and optional heating components; it is intended for exterior mounting on, adjacent interior to, or through an outside wall; and is powered by single or three-phase current. It may contain separate indoor grille(s), outdoor louvers, various ventilation options, indoor free air discharge, ductwork, wall plenum or sleeve. Heating components may include electrical resistance, steam, hot water, gas or no heat but may not include reverse cycle refrigeration as a heating means.

SINGLE PACKAGE VERTICAL HEAT PUMP (SPVHP). An SPVAC that utilizes reverse cycle refrigeration as its primary heat source, with secondary supplemental heating by

means of electrical resistance, steam, hot water or gas.

SINGLE-RAFTER ROOF. See "Roof."

SINGLE-ZONE SYSTEM. An HVAC system serving a single HVAC zone.

SINGLE ASSEMBLY. A roof and ceiling structure that is constructed as one unit with no attic space in between.

SINGLE-FAMILY RESIDENCE. Detached residential building suited for tenancy by one family unit.

SITE-INSTALLED COMPONENTS AND FEATURES. Equipment, materials, measures, practices and features which are affixed to a new manufactured home at its first set-up that are not initially installed by the manufacturer. **SITE-RECOVERED ENERGY.** Waste energy recovered at the building site that is used to offset consumption of purchased fuel or electrical energy supplies.

SITE-SOLAR ENERGY. Thermal, chemical, or electrical energy derived from direct conversion of incident solar radiation at the building site and used to offset consumption of purchased fuel or electrical energy supplies. For the purposes of applying this standard, site-solar energy shall not include passive heat gain through fenestration systems.

SKYLIGHT. See "Fenestration."

SKYLIGHT WELL. The shaft from the skylight to the ceiling.

SLAB-ON-GRADE FLOOR. That portion of a slab floor of the building envelope that is in contact with the ground and that is either above grade or is less than or equal to 24 inches (610 mm) below the final elevation of the nearest exterior grade.

- (a) **Heated slab-on-grade floor:** A slab-on-grade floor with a heating source either within or below it.
- (b) **Unheated slab-on-grade floor:** A slab-on-grade floor that is not a heated slab-on-grade floor.

SOLAR ENERGY SOURCE. Source of thermal, chemical, or electrical energy derived from direct conversion of incident solar radiation at the building site.

SOLAR ENERGY SYSTEM. A complete set of coordinated components, which may be comprised of collectors, piping, pumps, heat exchangers, photovoltaic (PV) arrays, wiring, controls, power converters, and applicable storage, the design of which is intended to convert and utilize incident solar radiation to either heat water for hot water or space conditioning needs or to produce photovoltaic (PV) power for electrical needs.

SOLAR FRACTION (SF). Reserved.

SOLAR HEAT GAIN COEFFICIENT (SHGC). The ratio of the solar heat gain entering the space through the fenestration area to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted, or convected into the space (see "Fenestration area").

SPACE. An enclosed space within a building. The classifications of spaces are as follows for the purpose of determining building envelope requirements.

- (a) **Conditioned space:** A cooled space, heated space, indirectly conditioned space or unvented attic assembly defined as follows:
 - (1) Cooled space: an enclosed space within a building that is cooled by a cooling system whose sensible output capacity exceeds 5 Btu/h·ft² of floor area.
 - (2) Heated space: an enclosed space within a building that is heated by a heating system whose output capacity relative to the floor area is greater than or equal to 5 Btu/h·ft².
 - (3) Indirectly conditioned space: an enclosed space within a building that is not a heated space or a cooled space, which is heated or cooled indirectly by being connected to adjacent space(s) provided (a) the product of the U-factor(s) and

surface area(s) of the space adjacent to connected space(s) exceeds the combined sum of the product of the *U*-factor(s) and surface area(s) of the space adjoining the outdoors, unconditioned spaces, and to or from semiheated spaces (e.g., corridors) or (b) that air from heated or cooled spaces is intentionally transferred (naturally or mechanically) into the space at a rate exceeding three air changes per hour (ACH) (e.g., atria).

- (4) Unvented attic assembly: as defined in Section R806.4 of the *Florida Building Code, Residential*. These spaces shall not require supply or return outlets.
- (b) **Semiheated space:** An enclosed space within a building that is heated by a heating system whose output capacity is greater than or equal to 3.4 Btu/h·ft² of floor area but is not a conditioned space.
- (c) **Unconditioned space:** An enclosed space within a building that is not a conditioned space or a semiheated space. Crawl spaces, attics, and parking garages with natural or mechanical ventilation are not considered enclosed spaces.

SPACE-CONDITIONING CATEGORY. (Subchapter 4 applications only). (1) Nonresidential conditioned space, (2) residential conditioned space and (3) nonresidential and residential semiheated space (see "Nonresidential," "Residential" and "Space").

SPACE CONSTRAINED PRODUCT. A central air conditioner or heat pump:

- 1. that has rated cooling capabilities no greater than 30,000 BTU/h;
- 2. that has an outdoor or indoor unit having at least two overall exterior dimensions or an overall displacement that
 - (a) is substantially smaller than those of other units that are either currently usually installed in site-built single-family homes, and of a similar cooling and, if heat pump, heating capacity; and
 - (b) if increased, would certainly result in a considerable increase in the usual cost of installation or would certainly result in a significant loss in the utility of the product to the consumer; and
- 3. is of a product type that was available for purchase in the United States as of December 1, 2000.

SPACE PERMITTING – INSULATION. Where an enclosed space exists in which insulation can be placed without the creation of space for that purpose only; e.g. dropped ceiling below a floor deck or space between joists.

SPACE TYPE. Descriptor of the visual activity to take place in a space; space types are those used for the FLA/COM calculation.

SPLIT SYSTEM. Air-conditioning system or heat pump with compressor and air handler in separate cabinets with the compressor typically located exterior to conditioned space.

STACK LOSSES. Unused heat energy escaping through a flue or chimney to the outdoors in a combustion heating system.

STEADY-STATE CONDITIONS (for gas- or oil-fired heating equipment). Equilibrium conditions as indicated by temperature variations of not more than $3^{\circ}F(1.7^{\circ}C)$ in the stack gas temperature for units equipped with integral draft diverters, or not more than $5^{\circ}F(2.8^{\circ}C)$ in flue gas temperature for units equipped with draft hoods, barometric draft regulators, or direct vent systems, in three successive temperature readings taken 15 minutes apart.

STEEL-FRAMED WALL. See "Wall."

STEEL-JOIST FLOOR. See "Floor."

STEM WALL CONSTRUCTION. A type of raised floor system consisting of a wood floor supported above grade by a continuous stem wall around its perimeter.

STORY. Portion of a building that is between one finished floor level and the next higher finished floor level or the roof, provided, however, that a basement or cellar shall not be considered a story

STRUCTURE. That which is built or constructed.

SUBSTANTIAL CONTACT. A condition where adjacent building materials are placed so that proximal surfaces are contiguous, being installed and supported so they eliminate voids between materials without compressing or degrading the thermal performance of either product.

SUN SPACE. A totally enclosed, unconditioned space which is built substantially of glass, attached to the conditioned space of the building, and designed primarily for winter space heating.

SUPPLEMENTARY HEAT. Heat provided, generally electric resistance heat, to make up the difference between heat provided by the refrigeration cycle of a heat pump and that required to meet the heating load at low temperatures. Supplementary heat shall not be construed as the heat required to provide 100-percent backup in case of system failure.

SWINGING DOOR. See "Door."

SYSTEM. A combination of equipment and auxiliary devices (e.g., controls, accessories, interconnecting means, and terminal elements) by which energy is transformed so it performs a specific function, such as HVAC, service water heating or lighting.

SYSTEM, EXISTING. A system or systems previously installed in an existing building.

TANDEM WIRING. Pairs of luminaires operating with lamps in each luminaire powered from a single ballast contained in one of the luminaires.

TASK LIGHTING. Lighting designed to provide illumination over a relatively small task area without providing significant general surrounding lighting.

TERMINAL. A device by which energy from a system is finally delivered, e.g., registers, diffusers, lighting fixtures, faucets, etc.

THERMAL BLOCK. A collection of one or more HVAC zones grouped together for simulation purposes. Spaces need not be contiguous to be combined within a single thermal block.

THERMAL CONDUCTANCE. See "C-factor."

THERMAL EFFICIENCY. For the purposes of this code, Thermal Efficiency shall be defined as included in the American National Standard Institute, Inc. standard ANSIZ 21.10.3.

THERMAL ENVELOPE. The primary insulation layer of a building; that part of the envelope that provides the greatest resistance to heat flow to or from the building.

THERMAL MASS. Materials with mass heat capacity and surface area capable of affecting building loads by storing and releasing heat as the interior and/or exterior temperature and radiant conditions fluctuate. See "Wall heat capacity".

THERMAL MASS WALL INSULATION POSITION

- 1. Exterior insulation position: A wall having all or nearly all of its mass exposed to the room air with the insulation on the exterior of that mass.
- 2. **Integral insulation position:** A wall having mass exposed to both room and outside air with substantially equal amounts of mass on the inside and outside of the insulation layer.
- 3. **Interior insulation position:** A wall not meeting either of the above definitions, particularly a wall having most of its mass external to an insulation layer.

THERMAL RESISTANCE (R-VALUE). The reciprocal of the time rate of heat flow through a unit area induced by a unit temperature difference between two defined surfaces of material or construction under steady-state conditions. Units of R are $h\cdot ft^2\cdot {}^\circ F/Btu$.

THERMOSTAT. An automatic control device used to maintain temperature at a fixed or adjustable set point.

THERMOSTATIC CONTROL. An automatic control device or system used to maintain temperature at a fixed or adjustable set point.

THROUGH-THE-WALL AIR CONDITIONER and HEAT PUMP. A central air conditioner or heat pump that is designed to be installed totally or partially within a fixed-size opening in an exterior wall; and

- 1. Is manufactured prior to January 23, 2010;
- 2. Is not weatherized;
- 3. Is clearly and permanently marked for installation-only through an exterior wall;
- 4. Has a rated cooling capacity no greater than 30,000 BTU/h;
- 5. Exchanges all of its outdoor air across a single surface of the equipment cabinet, and;
- 6. Has a combined outdoor air exchange area of less than 800 square inches (0.516 m²) (split systems) or less than 1,210 square inches (0.780 m²) (single packaged systems) as measured on the surface described in 5 above.

TINTED. As applied to fenestration: bronze, green, blue, or gray coloring that is integral with the glazing material. Tinting does not include surface applied films such as reflective coatings, applied either in the field or during the manufacturing process.

TOWNHOUSE. A single-family dwelling unit constructed in a series or group of attached units with property lines separat-

ing such units. For the purpose of this code, townhouses shall be considered multiple-family dwellings.

TRANSFER GRILLE. A louvered or perforated covering for an opening in an air passage through a wall or door allowing transport of return air from a separated conditioned space of a building to the space containing the air distribution system's primary return.

TRANSFORMER. A piece of electrical equipment used to convert electric power from one voltage to another voltage.

- (a) **Dry-type transformer:** A transformer in which the core and coils are in a gaseous or dry compound.
- (b) **Liquid-immersed transformer:** A transformer in which the core and coils are immersed in an insulating liquid.

U-FACTOR (THERMAL TRANSMITTANCE). Heat transmission in unit time through unit area of a material or construction and the boundary air films, induced by unit temperature difference between the environments on each side. Units of U are Btu/h·ft².°F.

UNCONDITIONED SPACE. See "Space."

UNDER ATTIC. Location of ceiling area in residential occupancies where the roof assembly and ceiling assembly are separated by a continuous ventilated unconditioned space spanning the ceiling area. Scissors truss structures are considered under attic where a ventilated air space is provided.

UNENCLOSED SPACE. A space that is not an enclosed space.

UNIT ENERGY COSTS. Costs for units of energy or power purchased at the building site. These costs may include energy costs as well as costs for power demand as determined by the adopting authority.

UNITARY COOLING EQUIPMENT. One or more factory-made assemblies that normally include an evaporator or cooling coil and a compressor and condenser combination. Units that perform a heating function are also included.

UNITARY HEAT PUMP. One or more factory-made assemblies that normally include an indoor conditioning coil, compressor(s), and an outdoor refrigerant-to-air coil or refrigerant-to-water heat exchanger. These units provide both heating and cooling functions.

VARIABLE AIR VOLUME (VAV) SYSTEM. HVAC system that controls the dry-bulb temperature within a space by varying the volumetric flow of heated or cooled supply air to the space.

VENT DAMPER. A device intended for installation in the venting system of an individual, automatically operated, fossil fuel-fired appliance in the outlet or downstream of the appliance draft control device, which is designed to automatically open the venting system when the appliance is in operation and to automatically close off the venting system when the appliance is in a standby or shutdown condition.

VENTILATION. The process of supplying or removing air by natural or mechanical means to or from any space. Such air is not required to have been conditioned.

VENTILATION AIR. That portion of supply air which comes from outdoors, plus any cleaned recirculated air to maintain the desired quality of air within a designated space (see "Outdoor air").

VERTICAL FENESTRATION. See "Fenestration."

VISIBLE TRANSMITTANCE (VT). Transmittance of glazing material over the visible portion of solar spectrum.

VOLTAGE DROP. A decrease in voltage caused by losses in the lines connecting the power source to the load.

WALL. That portion of the building envelope, including opaque area and fenestration, that is vertical or tilted at an angle of 60 degress from horizontal or greater. This includes above and below-grade walls, between floor spandrels, peripheral edges of floors, and foundation walls. For the purposes of determining building envelope requirements, the classifications are defined as follows:

- (a) **Above-grade wall:** A wall that is not a below-grade wall.
- (b) **Below-grade wall:** That portion of a wall in the building envelope that is entirely below the finish grade and in contact with the ground.
- (c) Mass wall: A wall with a heat capacity exceeding (1) 7 Btu/ft².°F or (2) 5 Btu/ft².°F provided that the wall has a material unit weight not greater than 120 lb/ft³ (1922 kg/m³).
- (d) **Metal building wall:** A wall whose structure consists of metal spanning members supported by steel structural members (i.e., does not include spandrel glass or metal panels in curtain wall systems).
- (e) **Steel-framed wall:** A wall with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (i.e., typical steel stud walls and curtain wall systems).
- (f) **Wood-framed and other walls:** All other wall types, including wood stud walls.

WALL AREA, GROSS. The area of the wall measured on the exterior face from the top of the floor to the bottom of the roof.

WARM-UP. Increase in space temperature to occupied set point after a period of shutdown or setback.

WATER HEATER. Vessel in which water is heated and is withdrawn for use external to the system.

WATT. The electrical unit of power or rate of doing work. One watt = 0.00134 h.p.

WHOLE-HOUSE FAN. A mechanical ventilation system usually installed in the ceiling of a residence which is used to exhaust air from the interior of a building to an attic space with sufficient venting area to transfer the air to the outside.

WING WALLS. An architectural projection which is designed to create positive pressure over one window and negative over another that redirects natural winds in through windows or doors.

WORST CASE. A unit of a residential structure with the same general layout and percent glass which generates the highest as-built points in a Method A, Subchapter 6 calculation procedure.

The worst case unit will have the largest amount of glass facing east and west (primary orientation) and south (secondary orientation).

ZONE, HVAC. A space or group of spaces within a building with heating and cooling requirements that are sufficiently similar so that desired conditions (e.g. temperature) can be maintained throughout using a single sensor (e.g. thermostat or temperature sensor).

SUBCHAPTER 13-3

REFERENCED STANDARDS AND ORGANIZATIONS

SECTION 13-301 REFERENCED STANDARDS

13-301.0 General. The standards (Std), and portions thereof, which are referred to in various parts of this code shall be part of Chapter 13 of the *Florida Building Code* and are hereby declared to be a part of this code. Section numbers shall read as if prefaced by 13-.

AARC	Associated Air Balance Council, 1518 K Street, Suite 503,	
AADC	Washington, DC 20005	
Standard reference number	Title	Referenced in code section number
AABC, 1989	Associated Air Balance Council National Standard	
AAMA	American Architectural Manufacturers Association 1827 Walden Office Square, Suite 104 Schaumburg, IL 60173-4268	
Standard reference number	Title	Referenced in code section number
AAMA/WDMA/CSA 101/I.	S. 2-05 Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors	406.AB.1.1, 606.AB.1.1
ACCA	Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206	
Standard reference number	Title	Referenced in code section number
ACCA Manual D-1995 ACCA Manual J-2003 ACCA Manual N-2005	Residential Duct Systems	
ADC	Air Diffusion Council 1000 E. Woodfield Rd., Suite 102 Schaumburg, IL 60173-5921	
Standard reference number	Title	Referenced in code section number
ADC 2003	Flexible Duct Performance & Installation Standards, Fourth Edition	410.AB.2.2, 610.AB.2.2
AHAM	Association of Home Appliance Manufacturers 20 North Wacker Dr. Chicago, IL 60606	
Standard reference number	Title	Referenced in code section number
ANSI/AHAM RAC1-03	Room Air Conditioners	AB.3.2D, Table 607.AB.3.2D

AMCA

Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806

Standard reference number	Title	Referenced in code section number
AMCA 500-1989	Test Methods for Louvers, Dampers, and Shutters	

ANSI

ARDM

AHRI

American National Standards Institute, Inc. 25 West 43rd Street, Fourth Floor New York, N.Y.10036.

Standard reference number	Title	Referenced in code section number
ANSI A112.18.1M-1999	Finished and Rough Brass Plumbing Fixture Fittings	
ANSI Z21.10.3-2004	Gas Water Heater, Volume 3, Storage, with Input Ratings above 75,000 Btu/h,	
	Circulating and Instantaneous Water Heaters	Table 412.AB.3, 612.AB.3.1.2
ANSI Z21.40.4-96	American National Standard for Performance Testing and (with Addenda 1) Rating of Gas-Fired, Air-Conditioning and Heat Pump Appliances	
ANSI Z21.47a-04	Gas-Fired Central Furnaces	Table 408.AB.3.2E, Table 608.AB.3.2E
ANSI Z21.56-2006	Gas-Fired Pool Heaters	
ANSI Z21.66-1996 (R2001)	Automatic Vent Damper Devices for Use with Gas-Fired Appliances	
ANSI Z83.8/CGA 2.6 -2006	Gas Unit Heaters and Gas-Fired Duct Furnaces	Table 408.AB.3.2E, Table 608.AB.3.2E

Association of Refrigerant Desuperheater Manufacturers, Inc
c/o Doucette Industries
4151 112 Terrace N
Clearwater, FL 33762

Standard		Referenced
reference		in code
number	Title	section number
ARDM-88	Residential Heat Recovery Installation Guide, First Edition	

Air-Conditioning, Heating and Refrigeration Institute (formerly ARI) Suite 500 2111 Wilson Boulevard Arlington, VA 22201

Standard reference number	Title	Referenced in code section number
210/240-2006	Unitary Air-Conditioning and Air-Source Heat Pump Equipment	ble 407.AB.3.2B, B.3.1, 608.AB.3.1
310/380-2004	Packaged Terminal Air-Conditioners and Heat PumpsTable 407.AB.3.2D, Table 407.AB.3.2D, Table 407.AB.3.2D,	able 607.AB.3.2D
340/360-2004	Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment	ble 407.AB.3.2A, able 607.AB.3.2B
365-2002	Commercial and Industrial Unitary Air-Conditioning Condensing Units	able 607.AB.3.2A
390-2003	Performance Rating of Single Packaged Vertical Air Conditioners and Heat Pumps Table 410.AB.3.	2D, 610.AB.3.2D
460-2005	Performance Rating of Remote Mechanical Draft Air-Cooled Refrigerant Condensers	able 407.AB.3.2G
550/590-2003	Water Chilling Packages Using the Vapor Compression Cycle	able 407.AB.3.2C
560-2000 1160-2004	Absorption Water Chilling and Water Heating Packages	able 407.AB.3.2C B.3, 612.AB.2.3.4

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329-2305

Standard reference number	Title	Referenced in code section number
ANSI/ASHRAE Std.55-1992	Thermal Environmental Conditions for Human Occupa	ncy
ANSI/ASHRAE Std. 62.1-2004	Ventilation for Acceptable Indoor Air Quality.	
ANSI/ASHRAE Std. 90.1-2004	Energy Efficient Design of New Buildings Except Low	-Rise Residential Buildings
ANSI/ASHRAE 119-1988 (RA 94)	Air Leakage Performance for Detached Single-Family	Residential Buildings
ANSI/ASHRAE 124-1991	Methods of Testing for Rating Combination Space-Hea	ting and Water-Heating Appliances 608.A.3.5, 612.A.1
ANSI/ASHRAE 137-1995 (RA2001) ANSI/ASHRAE 146-1998	Methods of Testing for Efficiency of Space-conditionin a Desuperheater Water Heater	g/Water-Heating Appliances That Include
ANSI/ASHRAE 152-2004	Method of Test for Determining the Design and Season Thermal Distribution Systems	al Efficiencies of Residential
ASHRAE Handbook	Fundamentals, 2005	202, Appendix 13-B B-3.1.1, B-3.1.2, B-3.1.3, Table 13-613A.1-1
ASHRAE Handbook	HVAC Applications, 2003.	
ASHRAE Handbook	Fundamentals, 2005	
ASHRAE Handbook	HVAC Systems & Equipment, 2004	
ASHRAE, 1998	Cooling and Heating Load Calculation Principles	

ASTM

ASTM International 100 Barr Harbor Dr West Conshohocken, PA 19428-2959

Standard reference number	Referenced in code Title section number
ASTM C36/C36M-03	Standard Specification for Gypsum Wallboard
ASTM C90-06b	Standard Specification for Loadbearing Concrete Masonry Units Appendix 13-B B-1.2.3, Appendix 13-B B-2.2.1.1.1
ASTM C 177-04	Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
ASTM C272-01	Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions Appendix 13-B B-1.3.3
ASTM C 335-05ae1	Test Method for Steady-State Heat Transfer Properties of Pipe Insulation
ASTM C 516-02	Vermiculite Loose Fill Thermal Insulation Appendix 13-C Table C1.2.3
ASTM C 518-04	Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C 549-06	Perlite Loose Fill Insulation
ASTM C 578-06	Rigid, Cellular Polystyrene Thermal Insulation Appendix 13-C Table C1.2.3
ASTM C 665-06	Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
ASTM C 727-01	Standard Practice for Installation and Use of Reflective Insulation in Building Constructions
ASTM C 735-05b	Cellulosic Fiber Loose-Fill Thermal Insulation
ASTM C 764-06a	Mineral Fiber Loose-Fill Thermal Insulation
ASTM C 1015-06	Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation
ASTM C 1029-05a	Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation Appendix 13-C Table C1.2.3
ASTM C 1158-05	Standard Practice for Use and Installation of Radiant Barrier Systems (RBS) in Building Construction
ASTM C 1224-03	Reflective Insulation for Building Applications
ASTM C 1289-06	Faced Rigid Cellular Polyisocyanurate Thermal Insulation BoardAppendix 13-C Table C1.2.3
ASTM C 1313-05	Sheet Radiant Barriers for Building Construction Applications
ASTM C 1320-05	Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light-Frame Construction

ASTM—continued ASTM C 1321-04 Standard Practice for Installation and Use of Interior Radiation Control Coating Systems ASTM C 1363-05 Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies Test Method for Determination of Emittance of Materials Near Room Temperature ASTM C 1371-04a ASTM C 1549-04 Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature ASTM E 84-06a ASTM E 283-04 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences ASTM E 903-96 Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped ASTM E 1918-06 Cool Roof Rating Council CRRC 1738 Excelsior Avenue Oakland, CA 94602 Standard Referenced reference in code number Title section number CRRC-1-2006 Cooling Technology Tower Institute 2611 FM 1960 West, Suite H-200 Houston, TX 77068-3730. Referenced Standard reference in code number Title section number CTI ATC-105-(00)2000 CTI Std. 201-2002 Door and Access Systems Manufacturers Association DASMA 1300 Sumner Avenue Cleveland, OH 44115-2851. Standard Referenced reference in code number Title section number ANSI/DASMA105-1992

DOE United States Department of Energy c/o Superintendent of Documents U.S. Government Printing Office Washington, DC 20402-9325

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Standard reference number	Referenced in code Title section number	
DOE, 10 CFR, Part 430		
Subpart B, App. E-1998	Uniform Test Method for Measuring the Energy Consumption of Water Heaters	
Subpart B, App. M	Uniform Test Method for Measuring the Energy Consumption of Central Air Conditioners	
10 CFR, Part 430		
Subpart B, App N -1998	Uniform Test Method for Measuring the Energy Consumption of FurnacesTables 408.AB.3.2E, 608.AB.3.2E	
	DOE—continued	
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DOE, 10 CFR, Part 430 Subpart B, App O-1998	Uniform Test for Measuring the Energy Consumption of Vent	ed Home Heating Equipment
42 USC 6831, et seq		
Public Law 102-486 NAECA, 1987	Energy Policy Act of 1992 National Appliance Energy Conservation Act of 1987	
		607.AB.3.1, Tables 607.AB.3.2A, B, 608.AB.3.1
Florida Codes	Building Codes and Standards Office Florida Department of Community Affairs 2555 Shumard Oak Blvd. Tallahassee, Fl 32399-2100	
Standard		Referenced
reference		in code
number	Title	section number
<u>FL-1</u>	Florida Standard for Desuperheater/Water Heaters (See Appe	ndix 13-E of this code)
FSEC	Florida Solar Energy Center 1679 Clearlake Road Cocoa, FL 32922-5703	
Standard		Referenced
reference	Title	in code
ESEC-PR-54-00	The UEDS Dating Mathed and the Darivation of the Normalized Medified Loads Mathed?	
15LC IX 54 00	October 11, 2000, Fairey, P., J. Tait, D. Goldstein, D. Trace	ey, M. Holtz, and R. Judkoff.
2008	Available online at: http://www2.fsec.ucf.edu/en/publications/html/FSEC-RR-54-00/index.htm 13-613.A.2.1 EnergyGauge USA Fla/Res	
2008	EnergyGauge Summit Fla/Com	
FTC	U.S. Federal Trade Commission Sixth Street and Pennsylvania Avenue, N.W. Washington, DC 20580	
Standard		Referenced
reference	T'41.	in code
ETC 16 CEP Part 460	The	section number
Amended		
Effective 4/29/96	FTC Labeling and Advertising of Home Insulation	
GAMA	Gas Appliance Manufacturers Association PO Box 9245	
	Annigwii, YA 22207	
Standard reference		Referenced in code
number	Title	section number
GAMA	Consumers' Directory of Certified Efficiency Ratings for	
	Water Heating Equipment	

HI	P.O. Box 218 Berkeley Heights, NH 07922	
Standard		Referenced
reference		in code
number	Title	section number
H.I., HBS 86-1989	Testing and Rating Standard for Heating Boilers	

HUD

U.S. Dept. Housing and Urban Development 451 7th Street S.W. Washington, DC 20410

Standard reference number	Title	Referenced in code section number
HUD, 24 CFR 3282-3283	Manufactured Home Procedural and Enforcement Regulations	
HUD, 42 CFR 70, s. 5401 (24 CFR 3280) HUD, 42 USC 77, s. 6295	Manufactured Home Construction and Safety Standards	

ISO

International Standards Organization 1, rue de Varembe, Case postale 56, CH-1211 Geneve 20, Switzerland

Standard reference number	Referenced in code Title section number
ISO 9806 (1994, 1995)	Test Methods for Solar Collectors
	Part 1: Thermal Performance of glazed liquid heating collectors including pressure drop, December 1, 1994612.AB.3.4
	Part 2: Qualification test procedures, August 15, 1995.
	Part 3: Thermal performance of unglazed liquid heating collectors (sensible heat transfer only) including pressure drop, December 15, 1995.
ISO 13256-1 (1998)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 1 Water-to-Air and Brine-to-Air Heat Pumps

NAIMA	North American Insulation Manufacturers Association 44 Canal Center Plaza, Suite 310, Alexandria, VA 22314	
Standard reference number	Title	Referenced in code section number
NAIMA 2002 NAIMA 2002	Fibrous Glass Duct Construction Standards, Fifth Edition	

NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877-4121	
Standard		Referenced
reference		in code
number	Title	section number
NEBB 2005	Procedural Standards For Testing Adjusting Balancing of Environmental Systems, Seventh Edi	tion 410 AB 4 3

NEMA	National Electrical Manufacturers Association 1300 N 17th Street, Suite 1847	
	Rosslyn, VA 22209	
Standard		Referenced in code
number	Title	section number
NEMA MG 1-2004	Motors and Generators.	
	National Fire Prevention Assoc.	
NFPA	Batterymarch Park Quincy, MA 02269	
Standard reference number	Title	Referenced in code section number
NFPA 96-2004	Ventilation Control and Fire Protection of Commercial Cooking Operations	
NFRC	National Fenestration Rating Council, Inc. 8484 Georgia Avenue, Suite 320 Silver Spring, MD 20910	
Standard		Referenced
reference number	Title	in code section number
NFRC 100-2004	Procedure for Determining Fenestration Product U-factors 104.4.5, Appendix 13-B	B-2.1, B-2.3, Appendix 13-C2.1, C2.1.1
NFRC 200-2004	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and	
NFRC 300-2004 NFRC 400-2004	Visible Transmittance at Normal Incidence	
SMACN	Sheet Metal and Air-Conditioning Contractors' National Association, Inc. 4201 Lafayette Center Dr. Chantilly, VA 20151-1209	
Standard		Referenced
reference	Title	in code section number
SMACNA, 1985	HVAC Air Duct Leakage Test Manual	
SRCC	Solar Rating and Certification Corporation c/o Florida Solar Energy Center 1679 Clearlake Road Cocoa, FL 32922-5703	
Standard		Referenced
reference number	Title	in code section number
FSEC	Directory of Certified Solar Systems.	
SRCC TM-1	Solar Domestic Hot Water System and Component Test Protocol, December 6, 2002	
UL	Underwriters Laboratory, Inc. 333 Pfingsten Rd. Northbrook, II. 60062-2096	
Standard		Referenced
reference number	Title	in code section number
UL 181-05	Standard for Factory-Made Air Ducts and Air Connectors with revisions through Dec	ember 1998

410.AB.3.7.1, 610.AB.3, 610.AB.3.0.7, 610.AB.3.7.1

	UL—continued	
UL 181A-05	Closure Systems for Use With Rigid Air Ducts and Air Connectors, with revisions through December 1998410.AB.3.0.7, 610.AB.3, 610.AB.3.0.7	
UL 181B-05	Closure Systems for Use With Flexible Air Ducts and Air Connectors with revisions through May 2000 410.AB.3.0.7, 610.AB.3, 610.AB.3.0.7	
UL 723-03	Standard for Test for Surface Burning Characteristics of Building Materials	
UL 727-06 UL 731-95	Standard for Oil-Fired Central Furnaces	
WDMA	Window & Door Manufacturers Association 1400 East Touhy Avenue, #470 Des Plaines, IL 60018	
Standard reference number	Referenced in code Title section number	
101/I.S.2/NAFS-02	Voluntary Performance Specifications for Windows, Skylights and Glass Doors	