



# Swimming Pool

PART 1 OF 1

WITH COMMENTS

## Proposed Code Modifications

This document created by the Florida Department of Business and Professional Regulation -  
850-487-1824

Total Mods for **Swimming Pool** in **Approved as Submitted**: 1

Total Mods for report: 15

**Sub Code: Building**

<b>Date Submitted</b>	7/31/2012	<b>Section</b>	454.1.2.1 Pool Structure	<b>Proponent</b>	Alex Fletcher
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	Approved as Submitted				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	Yes	<b>Alternate Language</b>	No
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**Related Modifications**

**Summary of Modification**

Remove the requirement that the contractor provide written certification that the adhesive have a tested shear strength of at least 250 psi.

**Rationale**

It is redundant and too restrictive and all ceramic tile is glass and it is not required there.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

It will not require additional documetation.

**Impact to building and property owners relative to cost of compliance with code**

None

**Impact to industry relative to the cost of compliance with code**

Will reduce paperwork.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Will not diminish safety standards.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes opens up more options.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

Is the proposed code modification part of a prior code version? No

**2nd Comment Period** 10/31/2012 - 12/14/2012

<b>Proponent</b>	BOAF CDC	<b>Submitted</b>	11/9/2012	<b>Attachments</b>	No
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SW5808-G1

**Comment:**

BOAF CDC concurs with the change

**454.1.2.1 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.

Total Mods for **Swimming Pool** in **No Affirmative Recommendation with a Second**: 14

Total Mods for report: 15

**Sub Code: Building**

<b>Date Submitted</b>	8/2/2012	<b>Section</b>	R-All	<b>Proponent</b>	Ann Stanton
<b>Chapter</b>	5	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second			<b>NAR With A Second by Energy TAC</b>	
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications****Summary of Modification**

Update standards list to reflect Florida specific references.

**Rationale**

To comply with s. 553.73(7)(a) Florida Statutes, the proposed modification will supplement the most current version of the International Energy Conservation Code (IECC) base code with Florida specific requirements in order to maintain the efficiencies of the Florida Energy Efficiency Code for Building Construction adopted and amended pursuant to s. 553.901,FS, and in accordance with the Commission's approved code change process.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Proposed language is currently in the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Proposed language is currently in the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Proposed language is currently in the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. Proposed language is currently in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. Proposed language is currently in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No. Proposed language is currently in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

No. Proposed language is currently in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

6004-A3

**Proponent** Jennifer Hatfield **Submitted** 12/14/2012 **Attachments** Yes

**Rationale**

The addendum will revise the pump selection requirements and eliminate the 36 gpm language in section 5.2 of the Standard as it pertains to pools with less than 13,000 gallons.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

None

**Impact to building and property owners relative to cost of compliance with code**

The addendum provides a fix to the original standard that will positively impact property owners.

**Impact to industry relative to the cost of compliance with code**

The addendum provides a fix to the original standard that will positively impact the industry.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes, by providing an addendum to the original standard.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No, it improves its effectiveness.

**Is the proposed code modification part of a prior code version?** No

6004-A2

**Proponent** Ann Stanton **Submitted** 12/11/2012 **Attachments** Yes

**Rationale**

The Energy TAC moved NAR on this mod with instructions to review the list of standards in light of approved mods. The reviewed list of standards is attached as an alternate language comment.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

None

**Impact to building and property owners relative to cost of compliance with code**

None

**Impact to industry relative to the cost of compliance with code**

None

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

**Is the proposed code modification part of a prior code version?**

YES

**The provisions contained in the proposed amendment are addressed in the applicable international code?**

NO

**The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?**

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

NO

**Alternate Language**

**1st Comment Period History**

08/09/2012 - 09/23/2012

6004-A1

Proponent	Submitted	Attachments
Jennifer Hatfield	9/23/2012	Yes
<b>Rationale</b>		
The addendum will revise the pump selection requirements and eliminate the 36 gpm language in section 5.2 of the Standard as it pertains to pools with less than 13,000 gallons.		
<b>Fiscal Impact Statement</b>		
<b>Impact to local entity relative to enforcement of code</b>		
None		
<b>Impact to building and property owners relative to cost of compliance with code</b>		
The addendum provides a fix to the original standard that will positively impact property owners.		
<b>Impact to industry relative to the cost of compliance with code</b>		
The addendum provides a fix to the original standard that will positively impact the industry.		
<b>Requirements</b>		
<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b>		
Yes		
<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b>		
Yes, by providing an addendum to the original standard.		
<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b>		
No		
<b>Does not degrade the effectiveness of the code</b>		
No, it improves its effectiveness.		
<b>Is the proposed code modification part of a prior code version?</b> No		

**1st Comment Period History**

08/09/2012 - 09/23/2012

EN6004-G1

Proponent	Submitted	Attachments
BOAF CDC	9/15/2012	No
<b>Comment:</b>		
The proposed amendment does not appear to have been submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process.		



**CHAPTER 5**  
**REFERENCED STANDARDS**

**ACCA**

Air Conditioning Contractors of America

2800 Shirlington Road, Suite 300

Arlington, VA 22206

<u>Standard referenced number</u>	<u>Title</u>	<u>Reference in code section number</u>
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ACCA Manual D-09	Residential Duct Systems	R403.2.5
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ACCA Manual J-11 updates/errata.	Residential Load Calculation, Eighth Edition with posted R403.6.1	
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ACCA Manual S-10	Residential Equipment Selection	R403.6.1
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**AHRI**

Air Conditioning, Heating, and Refrigeration Institute

4100 North Fairfax Drive

Suite 200

Arlington, VA 22203

<u>Standard referenced number</u> <u>code section number</u>	<u>Title</u>	<u>Reference in</u>
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470-06 R405.7.7, Appendix C Form 400D	Performance Rating of Desuperheater/Water Heaters	.....
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1160—08 .R403.9.1.2	Performance Rating of Heat Pump Pool Heaters	.....
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**ANSI**

American National Standards Institute  
25 West 43rd Street  
Fourth Floor  
New York, NY 10036

<u>Standard referenced number</u> <u>Reference in code section number</u>	<u>Title</u>
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Z21.56-2006 R403.9.1.1	Gas-Fired Pool Heaters
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**APSP**

Association of Pool & Spa Professionals  
2211 Eisenhower Avenue  
Alexandria, VA 22314

<u>Standard referenced number</u> <u>Reference in code section number</u>	<u>Title</u>
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ANSI/APSP-14-11 Portable Electric Spa Energy Efficiency  
Standard R403.9

ANSI/APSP-15-11 Residential Swimming Pool and Spa Energy Efficiency  
Standard R403.9

### **ARDM**

Association of Refrigerant Desuperheater Manufacturers, Inc,

c/o Doucette Industries

4151 112 Terrace N

Clearwater, FL 33762

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>ARDM-88</u>	<u>Residential Heat Recovery Installation Guide, First</u>
<u>Edition</u>	<u>R405.7.7</u>

### **ASHRAE**

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

1791 Tullie Circle, NE

Atlanta, GA 30329-2305

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>ANSI/ASHRAE Std. 62.2-10 Ventilation for Acceptable Indoor Air Quality</u>	
<u>R403.5.2, Table R405.5.2(1)</u>	

ANSI/ASHRAE 124-1991 Methods of Testing for Rating Combination Space-Heating and Water-Heating Appliances R403.4.3.2.2.2

ASHRAE 152-2004 Method of Test for Determining the Design and Seasonal Efficiencies of Residential Thermal Distribution Systems R403.2.2, Table R405.5.2

ASHRAE—09 ASHRAE Handbook of Fundamentals . . . . . R202, R402.1.4, Table R405.5.2(1)

## ASTM

ASTM International

100 Barr Harbor Drive

West Conshohocken, PA 19428-2959

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>C272-01</u>	<u>Test Method for Water Absorption of Core Materials for Structural Sandwich Construction</u>
	<u>R303.2.1.3</u>

<u>C 516-02</u>	<u>Vermiculite Loose Fill Thermal Insulation</u>
	<u>Table R303.2.1</u>

<u>C 549-06</u>	<u>Perlite Loose Fill Insulation</u>
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<u>C 578-06</u>	<u>Rigid, Cellular Polystyrene Thermal Insulation</u>
	<u>Table R303.2.1</u>

<u>C 665-06</u>	<u>Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing</u>
	<u>Table R303.2.1</u>

<u>C 727-01</u>	<u>Standard Practice for Installation and Use of Reflective Insulation in Building Constructions.</u>
	<u>Table R303.2.1</u>

<u>C 739-05b</u>	<u>Cellulosic Fiber Loose-Fill Thermal Insulation</u>
	<u>Table R303.2.1</u>

<u>C 764-06a</u>	<u>Mineral Fiber Loose-Fill Thermal Insulation</u>	
	<u>Table R303.2.1</u>	
<u>C 1015-06</u>	<u>Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation</u>	<u>Table R303.2.1</u>
<u>C 1029-05a</u>	<u>Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation</u>	<u>Table R303.2.1</u>
<u>C 1158-05</u>	<u>Standard Practice for Use and Installation of Radiant Barrier Systems (RBS) in Building Construction</u>	<u>Table R303.2.1, R405.7.1</u>
<u>C 1224-03</u>	<u>Reflective Insulation for Building Applications</u>	<u>Table R303.2</u>
<u>C 1289-06</u>	<u>Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board</u>	<u>Table 303.2</u>
<u>C 1313-05</u>	<u>Sheet Radiant Barriers for Building Construction Applications</u>	<u>Table R303.2.1, R405.7.1</u>
<u>C 1320-05</u>	<u>Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light-Frame Construction</u>	<u>Table R303.2.1</u>
<u>C 1321-04</u>	<u>Standard Practice for Installation and Use of Interior Radiation Control Coating Systems (IRCC) in Building Construction</u>	<u>Table 303.2, 405.7.1</u>
<u>C 1371-04a</u>	<u>Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.</u>	<u>R405.7.1, R405.7.2</u>
<u>C 1549-04</u>	<u>Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflector</u>	<u>R405.7.2</u>
<u>E 283—04</u>	<u>Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen . . . . .</u>	<u>R402.4.4</u>
<u>E 903-96</u>	<u>Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres</u>	<u>R405.7.2</u>
<u>E 1918-06</u>	<u>Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field</u>	<u>R405.7.2</u>

CRRC

Cool Roof Rating Council\

1738 Excelsior Avenue

Oakland, CA 94602

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>CRRC-1-2006</u>	<u>CRRC-1 Product Rating Program</u>
<u>R405.7.2</u>	

DOE

U.S. Department of Energy

c/o Superintendent of Documents

U.S. Government Printing Office

Washington, DC 20402-9325

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>10 CFR Part 430, Subpart B, Uniform Test Method for Measuring the Energy Consumption</u>	
<u>R403.4.3.2.1, R403.4.3.2.2, R403.4.3.2.2.1</u>	

<u>Appendix E (1998).</u>	<u>of Water Heater</u>
<u>R403.4.3.2.2.2</u>	

<u>EPACT, 92 42 USC 6831,</u>	<u>Energy Policy Act of 1992</u>
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et seq Public Law 102-486

NAECA, 1987 National Appliance Energy Conservation Act of 1987 R403.6.2.1

**Florida Codes**

Building Codes and Standards Office

Florida Department of Business and Professional Regulation

140 N. Monroe Street

Tallahassee, FL 32399-2100

<u>Standard referenced number</u>	<u>Title</u>	
<u>Reference in code section number</u>		

FBC-B 2010	Florida Building Code, Building	R202, R303.2,
FBC-M 2010		

Florida Building Code, Mechanical		R403.5
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FBC-R 2010	Florida Building Code, Residential	R303.2,
R403.5, R405.7.3		

FS 2010	Florida Statutes	R103.2.3.2,
R401.3, R103.1.1.2		

ESTATAM	2012 Energy Simulation Tool Approval Technical Assistance Manual	
R405.4		

**FSEC**

**Florida Solar Energy Center**

1679 Clearlake Road

Cocoa, FL 32922-5703

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

FSEC-RR-54-00 "The HERS Rating Method and the Derivation of the Normalized Modified

Loads Method", October 11, 2000, Fairey, P., J. Tait, D. Goldstein, D. Tracey,

M. Holtz, and R. Judkoff . Appendix B, B-1

Available online at: <http://www2.fsec.ucf.edu/en/publications/html/FSEC-RR-54-00/index.htm>

GAMA

Gas Appliance Manufacturers Association

PO Box 9245

Arlington, VA 22209

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

GAMA Consumers' Directory of Certified Efficiency Ratings for Water Heating Equipment

R403.4.3.2.2.2

ISO

International Standards Organization



1, rue de Varembe, Case postale 56,

CH-1211 Geneve 20, Switzerland

Standard referenced number \_\_\_\_\_ Title \_\_\_\_\_

Reference in code section number

9806 (1994, 1995) TEST Methods for Solar Collectors

Part 1: Thermal Performance of glazed liquid heating collectors including pressure drop,

December 1, 1994

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.

R403.4.3.2.3

### **SRCC**

Solar Rating and Certification Corporation

c/o Florida Solar Energy Center

1679 Clearlake Road

Cocoa, FL 32922-5703

Standard referenced number \_\_\_\_\_ Title \_\_\_\_\_

Reference in code section number

FSEC Directory of Certified Solar Systems

R403.4.3.2.3

SRCC TM-1 Solar Domestic Hot Water System and Component Test Protocol,

December 6, 2002 R403.4.3.2.3

US—FTC

United States - Federal Trade Commission

600 Pennsylvania Avenue NW

Washington, DC 20580

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

CFR Title 16, Part 460	R-value Rule.....	<u>R202,</u>
<u>R303.1.1.1, R303.1.1.1.2</u>	<del>R303.1.4</del>	

Under APSP Standards, add the following addendum reference under APSP-15 (in bold):

ANSI/APSP-15-11 Residential Swimming Pool and Spa Energy Efficiency Standard, **including Addendum 1, Dated 2012** R403.9

**ACCA**

Air Conditioning Contractors of America  
 2800 Shirlington Road, Suite 300  
 Arlington, VA 22206

<u>Standard referenced number</u>	<u>Title</u>	
<u>Reference in code section number</u>		

<u>ACCA Manual D-09</u>	<u>Residential Duct Systems</u>	<u>CR403.2.7.5</u>
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ACCA Manual J-11 updates/errata.	Residential Load Calculation, Eighth Edition with posted R403.6.1	
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ACCA Manual S-10	Residential Equipment Selection R403.6.1	
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**AHRI**

Air Conditioning, Heating, and Refrigeration Institute  
 4100 North Fairfax Drive  
 Suite 200  
 Arlington, VA 22203

<u>Standard referenced number</u>	<u>Title</u>	<u>Reference in</u>
<u>code section number</u>		

<u>470-06</u>	<u>Performance Rating of Desuperheater/Water Heaters</u>	<u>.....</u>
<u>. R405.7.7, Appendix C Form 400D</u>		

<u>1160—08</u>	<u>Performance Rating of Heat Pump Pool Heaters</u>	<u>.....</u>
<u>.R403.9.1.2</u>		

**ANSI**

American National Standards Institute

25 West 43rd Street

Fourth Floor

New York, NY 10036

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

Z21.56-2006	Gas-Fired Pool Heaters	R403.9.1.1
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**APSP**

Association of Pool & Spa Professionals

2211 Eisenhower Avenue

Alexandria, VA 22314

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

ANSI/APSP-14-11	Portable Electric Spa Energy Efficiency Standard	R403.9
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ANSI/APSP-15-11	Residential Swimming Pool and Spa Energy Efficiency Standard	R403.9
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**ARDM**

Association of Refrigerant Desuperheater Manufacturers, Inc.

c/o Doucette Industries

4151 112 Terrace N

Clearwater, FL 33762

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>ARDM-88</u>	<u>Residential Heat Recovery Installation Guide, First</u>
<u>Edition</u>	<u>R405.7.7</u>

**ASHRAE**

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

1791 Tullie Circle, NE

Atlanta, GA 30329-2305

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>ANSI/ASHRAE Std. 62.2-10</u>	<u>Ventilation for Acceptable Indoor Air Quality</u>
<u>R403.5.2</u>	<u>Table R405.5.2(1)</u>

<u>ANSI/ASHRAE 124-1991</u>	<u>Methods of Testing for Rating Combination Space-Heating and Water-Heating</u>
<u>Appliances</u>	<u>R403.4.3.2.2.2</u>

<u>ASHRAE 152-2004</u>	<u>Method of Test for Determining the Design and Seasonal Efficiencies of Residential</u>
<u>Thermal Distribution Systems</u>	<u>R403.2.2, Table R405.5.2</u>

<u>ASHRAE—09</u>	<u>ASHRAE Handbook of Fundamentals . . . . .</u>
<u>.R202, R402.1.4, Table R405.5.2(1)</u>	

**ASTM**

ASTM International

100 Barr Harbor Drive

West Conshohocken, PA 19428-2959

<u>Standard referenced number</u>	<u>Title</u>	<u>Reference in code section number</u>
C272-01	Test Method for Water Absorption of Core Materials for Structural Sandwich Construction	R303.2.1.3
C 516-0802	Vermiculite Loose Fill Thermal Insulation	Table R303.2.1
C 549-06	Perlite Loose Fill Insulation	Table R303.2.1
C 578-08b06	Rigid, Cellular Polystyrene Thermal Insulation	Table R303.2.1
C 665-06	Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing	Table R303.2.1
C 727-01	Standard Practice for Installation and Use of Reflective Insulation in Building Constructions.	Table R303.2.1
C 739-0805b	Cellulosic Fiber Loose-Fill Thermal Insulation	Table R303.2.1
C 764-0706a	Mineral Fiber Loose-Fill Thermal Insulation	Table R303.2.1
C 1015-06	Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation	Table R303.2.1
C 1029-0805a	Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation	Table R303.2.1
C 1158-05	Standard Practice for Use and Installation of Radiant Barrier Systems (RBS) in Building Construction	Table R303.2.1, R405.7.1
C 1224-03	Reflective Insulation for Building Applications	Table R303.2
C 1289-0806	Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	Table 303.2
C 1313-05	Sheet Radiant Barriers for Building Construction Applications	Table R303.2.1, R405.7.1
C 1320-05	Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light-Frame	

Construction Table R303.2.1

C 1321-04 Standard Practice for Installation and Use of Interior Radiation Control Coating Systems (IRCC)

in Building Construction Table 303.2, 405.7.1

C 1371-04a Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable

Emissometers. R405.7.1, R405.7.2

C 1549-04 Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature

Using a Portable Solar Reflector R405.7.2

E 283—04 Test Method for Determining the Rate of Air Leakage Through Exterior Windows,

Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen . . . R402.4.4

E 903-96 Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials

Using Integrating Spheres R405.7.2

E 1918-06 Standard Test Method for Measuring Solar Reflectance of Horizontal and

Low-Sloped Surfaces in the Field R405.7.2

**CRRC**

**Cool Roof Rating Council**

**1738 Excelsior Avenue**

**Oakland, CA 94602**

Standard referenced number Title \_\_\_\_\_

Reference in code section number

CRRC-1-2006 CRRC-1 Product Rating  
Program R405.7.2

**DOE**

U.S. Department of Energy

c/o Superintendent of Documents



U.S. Government Printing Office

Washington, DC 20402-9325

<u>Standard referenced number</u>	<u>Title</u>	
<u>Reference in code section number</u>		

<u>10 CFR Part 430, Subpart B, Uniform Test Method for Measuring the Energy Consumption</u>		<u>R403.4.3.2.1,</u>
<u>R403.4.3.2.2,</u>		

<u>Appendix E (1998),</u>	<u>of Water Heater</u>	<u>R403.4.3.2.2.1,</u>
<u>R403.4.3.2.2.2</u>		

<u>EPACT, 92 42 USC 6831,</u>	<u>Energy Policy Act of 1992</u>	
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<u>et seq Public Law 102-486</u>		
<u>R403.6.2.1.1</u>		

<u>NAECA, 1987</u>	<u>National Appliance Energy Conservation Act of 1987</u>	<u>R303.1.2</u>
<u>R403.6.2.1</u>		

### Florida Codes

Building Codes and Standards Office

Florida Department of Business and Professional Regulation

140 N. Monroe Street

Tallahassee, FL 32399-2100

<u>Standard referenced number</u>	<u>Title</u>	
<u>Reference in code section number</u>		

<u>FBC-B 20130</u>	<u>Florida Building Code, Building</u>	<u>R202,</u>
<u>R303.2,</u>		

<u>FBC-M 20130</u>	<u>Florida Building Code, Mechanical</u>	
<u>R403.5</u>		

FBC-R 20130 Florida Building Code, Residential  
R303.2, R403.5, R405.7.3

FS 20130 Florida Statutes  
R103.2.3.2, R401.3, R103.1.1.2

ESTATAM 2012 Energy Simulation Tool Approval Technical Assistance  
Manual R405.4

**FSEC**

**Florida Solar Energy Center**

**1679 Clearlake Road**

**Cocoa, FL 32922-5703**

Standard referenced number Title  
Reference in code section number

FSEC-RR-54-00 "The HERS Rating Method and the Derivation of the Normalized Modified  
Loads Method", October 11, 2000, Fairey, P., J. Tait, D. Goldstein, D. Tracey,

M. Holtz, and R. Judkoff. Appendix B, B-1

Available online at: <http://www2.fsec.ucf.edu/en/publications/html/FSEC-RR-54-00/index.htm>

**GAMA**

Gas Appliance Manufacturers Association

PO Box 9245

Arlington, VA 22209

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

<u>GAMA</u>	<u>Consumers' Directory of Certified Efficiency Ratings for Water Heating</u>
<u>Equipment</u>	<u>R403.4.3.2.2.2</u>

**ISO**

International Standards Organization

1, rue de Varembe, Case postale 56,

CH-1211 Geneve 20, Switzerland

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

9806 (1994, 1995) TEST Methods for Solar Collectors

Part 1: Thermal Performance of glazed liquid heating collectors including pressure drop,

December 1, 1994

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.

R403.4.4.2.1 ~~3-2-3~~

RESNET

Residential Energy Services Network, Inc.

2170 E. El Camino Real

Oceanside, CA 92054

Standard referenced number \_\_\_\_\_ Title \_\_\_\_\_  
Reference in code section number \_\_\_\_\_

\_\_\_\_\_ 2006 Mortgage Industry National Home Energy Rating Systems Standards (March 2, 2012  
edition).

\_\_\_\_\_ R403.2.2, R405 Table R405.5.2(1)

SRCC

Solar Rating and Certification Corporation

c/o Florida Solar Energy Center

1679 Clearlake Road

Cocoa, FL 32922-5703

Standard referenced number \_\_\_\_\_ Title \_\_\_\_\_  
Reference in code section number \_\_\_\_\_

FSEC \_\_\_\_\_ Directory of Certified Solar  
Systems \_\_\_\_\_ R403.4.4.2.1 3.2.3

SRCC TM-1 \_\_\_\_\_ Solar Domestic Hot Water System and Component Test Protocol,

December 6, 2002 \_\_\_\_\_ R403.4.4.2.1  
3.2.3

US—FTC

United States - Federal Trade Commission

600 Pennsylvania Avenue NW

Washington, DC 20580

<u>Standard referenced number</u>	<u>Title</u>
<u>Reference in code section number</u>	

CFR Title 16, Part 460	R-value Rule.....	<u>R202.</u>
<u>R303.1.1.1, R303.1.1.1.2</u>	<u>R303.1.4</u>	

Under APSP Standards, add the following addendum reference under APSP-15 (in bold):

ANSI/APSP-15-11 Residential Swimming Pool and Spa Energy Efficiency Standard, **including Addenda A, Dated February 2013** R403.9

<b>Date Submitted</b>	7/10/2012	<b>Section</b>	R403.9	<b>Proponent</b>	Ann Stanton
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	Approved as Submitted				
<b>Commission Action</b>	Pending Review				

**Comments**

**General Comments** No **Alternate Language** Yes

**Related Modifications****Summary of Modification**

Move swimming pool criteria from 2010 code forward into the 2013 code.

**Rationale**

To comply with s. 553.73(7)(a) Florida Statutes, the proposed modification will supplement the most current version of the International Energy Conservation Code (IECC) base code with Florida specific requirements in order to maintain the efficiencies of the Florida Energy Efficiency Code for Building Construction adopted and amended pursuant to s. 553.901, FS, and in accordance with the Commission's approved code change process.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Proposed language is in the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Proposed language is in the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Proposed language is in the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. Proposed language is in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. Proposed language is in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No. Proposed language is in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

No. Proposed language is in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

Alternate Language

2nd Comment Period

10/31/2012 - 12/14/2012

5045-A1

Proponent Jennifer Hatfield Submitted 12/14/2012 Attachments Yes

**Rationale**

The alternate language moves the swimming pool criteria from 2010 code forward into the 2013 code, but does not repeat the pump and motor requirements found in APSP-15, nor does it specify requirements found in APSP-14. To do so is duplicative and could cause inconsistencies between how requirements are stated within the standard versus the code.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

Eliminates redundancy and possible concerns with misinterpretation of what is required within the referenced standards.

**Impact to building and property owners relative to cost of compliance with code**

None

**Impact to industry relative to the cost of compliance with code**

Eliminates possible misinterpretation.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Provides for State mandated energy savings.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

**Is the proposed code modification part of a prior code version?**

YES

**The provisions contained in the proposed amendment are addressed in the applicable international code?**

NO

**The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?**

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC per the requirements of the FL legislature. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

**The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?**

NO

1st Comment Period History

08/09/2012 - 09/23/2012

EN5045-G1

Proponent Ken Cureton Submitted 9/21/2012 Attachments No

**Comment:**

The proposal provides for swimming pool criteria as per 553.909 FS.



**R403.9 Swimming pools, and inground permanently installed spas, and portable spas (Mandatory).** The energy requirements for residential pools and inground spas shall be as specified in Sections R403.9.1 through R403.9.4 and ANSI/APSP-15. The energy requirements for portable spas shall be in accordance with Section R403.9.5 and ANSI/APSP-14. Pools and inground permanently installed spas shall comply with Sections R403.9.1 through R403.9.3.

**R403.9.1 Pool and spa heaters.** All pool heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside the heater to allow shutting off the heater without adjusting the thermostat setting. [Replace IECC R403.9.1 in its entirety]

**R403.9.1.1 Gas and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013 when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

**R403.9.1.2 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with ARI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance.

**R403.9.2 Time switches.** Time switches or other control method that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on all heaters and pumps. Heaters, pumps and motors that have built in timers shall be deemed in compliance with this requirement

**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

**R403.9.3 Covers.** Heated swimming pools and inground permanently installed spas shall be equipped ~~provided~~ with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss. -

**Exception:** Outdoor pools deriving over 70 percent of the energy for heating from site-recovered energy, such as a heat pump or solar energy source computed over an operating season.

**R403.9.4 Residential pool pumps and pump motors.** Pool filtration pump motors shall meet the following requirements:

1. Pool pump motors shall not be split-phase, shaded-pole or capacitor start-induction run types.
2. Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. The low speed shall have a rotation rate of no more than ½ of the motor's maximum rotation rate.
3. Pool pumps motor controls shall have the capability of operating the pool pump at a minimum of two speeds. The default circulation speed shall be the residential filtration speed, with a higher speed override capability for a temporary period not to exceed one normal cycle or 24 hours, whichever is less.

Exception: Solar pool heating systems shall be permitted to run at higher speeds during periods of usable solar heat gain.

R403.9.5 Portable spa standby power. Portable electric spa standby power shall not be greater than  $5(V^{2/3})$  watts where V = the total volume, in gallons, when spas are measured in accordance with the spa industry test protocol provided in ANSI/APSP-14.

**R403.9 Swimming pools, and inground permanently installed spas, and portable spas (Mandatory).** The energy requirements for residential pools and inground spas shall be as specified in Sections R403.9.1 through R403.9.3 and in accordance with ANSI/APSP-15. The energy requirements for portable spas shall be in accordance with ANSI/APSP-14. Pools and inground permanently installed spas shall comply with Sections R403.9.1 through R403.9.3.

**R403.9.1 Pool and spa heaters.** All pool heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside the heater to allow shutting off the heater without adjusting the thermostat setting. [Replace IECC R403.9.1 in its entirety]

**R403.9.1.1 Gas and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013 when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

**R403.9.1.2 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with ARI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance.

**R403.9.2 Time switches.** Time switches or other control method that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on all heaters and pumps. Heaters, pumps and motors that have built in timers shall be deemed in compliance with this requirement

**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

**R403.9.3 Covers.** Heated swimming pools and inground permanently installed spas shall be equipped provided with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

**Exception:** Outdoor pools deriving over 70 percent of the energy for heating from site-recovered energy, such as a heat pump or solar energy source computed over an operating season.

<b>Date Submitted</b> 8/2/2012	<b>Section</b> 454.1.3.1.6	<b>Proponent</b> Alex Fletcher
<b>Chapter</b> 4	<b>Affects HVHZ</b> No	<b>Attachments</b> No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second	
<b>Commission Action</b>	Pending Review	

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

**Summary of Modification**

Increase the amount of deck along the pool perimeter that can be obstructed from ten to twenty percent.

**Rationale**

Will allow for greater latitude in the design of features for a pool as well as enable the design of longer barriers along the sides of zero entry pools to prevent diving or jumping in where the water is only inches deep.

**Fiscal Impact Statement**

- Impact to local entity relative to enforcement of code**  
None
- Impact to building and property owners relative to cost of compliance with code**  
None
- Impact to industry relative to the cost of compliance with code**  
None

**Requirements**

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
Yes as it will enable the use of barriers along the sides of zero entry pools that prevent children from jumping or diving in from the side into water that is only inches deep.
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
Yes
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
No
- Does not degrade the effectiveness of the code**  
No

Is the proposed code modification part of a prior code version? No

**Alternate Language**

<b>2nd Comment Period</b>	<u>10/31/2012 - 12/14/2012</u>
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<b>5812-A2</b>	<b>Proponent</b> Jennifer Hatfield	<b>Submitted</b> 12/14/2012	<b>Attachments</b> Yes
	<b>Rationale</b> Addresses concerns TAC had with original proposal.		
	<b>Fiscal Impact Statement</b>		
	<b>Impact to local entity relative to enforcement of code</b> None		
	<b>Impact to building and property owners relative to cost of compliance with code</b> None		
	<b>Impact to industry relative to the cost of compliance with code</b> None		
	<b>Requirements</b>		
	<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b> Yes as it will enable the use of barriers along the sides of zero entry pools that prevent children from jumping or diving in from the side into water that is only inches deep.		
	<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b> yes		
	<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b> No		
<b>Does not degrade the effectiveness of the code</b> No			
Is the proposed code modification part of a prior code version? No			

**454.1.3.1.6** ~~Ten~~ Twenty 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).

**454.1.3.1.6** ~~Ten~~ Twenty percent of the deck along the pool perimeter may be obstructed as long as any one obstruction does not exceed ten percent or ten feet, whichever is less, in any one area. 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. Obstructions shall not include pool exit points. When an obstruction exists in multiple areas around the pool the minimum distance between obstructions shall be 4 feet (1219 mm).

<b>Date Submitted</b>	8/2/2012	<b>Section</b>	454.1.3.1.9	<b>Proponent</b>	Alex Fletcher
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

**Summary of Modification**

Eliminate the need for redundant gates at doored access points from public rooms such as lobbies or club houses.

**Rationale**

Because doored access points are defacto gates and this will match the previous requirements of 64E-9

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**  
None because it is already being done this way.

**Impact to building and property owners relative to cost of compliance with code**  
None because it it already being done this way.

**Impact to industry relative to the cost of compliance with code**  
None because it is already being done this way.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
Provides the protection of a closable and lockable entry point without the redundancy of putting a gate in front of a door.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
Yes eliminates redundancy.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
No

**Does not degrade the effectiveness of the code**  
No

Is the proposed code modification part of a prior code version? No

**Alternate Language**

**2nd Comment Period** 10/31/2012 - 12/14/2012

<b>5815-A1</b>	<b>Proponent</b>	Jennifer Hatfield	<b>Submitted</b>	12/14/2012	<b>Attachments</b>	Yes
	<b>Rationale</b>	Attempts to address TAC concern that barrier protection into the pool area still exist.				
	<b>Fiscal Impact Statement</b>					
	<b>Impact to local entity relative to enforcement of code</b>	None				
	<b>Impact to building and property owners relative to cost of compliance with code</b>	None				
	<b>Impact to industry relative to the cost of compliance with code</b>	None				
	<b>Requirements</b>					
	<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b>	Provides the protection of a closable and lockable entry point without the redundancy of putting a gate in front of a door.				
	<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b>	Yes eliminates redundancy.				
	<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b>	No				
<b>Does not degrade the effectiveness of the code</b>	No					
<b>Is the proposed code modification part of a prior code version? No</b>						

**454.1.3.1.9** 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. Doored access points from public rooms such as lobbies or club houses need not be through gates. 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 454.2.17.1.1 through 454.2.17.1.8. 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.



**454.1.3.1.9** 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. Doored access points from public rooms such as lobbies or club houses need not be through gates if the door meet the same self closing, self latching requirements as a gate. 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 454.2.17.1.1 through 454.2.17.1.8. 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.

<b>Date Submitted</b>	8/2/2012	<b>Section</b>	454.1.3.2 Bridges and overhead obstructions	<b>Proponent</b>	Alex Fletcher
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications****Summary of Modification**

Change the minimum height of a bridge or obstruction from 8 feet to 7 feet.

**Rationale**

The maximum depth for a river ride is 3 feet (454.1.9.5.4). The requirement that the minimum height be 8' from the bottom of the pool would mean the bridge or overhead obstruction would be 5' above the surface of the pool on this type of pool. Requiring a minimum of 7' from the bottom of the pool would allow for the 3' depth and still maintain the minimum 4' above the surface of the pool.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None

**Impact to building and property owners relative to cost of compliance with code**

Reduce the cost of building a higher bridge for no reason.

**Impact to industry relative to the cost of compliance with code**

Reduce the cost of building a higher bridge for no reason.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Does not effect health, safety or the welfare of the general public as the requirement of a minimum clearance above the water is still met.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Makes the clearance requirement for all types of pools equivalent.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

Is the proposed code modification part of a prior code version? No

5819-A1

**Proponent** Jennifer Hatfield      **Submitted** 12/14/2012      **Attachments** Yes

**Rationale**

This language addresses the issue cited in the original modification's rationale at the same time ensuring the safety concern when specifically dealing with a river ride is addressed (someone standing up on the river ride and hitting the overhead obstruction).

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

none

**Impact to building and property owners relative to cost of compliance with code**

Reduce the cost of building a higher bridge when not necessary but in specific circumstances.

**Impact to industry relative to the cost of compliance with code**

Reduce the cost of building a higher bridge when not necessary but in specific circumstances, which are provided for in the proposed language.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Alternate language addresses any safety concerns when dealing with river rides.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes, provides needed clarity.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

**Is the proposed code modification part of a prior code version?**

YES

**The provisions contained in the proposed amendment are addressed in the applicable international code?**

NO

**The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?**

NO

**The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?**

NO

**454.1.3.2 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~~ 7 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 1 ½ inches (38 mm).

**454.1.3.2 Bridges and overhead obstructions or river rides.** 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 7 feet (2438 mm) from the bottom of the pool and at least 4 feet (1219 mm) above the surface of the pool in all cases except when the pool is a river ride where it shall be at least 5 feet 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 1 ½ inches (38 mm).

<b>Date Submitted</b>	8/2/2012	<b>Section</b>	454.1.4.2.3 Underwater lighting	<b>Proponent</b>	Alex Fletcher
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

**Summary of Modification**

Remove the ambiguity of trying to convince each different department that the pool illumination of alternative lighting systems is equal to the requirements.

**Rationale**

Is currently too subjective and open to opinion rather than any standard.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

Less paperwork

**Impact to building and property owners relative to cost of compliance with code**

Less paperwork and there is a potential savings of electricity.

**Impact to industry relative to the cost of compliance with code**

Reduction of time required to get approved

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Does not diminish safety.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Offers more options and potential savings of electricity.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

Is the proposed code modification part of a prior code version? No

**Alternate Language**

<b>2nd Comment Period</b>	<u>10/31/2012 - 12/14/2012</u>
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<b>5816-A1</b>	<b>Proponent</b>	Jennifer Hatfield	<b>Submitted</b>	12/14/2012	<b>Attachments</b>	Yes
	<b>Rationale</b>	LED technology has evolved to the point where all manufacturers state on the box and within the literature that the light is a 300 watt equivalent and these lights are UL approved. Therefore, it is less subjective to require this specific information rather than having to demonstrate "beyond a reasonable certainty."				
	<b>Fiscal Impact Statement</b>					
	<b>Impact to local entity relative to enforcement of code</b>	None				
	<b>Impact to building and property owners relative to cost of compliance with code</b>	None				
	<b>Impact to industry relative to the cost of compliance with code</b>	None				
	<b>Requirements</b>					
	<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b>	The proposed language will ensure safety to the public is met, just allowing for other means of adequate underwater lighting.				
	<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b>	Yes, it improves the code by removing subjective language "demonstrates to reasonable certainty" and replaces it with language that can be consistently applied across the board.				
	<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b>	No, it actually provides for the opportunity to utilize other lighting products on the market.				
<b>Does not degrade the effectiveness of the code</b>	No					
Is the proposed code modification part of a prior code version? No						

**454.1.4.2.3 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 center-line 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 454.1.4.2.1 and 454.1.4.2.2 above.

**454.1.4.2.3 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 center-line 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 manufactures specifications provide for the equivalency in watt output 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 454.1.4.2.1 and 454.1.4.2.2 above.



<b>Date Submitted</b>	8/2/2012	<b>Section</b>	454.1.6.2 Rinse Shower	<b>Proponent</b>	Alex Fletcher
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

**Summary of Modification**

Eliminate the requirement for how far a rinse shower must be from the pool.

**Rationale**

Many decks are more than 20 feet wide and a rinse shower in the middle of the deck is unsightly and could be unsafe.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**  
None

**Impact to building and property owners relative to cost of compliance with code**  
More options in regards to where you place the shower. Could reduce costs.

**Impact to industry relative to the cost of compliance with code**  
Will not have to make special arrangements on placement of Rinse Shower

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
Health and safety will not be diminished.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
Will lead to better and more varied designs.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
No

**Does not degrade the effectiveness of the code**  
No

Is the proposed code modification part of a prior code version? No

**Alternate Language**

<b>2nd Comment Period</b>	10/31/2012 - 12/14/2012
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<b>5817-A1</b>	<b>Proponent</b>	Jennifer Hatfield	<b>Submitted</b>	12/14/2012	<b>Attachments</b>	Yes
	<b>Rationale</b>	Addresses TAC concern that there needs to be some minimum to ensure there is a shower located within the pool area.				
	<b>Fiscal Impact Statement</b>					
	<b>Impact to local entity relative to enforcement of code</b>	None				
	<b>Impact to building and property owners relative to cost of compliance with code</b>	None				
	<b>Impact to industry relative to the cost of compliance with code</b>	None				
	<b>Requirements</b>					
	<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b>	Health and safety will not be diminished.				
	<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b>	Will lead to better and more varied designs.				
	<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b>	No				
<b>Does not degrade the effectiveness of the code</b>	No					
<b>Is the proposed code modification part of a prior code version?</b>	No					

**454.1.6.2 Rinse shower.** A minimum of one rinse shower shall be provided on the pool deck of all ~~outdoor~~ pools within 20 feet (60960 mm) of the nearest pool water's edge.

**454.1.6.2 Rinse shower.** A minimum of one rinse shower shall be provided on the pool deck of all outdoor pools within the perimeter of the fence 20 feet (60960 mm) of the nearest pool water's edge.

<b>Date Submitted</b> 7/31/2012	<b>Section</b> 454.1	<b>Proponent</b> bob vincent
<b>Chapter</b> 4	<b>Affects HVHZ</b> No	<b>Attachments</b> No
<b>TAC Recommendation</b> No Affirmative Recommendation with a Second		
<b>Commission Action</b> Pending Review		

**Comments**

<b>General Comments</b> No	<b>Alternate Language</b> Yes
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**Related Modifications**

**Summary of Modification**

Proposed revisions will make the two FL public pool codes identical (FBC454.1 & Ch. 64E-9, FAC). These exist in rule 64E-9, but not currently in 454.1. So a public pool permitted-constructed legally under FBC could be denied an operating permit by FDOH

**Rationale**

Proposed revisions will make the two FL public pool codes identical (FBC454.1 & Ch. 64E-9, FAC). These exist now in rule 64E-9, but not currently in 454.1. So a public pool permitted-constructed legally under FBC could be denied an operating permit by FDOH.

**Fiscal Impact Statement**

- Impact to local entity relative to enforcement of code**  
Prevents inconsistent state code application between jurisdictions
- Impact to building and property owners relative to cost of compliance with code**  
No additional cost, Prevents errors between two state codes applied by two agencies
- Impact to industry relative to the cost of compliance with code**  
No negative impact, Assures that both codes apply equally to every public pool construction contract

**Requirements**

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
All of these proposed revisions have substantial health and safety connections
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
Makes two state codes consistent
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
Does not discriminate
- Does not degrade the effectiveness of the code**  
Does not degrade effectiveness, It only improves effectiveness of the building code

Is the proposed code modification part of a prior code version? No

**Alternate Language**

**2nd Comment Period** 10/31/2012 - 12/14/2012

<b>5744-A1</b>	<b>Proponent</b> Jennifer Hatfield	<b>Submitted</b> 12/14/2012	<b>Attachments</b> Yes
	<b>Rationale</b> This language is an attempt to address TAC concerns and is a result of working with multiple interested parties. It should ensure consistency with 64E-9, F.A.C. while not imposing duties on building departments that go beyond construction.		
	<b>Fiscal Impact Statement</b>		
	<b>Impact to local entity relative to enforcement of code</b> Works to ensure health and code departments have consistency.		
	<b>Impact to building and property owners relative to cost of compliance with code</b> This consistency will lessen any costs associated if two departments have differing requirements.		
	<b>Impact to industry relative to the cost of compliance with code</b> This consistency will lessen any costs associated if two departments have differing requirements.		
	<b>Requirements</b>		
	<b>Has a reasonable and substantial connection with the health, safety, and welfare of the general public</b> Yes		
	<b>Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction</b> Yes		
	<b>Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities</b> No		
<b>Does not degrade the effectiveness of the code</b> No			
Is the proposed code modification part of a prior code version? No			

Changes requested by Florida Dept. of Health for Consistency with Rule 64E-9, FAC.

The word "covered" should be replaced with the word "coved". Matches Chapter 64E-9.006(2)(f)3., FAC

454.1.6.1.3 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~~ coved where either floor or wall is not made of waterproof materials such as tile or vinyl.

The letter "m" should be replaced with the word "meter", and two sentences about an electrical interlock should be added. Matches Chapter 64E-9.007(16)(d)4.

454.1.6.5.16.4.4 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 meter and a means to control the flow. The generator shall be electrically interlocked with the recirculation pump to prevent the feeding of ozone when the recirculation pump is not operating. A flow sensor controller can also be used to turn off the feeder when flow is sensed.

The following additional language should be added. Matches Chapter 64E-9.009(6)

454.1.7.6 Vacuuming. Wading pools with 200 square feet or more of pool water surface area shall have provisions for vacuuming through the skimmer, a portable vacuum system or an alternative approved method that does not involve a direct suction port in the pool.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(2)(c)1.

454.1.9.2.3.1 Pump reservoir volume. The minimum reservoir volume shall be equal to ~~2~~ 3 minutes of the combined flow rate in gallons per minute of all filter and slide pumps.

The number 5 should be replaced with the number 7. Matches Chapter 64E-9.011(6)(c)

454.1.9.6.3 The pool deck may slope toward the pool for no more than ~~5~~ 7 feet (~~1524~~ 2133mm), 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.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(8)(a)

454.1.9.8.1 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~~ 3 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.

Turnover time for a water slide plunge pool is 3 hours in FBC 424.1 and 2 hours. Matches Chapter 64E-9, FAC.

454.1.9.2.6.1 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 ~~32~~ hours or less.

Very small spas are allowed to be constructed without pH adjustment feeders in 424.1.6.5.16.3, but not in 64E-9007(16)(c), FAC.

454.1.6.5.16.3 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<sup>2</sup>) 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.

Matches Statute at s. 514.0315, FS- Or the code could name it the new std: APSP/ANSI Std. 16-2011

454.1.6.5.10.2 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 11/2 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, or any successor standard, and the water velocity of this section.

Matches Chapter 64E-9.007(12), FAC

454.1.6.5.12 Cleaning system. A portable or plumbed in vacuum cleaning system shall be provided. 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 (15240 mm) maximum length of hose. Vacuum fittings shall be mounted ~~approximately 12~~ no more than 15 inches (305-381 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.

Matches Chapter 64E-9.009(8), FAC

454.1.7.8 Lighting. Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use of 10 foot-candles if indoors or 6 foot-candles for outdoor night use. Such illumination shall be provided over the pool water surface and the pool deck surface.

Add to code as 424.1.7.9 to match Chapter 64E-9.009(9), FAC

454.1.7.9 Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be provided to assist in maintaining proper disinfection and pH levels.

Add to code as 424.1.2.3.5 to match Chapter 64E-9.008(7), FAC

454.1.2.3.5 Rules and regulations signage. Rules and regulations for bathers shall be posted in minimum 1 inch letters which must be legible from the pool deck, and shall contain the following:

1. No food or beverages in pool or on pool wet deck.

2. No glass or animals in the fenced pool area (or 50 feet from unfenced pool).

3. Bathing load: \_\_\_\_\_ persons.

4. Pool hours: \_\_\_\_\_ a.m. to \_\_\_\_\_ p.m.

5. Shower before entering.

6. Pools of 200 square feet in area or greater without an approved diving well configuration shall have "NO DIVING", in four inch letters included with the above listed pool rules.

7. Do not swallow the pool water. This statement shall be added to signs at pools that conduct modifications as that term is defined.

Add to code as 424.1.3.3.1 - 6 to match Chapter 64E-9.008(2 - 6 & 10), FAC

454.1.3.3 Safety.

454.1.3.3.1 All swimming pools shall be provided with a shepherd' s hook securely attached to a one piece pole not less than 16 feet in length, and at least one 18 inch diameter lifesaving ring with sufficient rope attached to reach all parts of the pool from the pool deck. Safety equipment shall be mounted in a conspicuous place and be readily available for use. Pools greater than 50 feet in length shall have multiple units with at least one shepherd' s hook and one lifesaving ring located along each of the longer sides of the pools. Spa

pools under 200 square feet of surface area, and interactive water features or wading pools with two feet or less of water depth are exempt from this requirement.

454.1.3.3.2 All pools with a slope transition shall have a safety line as required by 424.1.10.1.3. The safety line shall be in place at all times unless a lifeguard or instructor is present.

454.1.3.3.3 Pool covers and solar blankets shall only be used during times when the pool is closed. Unless the pool cover or solar blanket is secured around the entire perimeter and is designed to support a live load of an adult person, the pool area shall be inaccessible to unauthorized individuals during times of cover or blanket use.

454.1.3.3.4 Chemicals shall be stored in a cool, dry, and well ventilated area under a roof and the area shall be inaccessible to the public. Chemicals which emit corrosive fumes shall not be stored in the equipment room. Empty chemical containers shall be stored and disposed of in such a manner that they are not accessible to the public.

454.1.3.3.5 Swimming pool slides shall be installed in accordance with manufacturer's specifications and sound engineering practice. Pools with slides designed for swimming pools are not required to satisfy those of slide plunge pools in 424.1.9.2.1.

454.1.3.3.6 Floating and climb-on devices, objects or toys that are not a part of the approved pool design shall not be tethered in the pool or installed without engineering modification application and department's approval.

Add to code as 424.1.6.5.17 to match Chapter 64E-9.007(17), FAC

454.1.6.5.17 Water features such as waterfalls or fountains in pools may use up to 20% of the return water from the filter system, however all waters used in the

feature shall not be counted toward attaining the designed turnover rate. Return piping system shall be designed and capable of handling the additional feature flow when the feature is turned off. Features that require more than 20% of the flow rate shall be supplied by an additional pump that drafts from a suitable collector tank. All water features that utilize water from the pool shall be designed to return the water to the pool. Spray features mounted in the pool deck shall be flush with the pool deck and shall be designed with the safety of the pool patron in mind.

Add to code as 424.1.6.5.18 to match Chapter 64E-9.004(1)(d)

454.1.6.5.18 Chemical quality – Chemicals used in controlling the quality of the pool water shall be tested and approved using the National Sanitation Foundation (NSF-ANSI) Standard 60-2005, Drinking Water Treatment Chemicals-Health Effects dated September, 2005, which is incorporated by reference and shall be compatible with other accepted chemicals used in pools. The following parameters shall be adhered to for pool water treatment:

1. pH – 7.2 to 7.8.

2. Disinfection – Free chlorine residual shall be 1 milligram per liter (mg/L) to 10 mg/L, inclusive, in conventional swimming pools and 2 mg/L to 10 mg/L, inclusive, in all other type pools such as spa-type pools and interactive water fountains; bromine residual shall be 1.5 mg/L to 10 mg/L, inclusive, in conventional swimming pools and 3 mg/L to 10 mg/L, inclusive, in all other type pools. Except that, the following maximum disinfectant levels shall apply to indoor conventional swimming pools: 5 mg/L free chlorine or 6 mg/L bromine.

3. When oxidation-reduction potential controllers are required, the water potential shall be kept between 700 and 850 millivolts. Use of

these units does not negate the manual daily testing requirement of subsection 64E-9.004(13), F.A.C.

4. Cyanuric acid – 100 mg/L maximum in pools, with 40 mg/L as the recommended maximum, and 40 mg/L maximum in spa pools



5. Quaternary ammonium – 5 mg/L maximum

6. Copper – 1 mg/L maximum

7. Silver – 0.1 mg/L maximum

Add to code as 424.1.8.12 - 15 to match Chapter 64E-9.010(13-16), FAC

454.1.8.12 Automated Controllers – Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be provided on spa pools to assist in maintaining proper disinfection and pH levels.

454.1.8.13 In addition to the requirements of 424.1.2.3.5 spa pool signs shall include the following:

1. Maximum water temperature 104° F.

2. Children under twelve must have adult supervision.

3. Pregnant women, small children, people with health problems and people using alcohol, narcotics or other drugs that cause drowsiness should not use spa pools without first consulting a doctor.

4. Maximum use 15 minutes.

454.1.8.14 A clock shall be visible from the spa pool to assist the patron in meeting the requirement of 424.1.8.13 4. above.

454.1.8.15 If a spa is equipped with an emergency cut-off or kill switch, provisions for a minimum 80 decibel audible alarm near the spa to sound continuously until deactivated when such device is triggered shall be incorporated. This is to alert pool patrons and operators of a potential public health situation or to indicate that the spa filtration and treatment system may be off. The following additional rule sign shall be visible by the spa which reads “ALARM INDICATES SPA PUMPS OFF. DO NOT USE SPA WHEN ALARM SOUNDS UNTIL ADVISED OTHERWISE.”

Add to code to match Chapter 64E-9.011(8)(c), FAC

454.1.9.8.3

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 130- minute turnover of the contained volume within the system). Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be provided to assist in maintaining proper disinfection and pH levels.

Add to code as 454.1.9.3.7 to match Chapter 64E-9.011(3)(g)

In addition to the requirements of 424.1.2.3.5, all water activity pool signs shall have the following added in one inch letters:

Do not swallow the pool water, it is recirculated.

Do not use pool if you are ill with diarrhea.

Add to code as 454.1.9.8.13 to match Chapter 64E-9.011(8)(j)

In addition to the requirements of 424.1.2.3.5, all IWF pool rule signs shall have the following added in one inch letters:

Do not swallow the fountain water, it is recirculated.

Do not use fountain if you are ill with diarrhea.

Currently at 454.1.1 "Department" means Department of Health.

Suggest changing this to: "Department" means the jurisdictional Building Department ~~of Health~~.

Or, could delete each code statement where the Department must approve a deviation; these code sections are listed here:

454.1.2.1 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. ...

(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].

454.1.4.2.3 Underwater lighting...

454.1.6.5.3.1 Perimeter overflow gutters...

454.1.6.5.14 Heaters...

454.1.6.5.16.6 Ultraviolet (UV) light disinfectant equipment...

454.1.7.2 Depths...

454.1.9.2.1.3.1 The slide flume terminus...

454.1.9.3.1 Water activity pools...

454.1.9.5.4 The maximum water depth of the river ride...

454.1.9.8.2 An automatic skimmer system ...

*\*\*Note that due to the length of this proposal, the entire original proposal along with the alternate language is below, but to be able to note what is different from original proposal please use the attached file to view the changes - the file will call out in RED font and YELLOW highlights the provisions that are being altered. In addition, anything in CAPS notes it is additional new language from what was already underlined/being proposed.*

Changes requested by Florida Dept. of Health for Consistency with Rule 64E-9, FAC.

The word “covered” should be replaced with the word “coved”. Matches Chapter 64E-9.006(2)(f)3., FAC

454.1.6.1.3 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 ~~ecovered~~ coved where either floor or wall is not made of waterproof materials such as tile or vinyl.

The letter “m” should be replaced with the word “meter”, and two sentences about an electrical interlock should be added. Matches Chapter 64E-9.007(16)(d)4.

454.1.6.5.16.4.4 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 meter and a means to control the flow. The generator shall be electrically interlocked with the recirculation pump to prevent the feeding of ozone when the recirculation pump is not operating. A flow sensor controller can also be used to turn off the feeder when flow is sensed.

The following additional language should be added. Matches Chapter 64E-9.009(6)

454.1.7.6 Vacuuming. Wading pools with 200 square feet or more of pool water surface area shall have provisions for vacuuming through the skimmer, a portable vacuum system or an alternative approved method that does not involve a direct suction port in the pool.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(2)(c)1.

454.1.9.2.3.1 Pump reservoir volume. The minimum reservoir volume shall be equal to ≥ 3minutes of the combined flow rate in gallons per minute of all filter and slide pumps.

The number 5 should be replaced with the number 7. Matches Chapter 64E-9.011(6)(c)

454.1.9.6.3 The pool deck may slope toward the pool for no more than ≤ 7feet (~~1524~~ 2133mm), 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.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(8)(a)

454.1.9.8.1 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 ≥ 3minutes 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.

Turnover time for a water slide plunge pool is 3 hours in FBC 424.1 and 2 hours. Matches Chapter 64E-9, FAC.

454.1.9.2.6.1 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 32 hours or less.

Very small spas are allowed to be constructed without pH adjustment feeders in 424.1.6.5.16.3, but not in 64E-9007(16)(c), FAC.

454.1.6.5.16.3 Feeders for PH adjustment. Feeders for PH adjustment shall be provided on all pools, ~~except spa pools of less than 100 square feet (9 m2) 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.

*Matches Statute at s. 514.0315, FS- Or the code could name it the new std: APSP/ANSI Std. 16-2011*

454.1.6.5.10.2 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 11/2 feet per second (457 mm/s) at 100 percent of the design recirculation flow. Main drain covers/grates shall comply with the requirements of ANSI/APSP 16ASME/ANSI A112.19.8 2007, or any successor standard, and the water velocity of this section.

Matches Chapter 64E-9.007(12), FAC

454.1.6.5.12 Cleaning system. A portable or plumbed in vacuum cleaning system shall be provided. 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 (15240 mm) maximum length of hose. Vacuum fittings shall be mounted **approximately no more than 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.

*Matches Chapter 64E-9.009(8), FAC*

454.1.7.8 Lighting. Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use: **of 10 foot-candles if indoors or 6 foot-candles for outdoor night use. Such illumination shall be provided over the pool water surface and the pool deck surface.**

*Add to code as 424.1.7.9 to match Chapter 64E-9.009(9), FAC*

454.1.7.9 Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be provided to assist in maintaining proper disinfection and pH levels.

*Add to code as 424.1.2.3.5 to match Chapter 64E-9.008(7), FAC*

454.1.2.3.5 Rules and regulations signage. Rules and regulations for bathers shall be INSTALLED ~~posted~~ in minimum 1 inch letters which must be legible from the pool deck, and shall contain the following:

1. No food or beverages in pool or on pool wet deck.
2. No glass or animals in the fenced pool area (or 50 feet from unfenced pool).
3. Bathing load: \_\_\_\_\_ persons.

4. Pool hours:      a.m. to      p.m.

5. Shower before entering.

6. Pools of 200 square feet in area or greater without an approved diving well configuration shall have “NO DIVING”, in four inch letters included with the above listed pool rules.

7. Do not swallow the pool water. This statement shall be added to signs at pools that conduct modifications as that term is defined.

*Add to code as 424.1.3.3.1 - 6 to match Chapter 64E-9.008(2 - 6 & 10), FAC*

454.1.3.3 Safety.

454.1.3.3.1 All swimming pools shall be INSTALLED provided with a shepherd’ s hook securely attached to a one piece pole not less than 16 feet in length, and at least one 18 inch diameter lifesaving ring with sufficient rope attached to reach all parts of the pool from the pool deck. Safety equipment shall be mounted in a conspicuous place and be readily available for use. Pools greater than 50 feet in length shall have multiple units with at least one shepherd’ s hook and one lifesaving ring located along each of the longer sides of the pools. Spa pools under 200 square feet of surface area, and interactive water features or wading pools with two feet or less of water depth are exempt from this requirement.

454.1.3.3.2 All pools with a slope transition shall have a safety line ANCHORS as required by 424.1.10.1.3. ~~The safety line shall be in place at all times unless a lifeguard or instructor is present.~~

454.1.3.3.3 Pool covers and solar blankets shall only be used during times when the pool is closed. Unless the IF A pool cover or solar blanket is INSTALLED, IT SHALL BE secured around the entire perimeter and is designed to support a live load of an adult person, OR the pool area shall be inaccessible to unauthorized individuals during times of cover or blanket use.

454.1.3.3.4 A ROOM OR SPACE SHALL BE PROVIDED FOR Chemicals TO shall be stored in a cool, dry, and well-ventilated area under a roof and the area shall be inaccessible to the public. ~~Chemicals which emit corrosive fumes shall not be stored in the equipment room. Empty chemical containers shall be stored and disposed of in such a manner that they are not accessible to the public.~~

454.1.3.3.5 Swimming pool slides shall be installed in accordance with manufacturer’s specifications and sound engineering practice. Pools with slides designed for swimming pools are not required to satisfy those of slide plunge pools in 424.1.9.2.1.

454.1.3.3.6 Floating and climb-on devices, objects or toys that are not a part of the approved pool design shall not be tethered in the pool or installed without engineering modification application and department’s approval.

*Add to code as 424.1.6.5.17 to match Chapter 64E-9.007(17), FAC*

454.1.6.5.17 Water features such as waterfalls or fountains in pools may use up to 20% of the return water from the filter system, however all waters used in the feature shall not be counted toward attaining the designed turnover rate. Return piping system shall be designed and capable of handling the additional feature flow when the feature is turned off. Features that require more than 20% of the flow rate shall be supplied by an additional pump that drafts from a suitable collector tank. All water features that utilize water from the pool shall be designed to return the water to the pool. Spray features mounted in the pool deck shall be flush with the pool deck and shall be designed with the safety of the pool patron in mind.

*Add to code as 424.1.6.5.18 to match Chapter 64E-9.004(1)(d)*

~~454.1.6.5.18 Chemical quality – Only NSF-60 approved chemicals shall be provided. Chemicals used in controlling the quality of the pool water shall be tested and approved using the National Sanitation Foundation (NSF-ANSI) Standard 60-2005, Drinking Water Treatment Chemicals Health Effects dated September, 2005, which is incorporated by reference and shall be compatible with other accepted chemicals used in pools. The following parameters shall be adhered to for pool water treatment:~~

~~1. pH – 7.2 to 7.8.~~

~~2. Disinfection – Free chlorine residual shall be 1 milligram per liter (mg/L) to 10 mg/L, inclusive, in conventional swimming pools and 2 mg/L to 10 mg/L, inclusive, in all other type pools such as spa type pools and interactive water fountains; bromine residual shall be 1.5 mg/L to 10 mg/L, inclusive, in conventional swimming pools and 3 mg/L to 10 mg/L, inclusive, in all other type pools. Except that, the following maximum disinfectant levels shall apply to indoor conventional swimming pools: 5 mg/L free chlorine or 6 mg/L bromine.~~

~~3. When oxidation-reduction potential controllers are required, the water potential shall be kept between 700 and 850 millivolts. Use of~~

~~these units does not negate the manual daily testing requirement of subsection 64E-9.004(13), F.A.C.~~

~~4. Cyanuric acid – 100 mg/L maximum in pools, with 40 mg/L as the recommended maximum, and 40 mg/L maximum in spa pools~~

~~5. Quaternary ammonium – 5 mg/L maximum~~

~~6. Copper – 1 mg/L maximum~~

~~7. Silver – 0.1 mg/L maximum~~

*Add to code as 424.1.8.12 - 15 to match Chapter 64E-9.010(13-16), FAC*

454.1.8.12 Automated Controllers – Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be INSTALLED provided on spa pools to assist in maintaining proper disinfection and pH levels.

454.1.8.13 In addition to the requirements of 424.1.2.3.5 spa pool signs INSTALLED shall include the following:

1. Maximum water temperature 104° F.

2. Children under twelve must have adult supervision.

3. Pregnant women, small children, people with health problems and people using alcohol, narcotics or other drugs that cause drowsiness should not use spa pools without first consulting a doctor.

4. Maximum use 15 minutes.

454.1.8.14 A clock shall be visible from the spa pool to assist the patron in meeting the requirement of 424.1.8.13 4. above.

454.1.8.15 If a spa is equipped with an emergency cut-off or kill switch, IT SHALL INCLUDE provisions for a minimum 80 decibel audible alarm near the spa to sound continuously until deactivated when such device is triggered-shall be incorporated. This is to alert pool patrons and operators of a potential public health situation or to indicate that the spa filtration and treatment system may be off. The following additional rule sign shall BE

INSTALLED TO be visible by the spa which reads “ALARM INDICATES SPA PUMPS OFF. DO NOT USE SPA WHEN ALARM SOUNDS UNTIL ADVISED OTHERWISE.”

Add to code to match Chapter 64E-9.011(8)(c), FAC

454.1.9.8.3

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 130- minute turnover of the contained volume within the system). Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be INSTALLED provided to assist in maintaining proper disinfection and pH levels.

Add to code as 454.1.9.3.7 to match Chapter 64E-9.011(3)(g)

In addition to the requirements of 424.1.2.3.5, all water activity pool signs INSTALLED shall have the following added in one inch letters:

Do not swallow the pool water, it is recirculated.

Do not use pool if you are ill with diarrhea.

Add to code as 454.1.9.8.13 to match Chapter 64E-9.011(8)(j)

In addition to the requirements of 424.1.2.3.5, all IWF pool rule signs INSTALLED shall have the following added in one inch letters:

Do not swallow the fountain water, it is recirculated.

Do not use fountain if you are ill with diarrhea.

Currently at 454.1.1 "Department" means Department of Health.

Suggest changing this to: "Department" means the permitting/inspection authority jurisdictional Building Department of Health.

*This allows the references to “department” throughout 454.1 to remain.*

Or, could delete each code statement where the Department must approve a deviation; these code sections are listed here:

454.1.2.1 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. ...

(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].

454.1.4.2.3 Underwater lighting...



454.1.6.5.3.1 Perimeter overflow gutters...

454.1.6.5.14 Heaters...

454.1.6.5.16.6 Ultraviolet (UV) light disinfectant equipment...

454.1.7.2 Depths...

454.1.9.2.1.3.1 The slide flume terminus...

454.1.9.3.1 Water activity pools...

454.1.9.5.4 The maximum water depth of the river ride...

454.1.9.8.2 An automatic skimmer system ...

### Alternate Language Public Comment for SW 5744

**Note that due to the length of this proposal, changes to the original Modification are in RED and highlighted in YELLOW, and anything in CAPS notes it is additional new language from what was already underlined/being proposed.**

Changes requested by Florida Dept. of Health for Consistency with Rule 64E-9, FAC.

The word “covered” should be replaced with the word “coved”. Matches Chapter 64E-9.006(2)(f)3., FAC

454.1.6.1.3 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~~ coved where either floor or wall is not made of waterproof materials such as tile or vinyl.

The letter “m” should be replaced with the word “meter”, and two sentences about an electrical interlock should be added. Matches Chapter 64E-9.007(16)(d)4.

454.1.6.5.16.4.4 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 meter and a means to control the flow. The generator shall be electrically interlocked with the recirculation pump to prevent the feeding of ozone when the recirculation pump is not operating. A flow sensor controller can also be used to turn off the feeder when flow is sensed.

The following additional language should be added. Matches Chapter 64E-9.009(6)

454.1.7.6 Vacuuming. Wading pools with 200 square feet or more of pool water surface area shall have provisions for vacuuming through the skimmer, a portable vacuum system or an alternative approved method that does not involve a direct suction port in the pool.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(2)(c)1.

454.1.9.2.3.1 Pump reservoir volume. The minimum reservoir volume shall be equal to 2 3 minutes of the combined flow rate in gallons per minute of all filter and slide pumps.

The number 5 should be replaced with the number 7. Matches Chapter 64E-9.011(6)(c)

454.1.9.6.3 The pool deck may slope toward the pool for no more than ~~5~~ 7 feet (1524 ~~2133~~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.

The number 2 should be replaced with the number 3. Matches Chapter 64E-9.011(8)(a)

454.1.9.8.1 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~~ 3 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.

Turnover time for a water slide plunge pool is 3 hours in FBC 424.1 and 2 hours. Matches Chapter 64E-9, FAC.

454.1.9.2.6.1 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~~ 2 hours or less.

Very small spas are allowed to be constructed without pH adjustment feeders in 424.1.6.5.16.3, but not in 64E-9007(16)(c), FAC.

454.1.6.5.16.3 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<sup>2</sup>) 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.

Matches Statute at s. 514.0315, FS- Or the code could name it the new std: APSP/ANSI Std. 16-2011

454.1.6.5.10.2 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 **ANSI/APSP 16 ASME/ANSI A112.19.8-2007, or any successor standard.** and the water velocity of this section.

Matches Chapter 64E-9.007(12), FAC

454.1.6.5.12 Cleaning system. A portable or plumbed in vacuum cleaning system shall be provided. 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 (15240

mm) maximum length of hose. Vacuum fittings shall be mounted **approximately no more than 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.

Matches Chapter 64E-9.009(8), FAC

454.1.7.8 Lighting. Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use- **of 10 foot-candles if indoors or 6 foot-candles for outdoor night use. Such illumination shall be provided over the pool water surface and the pool deck surface.**

Add to code as 424.1.7.9 to match Chapter 64E-9.009(9), FAC

454.1.7.9 Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be provided to assist in maintaining proper disinfection and pH levels.

Add to code as 424.1.2.3.5 to match Chapter 64E-9.008(7), FAC

454.1.2.3.5 Rules and regulations signage. Rules and regulations for bathers shall be **INSTALLED posted** in minimum 1 inch letters which must be legible from the pool deck, and shall contain the following:

1. No food or beverages in pool or on pool wet deck.
2. No glass or animals in the fenced pool area (or 50 feet from unfenced pool).
3. Bathing load: \_\_\_\_\_ persons.
4. Pool hours: \_\_\_\_\_ a.m. to \_\_\_\_\_ p.m.
5. Shower before entering.
6. Pools of 200 square feet in area or greater without an approved diving well configuration shall have "NO DIVING", in four inch letters included with the above listed pool rules.
7. Do not swallow the pool water. This statement shall be added to signs at pools that conduct modifications as that term is defined.

Add to code as 424.1.3.3.1 - 6 to match Chapter 64E-9.008(2 - 6 & 10), FAC

454.1.3.3 Safety.

454.1.3.3.1 All swimming pools shall be **INSTALLED provided** with a shepherd' s hook securely attached to a one piece pole not less than 16 feet in length, and at least one 18 inch diameter lifesaving ring with sufficient rope attached to reach all parts of the pool from the pool

deck. Safety equipment shall be mounted in a conspicuous place and be readily available for use. Pools greater than 50 feet in length shall have multiple units with at least one shepherd's hook and one lifesaving ring located along each of the longer sides of the pools. Spa pools under 200 square feet of surface area, and interactive water features or wading pools with two feet or less of water depth are exempt from this requirement.

~~454.1.3.3.2 All pools with a slope transition shall have a safety line ANCHORS as required by 424.1.10.1.3. The safety line shall be in place at all times unless a lifeguard or instructor is present.~~

~~454.1.3.3.3 Pool covers and solar blankets shall only be used during times when the pool is closed. Unless the IF A pool cover or solar blanket is INSTALLED, IT SHALL BE secured around the entire perimeter and is designed to support a live load of an adult person, OR the pool area shall be inaccessible to unauthorized individuals during times of cover or blanket use.~~

~~454.1.3.3.4 A ROOM OR SPACE SHALL BE PROVIDED FOR Chemicals TO shall be stored in a cool, dry, and well-ventilated area under a roof and the area shall be inaccessible to the public. Chemicals which emit corrosive fumes shall not be stored in the equipment room. Empty chemical containers shall be stored and disposed of in such a manner that they are not accessible to the public.~~

454.1.3.3.5 Swimming pool slides shall be installed in accordance with manufacturer's specifications and sound engineering practice. Pools with slides designed for swimming pools are not required to satisfy those of slide plunge pools in 424.1.9.2.1.

454.1.3.3.6 Floating and climb-on devices, objects or toys that are not a part of the approved pool design shall not be tethered in the pool or installed without engineering modification application and department's approval.

Add to code as 424.1.6.5.17 to match Chapter 64E-9.007(17), FAC

454.1.6.5.17 Water features such as waterfalls or fountains in pools may use up to 20% of the return water from the filter system, however all waters used in the feature shall not be counted toward attaining the designed turnover rate. Return piping system shall be designed and capable of handling the additional feature flow when the feature is turned off. Features that require more than 20% of the flow rate shall be supplied by an additional pump that drafts from a suitable collector tank. All water features that utilize water from the pool shall be designed to return the water to the pool. Spray features mounted in the pool deck shall be flush with the pool deck and shall be designed with the safety of the pool patron in mind.

Add to code as 424.1.6.5.18 to match Chapter 64E-9.004(1)(d)

~~454.1.6.5.18 Chemical quality – Only NSF-60 approved chemicals shall be provided. Chemicals used in controlling the quality of the pool water shall be tested and approved using the National Sanitation Foundation (NSF-ANSI) Standard 60-2005, Drinking Water Treatment Chemicals-Health Effects dated September, 2005, which is incorporated by reference and shall be~~

compatible with other accepted chemicals used in pools. The following parameters shall be adhered to for pool water treatment:

1. pH — 7.2 to 7.8.

2. Disinfection — Free chlorine residual shall be 1 milligram per liter (mg/L) to 10 mg/L, inclusive, in conventional swimming pools and 2 mg/L to 10 mg/L, inclusive, in all other type pools such as spa type pools and interactive water fountains; bromine residual shall be 1.5 mg/L to 10 mg/L, inclusive, in conventional swimming pools and 3 mg/L to 10 mg/L, inclusive, in all other type pools. Except that, the following maximum disinfectant levels shall apply to indoor conventional swimming pools: 5 mg/L free chlorine or 6 mg/L bromine.

3. When oxidation reduction potential controllers are required, the water potential shall be kept between 700 and 850 millivolts. Use of

these units does not negate the manual daily testing requirement of subsection 64E-9.004(13), F.A.C.

4. Cyanuric acid — 100 mg/L maximum in pools, with 40 mg/L as the recommended maximum, and 40 mg/L maximum in spa pools

5. Quaternary ammonium — 5 mg/L maximum

6. Copper — 1 mg/L maximum

7. Silver — 0.1 mg/L maximum

Add to code as 424.1.8.12 - 15 to match Chapter 64E-9.010(13-16), FAC

454.1.8.12 Automated Controllers – Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be **INSTALLED provided** on spa pools to assist in maintaining proper disinfection and pH levels.

454.1.8.13 In addition to the requirements of 424.1.2.3.5 spa pool signs **INSTALLED** shall include the following:

1. Maximum water temperature 104° F.
2. Children under twelve must have adult supervision.
3. Pregnant women, small children, people with health problems and people using alcohol, narcotics or other drugs that cause drowsiness should not use spa pools without first consulting a doctor.
4. Maximum use 15 minutes.

454.1.8.14 A clock shall be visible from the spa pool to assist the patron in meeting the requirement of 424.1.8.13 4. above.

454.1.8.15 If a spa is equipped with an emergency cut-off or kill switch, IT SHALL INCLUDE provisions for a minimum 80 decibel audible alarm near the spa to sound continuously until deactivated when such device is triggered shall be incorporated. This is to alert pool patrons and operators of a potential public health situation or to indicate that the spa filtration and treatment system may be off. The following additional rule sign shall BE INSTALLED TO be visible by the spa which reads "ALARM INDICATES SPA PUMPS OFF. DO NOT USE SPA WHEN ALARM SOUNDS UNTIL ADVISED OTHERWISE."

Add to code to match Chapter 64E-9.011(8)(c), FAC

454.1.9.8.3

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 130- minute turnover of the contained volume within the system). Automated Oxidation Reduction Potential (ORP) and pH controllers with sensing probes shall be INSTALLED provided to assist in maintaining proper disinfection and pH levels.

Add to code as 454.1.9.3.7 to match Chapter 64E-9.011(3)(g)

In addition to the requirements of 424.1.2.3.5, all water activity pool signs INSTALLED shall have the following added in one inch letters:

Do not swallow the pool water, it is recirculated.

Do not use pool if you are ill with diarrhea.

Add to code as 454.1.9.8.13 to match Chapter 64E-9.011(8)(j)

In addition to the requirements of 424.1.2.3.5, all IWF pool rule signs INSTALLED shall have the following added in one inch letters:

Do not swallow the fountain water, it is recirculated.

Do not use fountain if you are ill with diarrhea.

Currently at 454.1.1 "Department" means Department of Health.

Suggest changing this to: "Department" means the permitting/inspection authority jurisdictional Building Department of Health.

This allows the references to "department" throughout 454.1 to remain.

Or, could delete each code statement where the Department must approve a deviation; these code sections are listed here:

454.1.2.1 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. ...

(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].

454.1.4.2.3 Underwater lighting...

454.1.6.5.3.1 Perimeter overflow gutters...

454.1.6.5.14 Heaters...

454.1.6.5.16.6 Ultraviolet (UV) light disinfectant equipment...

454.1.7.2 Depths...

454.1.9.2.1.3.1 The slide flume terminus...

454.1.9.3.1 Water activity pools...

454.1.9.5.4 The maximum water depth of the river ride...

454.1.9.8.2 An automatic skimmer system ...





December 12, 2012

Florida Building Commission  
Swimming Pool Technical Advisory Committee

Re: Wading Pool Lighting Rule

Dear Chip Sellers,

We would like to submit the following comments and changes (highlighted in yellow) regarding the proposed revision to 454.1.7.8 of the Florida Building Code:

- Consistency with state policies to protect sea turtles-

§3107.1.1-3107.2 Florida Building Code references DEP's conditioning of environmental permits for structures seaward of the coastal construction control line, including the nature, timing, and sequence of construction to provide protection for nesting sea turtles, their hatchlings and habitat. (as required by F.S. 379.2431(1)).

We propose that the requirements for illumination of wading pools be the same as is required for outdoor pool lighting; 3 foot-candles. Even 3 foot-candles can be problematic for sea turtles. The proposed change of allowing 6 foot-candles for wading pools would significantly impact nesting sea turtles, hatchlings, and the habitat that they rely on. Based on our experience it is not possible to design a lighting plan that meets sea turtle protection guidelines and the recommended 6 foot-candle level of illumination. Guidelines for using long wavelength and corresponding lower foot-candle requirements should be addressed to prevent harmful impacts to threatened and endangered sea turtles.

We also propose deleting the word "overhead". Appropriate levels of illumination can be achieved through other means such as low-level fixtures. Additionally, there is no use of the word "overhead" in the Department of Health Wading Pools section 64E-9.009 (8).

- Suggested changes for 454.1.7.8-

454.1.7.8 Lighting. Wading pools are exempt from underwater lighting requirements but shall have **overhead** lighting installed for night use- **of 10 foot-candles if indoors or 6 3 foot-candles for outdoor night use. Such illumination shall be provided over the pool water surface and the pool deck surface.**

Please don't hesitate to contact me if you would like to discuss this further.

Gary Appelson  
Policy Coordinator

4424 NW 13<sup>th</sup> Street, Suite B-11, Gainesville, FL 32609  
P: 352-373-6449, [www.conserveturtles.org](http://www.conserveturtles.org)

<b>Date Submitted</b> 7/31/2012	<b>Section</b> 454.1	<b>Proponent</b> bob vincent
<b>Chapter</b> 4	<b>Affects HVHZ</b> No	<b>Attachments</b> No
<b>TAC Recommendation</b> No Affirmative Recommendation with a Second		
<b>Commission Action</b> Pending Review		

**Comments**

<b>General Comments</b> Yes	<b>Alternate Language</b> No
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**Related Modifications**

**Summary of Modification**

Alerts pool permit applicants that a DOH operation permit is also required to open a public pool. Requires the jurisdictional Building Official to alert the DOH County Health Department of permit issuance and clearance of pools and bathing places.

**Rationale**

To prevent pool owners from opening a pool to the public when it may not be operating in a sanitary or safe manner. This alerts pool permit applicants that an operation permit is also required to open a public pool. And it alerts the jurisdictional Building Official that the DOH County Health Department needs notification of permit issuance and clearance of pools and bathing places.

**Fiscal Impact Statement**

- Impact to local entity relative to enforcement of code**  
Occasional notification by email or letter to the County Health Department
- Impact to building and property owners relative to cost of compliance with code**  
None, may prevent liability costs if pool is not being operated correctly
- Impact to industry relative to the cost of compliance with code**  
None

**Requirements**

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
Health and safety due to operational conditions is the goal of this request.
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
yes, improves and captures the essence of the Chapter 514, FS changes from HB 1263
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
does not discriminate
- Does not degrade the effectiveness of the code**  
improves the effectiveness of the code

Is the proposed code modification part of a prior code version? No

**2nd Comment Period** 10/31/2012 - 12/14/2012

<b>Proponent</b> Patti Anderson	<b>Submitted</b> 12/14/2012	<b>Attachments</b> No
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SW5847-G1

**Comment:**

Notification of the DOH County Health Department regarding building officials’ permit issuance or clearance issuance does not occur since legislation transferred this responsibility on April 27, 2012. In order for pool owners/operators to apply for a required DOH operation permit and receive approval to operate, the DOH now must rely exclusively upon the owner or their agent to alert the DOH. For the practice of good government and the public’s expectation of coordination between swimming pool regulatory agencies, it is imperative that the building official alert the DOH by providing a simple email, letter, fax or telephone call upon their issuance of permit or clearance. Without this contact, some pool owners will either intentionally or unintentionally fail to wait for the DOH operating permit issuance and open the pool for use prematurely based upon the building officials’ construction clearance. This will endanger their pool guests’ with illness due to insanitary water quality, injuries, and/or potentially fatal safety flaws.

454.1 Public swimming pools and bathing places. Public swimming pools and bathing places shall comply with the design and construction standards of this section. Pools shall not be used by bathers until an operation permit is issued by the Department of Health.

**454.1.1 Flood hazard areas.** Public swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.

NOTE: Other administrative and programmatic provisions may apply. See Department of Health (DOH) Rule 64E-9, Florida Administrative Code and Chapter 514, Florida Statutes. Building Officials must provide notice to the local Department of Health County Health Department upon issuance of a construction or modification permit, and upon issuance of a certificate of completion or occupancy for public swimming pools and public bathing places as defined in Chapter 514, Florida Statutes.

<b>Date Submitted</b> 7/19/2012	<b>Section</b> 454.2	<b>Proponent</b> Joe Bigelow
<b>Chapter</b> 4	<b>Affects HVHZ</b> No	<b>Attachments</b> No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second	
<b>Commission Action</b>	Pending Review	

**Comments**

<b>General Comments</b> Yes	<b>Alternate Language</b> No
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**Related Modifications**

**Summary of Modification**

To implement Florida statutes 515 and to carry forward the Commission's work group on this subject.

**Rationale**

To implement Florida statutes 515 and to carry forward the Commission's work group on this subject.

**Fiscal Impact Statement**

- Impact to local entity relative to enforcement of code**  
Currently used under the 2010 Code, no new requirements being established
- Impact to building and property owners relative to cost of compliance with code**  
Currently used under the 2010 Code, no new requirements being established
- Impact to industry relative to the cost of compliance with code**  
Currently used under the 2010 Code, no new requirements being established

**Requirements**

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**  
Carried over from the previous, field tested and proven to be effective
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**  
Carried over from the previous, field tested and proven to be effective
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**  
Carried over from the previous, field tested and proven to be effective
- Does not degrade the effectiveness of the code**  
Carried over from the previous, field tested and proven to be effective

Is the proposed code modification part of a prior code version?  
YES

The provisions contained in the proposed amendment are addressed in the applicable international code?  
NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?  
OTHER

**Explanation of Choice**  
to implement Florida statutes 515 and to carry forward the Commission's work group on this subject.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?  
NO

**2nd Comment Period** 10/31/2012 - 12/14/2012

<b>Proponent</b> Ken Cureton	<b>Submitted</b> 12/11/2012	<b>Attachments</b> No
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**Comment:**  
Mod 5317 received NAR vote. Staff requests that the TAC support the original Mod. The proposed Mod provides for implementation of F.S. sections 515.25, 515.27 and 553.73(2).

SW5317-G2

SW5317-G1

<b>Proponent</b>	Ken Cureton	<b>Submitted</b>	9/21/2012	<b>Attachments</b>	No
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**Comment:**

The proposal provides for implementation of sections 553.73(2), 515.25 and 515.27 FS

## 454.2 Private swimming pools.

### 454.2.1 Definitions—general.

454.2.1.1 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.

454.2.1.2 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.

### 454.2.2 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 reerected 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.

**454.2.3 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.

#### **454.2.4 Approvals.**

**454.2.4.1 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.

**454.2.4.2 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.

**454.2.4.2.1 Flood hazard areas.** Private swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.

**454.2.4.3 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.

#### **454.2.5 Alternate materials and methods of construction.**

**454.2.5.1 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.

**454.2.5.2 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.

**454.2.6 Private swimming pools.**

**454.2.6.1 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.

**454.2.6.2 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.

**454.2.6.3 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.

**454.2.6.4 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.

**454.2.6.5 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.

**454.2.6.6 Entrapment protection for suction outlets shall be installed in accordance with requirements of ANSI/APSP 7.**

#### 454.2.7 Pumps.

454.2.7.1 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.

454.2.7.2 Installation. Pumps shall be installed in accordance with manufacturer recommendations.

454.2.7.3 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).

454.2.7.4 Materials. Pump impellers, shafts, wear rings and other working parts shall be of corrosion-resistant materials.

#### 454.2.8 Valves.

454.2.8.1 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.

454.2.8.2 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.

454.2.8.3 Check valves. Where check valves are installed they shall be of the swing, spring or vertical check patterns.

**454.2.8.4 Combination valves.** Combination valves shall be installed per the manufacturer's installation instructions.

**454.2.9 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.

**454.2.10 Waste water disposal.**

**454.2.10.1 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.

**454.2.10.2 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.

**454.2.10.3 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.

**454.2.11 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.

**454.2.12 Tests.**

**454.2.12.1 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.

**454.2.12.2 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.

**454.2.13 Drain piping.**

**454.2.13.1 Slope to discharge.** Drain piping serving gravity overflow gutter drains and deck drains shall be installed to provide continuous grade to point of discharge.

**454.2.13.2 Joints and connections.** Joints and connections shall be made as required by the Florida Building Code, Plumbing.

**454.2.14 Water heating equipment.**

**454.2.14.1 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.

**454.2.14.2 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.

**454.2.14.3 Pit drainage.** When the heater is installed in a pit, the pit shall be provided with approved drainage facilities.

**454.2.14.4 Connections.** All water heating equipment shall be installed with flanges or union connection adjacent to the heater.

**454.2.14.5 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.



454.2.15 Gas piping. Gas piping shall comply with the Florida Building Code, Fuel Gas.

454.2.16 Electrical. Electrical wiring and equipment shall comply with Chapter 27 of the Florida Building Code, Building.

454.2.17 Residential swimming barrier requirement. Residential swimming pools shall comply with Sections 454.2.17.1 through 454.2.17.3.

Exception: A swimming pool with an approved safety pool cover complying with ASTM F 1346.

454.2.17.1 Outdoor swimming pools. Outdoor swimming pools shall be provided with a barrier complying with Sections 454.2.17.1.1 through 454.2.17.1.14.

454.2.17.1.1 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).

454.2.17.1.2 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.

454.2.17.1.3 Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

454.2.17.1.4 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 1¾ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.

454.2.17.1.5 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 1 ¾ inches (44 mm) in width.

454.2.17.1.6 Maximum mesh size for chain link fences shall be a 2 ¼ 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 1¾ inches (44 mm).

454.2.17.1.7 Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be no more than 1 ¾ inches (44 mm).

454.2.17.1.8 Access gates, when provided, shall be self-closing and shall comply with the requirements of Sections 454.2.17.1.1 through 454.2.17.1.7 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 ½ inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

454.2.17.1.9 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). Any deactivation switch shall be located at least 54 inches (1372 mm) above the threshold of the access. 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.

454.2.17.1.10 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 454.2.17.1.1 through 454.2.17.1.9 and Sections 454.2.17.1.12 through 454.2.17.1.14. 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.

454.2.17.1.11 Standard screen enclosures which meet the requirements of Section 454.2.17 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.

454.2.17.1.12 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.

454.2.17.1.13 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.

454.2.17.1.15 A mesh safety barrier meeting the requirements of Section 454.2.17 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 1/2 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).

**454.2.17.1.16 Adjacent waterways.** Permanent natural or permanent man-made features such as bulkheads, 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.

**454.2.17.2 Indoor swimming pools.** All walls surrounding indoor swimming pools shall comply with Section 454.2.17.1.9.

**454.2.17.3 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.

**454.2.18 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.

454.2.19 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.

454.2.20 Filters. Components shall have sufficient capacity to provide a complete turnover of pool water in 12 hours or less.

454.2.20.1 Sand filters.

454.2.20.1.1 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.

454.2.20.1.2 Instructions. Every filter system shall be provided with written operating instructions.

454.2.20.1.3 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.

454.2.20.2 Diatomite type filters.

454.2.20.2.1 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.

454.2.20.2.2 Filter aid. Provision shall be made to introduce filter aid into the filter in such a way as to evenly precoat the filter septum.

**454.2.21 Pool fittings.**

**454.2.21.1 Approved type.** Pool fittings shall be of an approved type and design as to be appropriate for the specific application.

**454.2.21.2 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<sup>2</sup>) of surface area or fraction thereof, and shall be designed for a flow rate of at least 25 gpm (94L/m) per skimmer.

**454.2.21.3 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.

**454.2.21.4 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).

**454.2.21.5 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<sup>2</sup>) 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).

**454.2.22 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.

**454.2.23 Accessibility and clearances.** Equipment shall be so installed as to provide ready accessibility for cleaning, operating, maintenance and servicing.

<b>Date Submitted</b>	7/31/2012	<b>Section</b>	454	<b>Proponent</b>	BOAF CDC
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

Add reference standard in ch 35 FBCB International Swimming Pool and Spa Code (ISPSC)

Revise chapter 41 FBCR to reference International Swimming Pool and Spa Code (ISPSC) for pool & spa construction

Add reference standard in ch 44 FBCR International Swimming Pool and Spa Code (ISPSC)

**Summary of Modification**

Revise Section 454 FBCB to reference International Swimming Pool and Spa Code (ISPSC) for pool & spa construction

**Rationale**

The ICC codes are the base code for Florida, there is now an International Swimming Pool and Spa Code (ISPSC) and that should be the base code for Florida.

The International Swimming Pool and Spa Code (ISPSC) is based in part on the Florida provisions and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to building and property owners relative to cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to industry relative to the cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level protection of health, safety and welfare.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and does not discriminate against materials, products, methods, or systems of construction.

**Does not degrade the effectiveness of the code**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Is the proposed code modification part of a prior code version? No**

5831-A2

Proponent BOAF CDC Submitted 12/14/2012 Attachments Yes

**Rationale**

The ICC codes are the base code for Florida, there is now an International Swimming Pool and Spa Code (ISPSC) and that should be the base code for Florida. The International Swimming Pool and Spa Code (ISPSC) is based in part on the Florida provisions and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

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**Impact to local entity relative to enforcement of code**

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**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

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**Does not degrade the effectiveness of the code**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

Is the proposed code modification part of a prior code version? No

1st Comment Period History

08/09/2012 - 09/23/2012

SW5831-G1

Proponent Patti Anderson Submitted 9/23/2012 Attachments Yes

**Comment:**

SEE ATTACHED FILE



## SECTION 454

## SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

**454.1 Public swimming pools and bathing places.** Public swimming pools, spas, private swimming pools, and bathing places shall comply with the design and construction standards of ~~this section.~~ The International Swimming Pool and Spa Code (ISPSC)

~~**454.1.1 Flood hazard areas.** Public swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.~~

**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<sup>2</sup>) 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, wherein 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 practitioner (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.

**454.1.1 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 m<sup>2</sup>) 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.

**454.1.2 Swimming pool construction standards.**

**454.1.2.1 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.

#### **454.1.2.2 Dimensions.**

**454.1.2.2.1 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.

**454.1.2.2.2 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 1 1/2 inches (38 mm).

~~454.1.2.2.3 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.~~

~~454.1.2.2.3.1 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.~~

~~454.1.2.2.3.2 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.~~

~~454.1.2.2.4 Pool depths. The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.~~

#### ~~454.1.2.3 Markings.~~

~~454.1.2.3.1 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 mm) 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.~~

~~**454.1.2.3.2 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.~~

~~**454.1.2.3.3 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 (457 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.~~

~~**454.1.2.3.4 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.~~

~~454.1.2.4 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.~~

~~454.1.2.5 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.~~

~~454.1.2.5.1 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.~~

~~454.1.2.5.2 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.~~

~~454.1.2.5.3 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 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 3/4 to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (51 mm) 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.~~

~~454.1.2.5.4 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 454.1.2.5.3 above.~~



~~454.1.2.5.5 Handrails and grabrails.~~ Handrails shall be provided for all stairs, shall be anchored in the bottom step and the deck. Where "figure 4" deck mounted 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.

~~454.1.2.5.6 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.

~~454.1.2.6 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 454.1.2.5.3. Vinyl liner, stainless steel and fiberglass pools may use other material for the bench edge marking as detailed in Section 454.1.2.3.1, 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 454.1.2.6.~~

~~454.1.2.7 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.~~

**~~454.1.3 Pool appurtenances.~~****~~454.1.3.1 Decks and walkways.~~**

~~454.1.3.1.1 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.~~

~~454.1.3.1.2 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.~~

~~454.1.3.1.3 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.~~

~~454.1.3.1.4 Traffic barriers shall be provided as needed so that parked vehicles do not extend over the deck area.~~

~~454.1.3.1.5 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.~~

~~454.1.3.1.6 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).~~

~~454.1.3.1.7 Food or drink service facilities shall not be located within 12 feet (3658 mm) of the water's edge.~~

~~454.1.3.1.8 The vertical clearance above the pool deck shall be at least 7 feet (2137 mm).~~

~~454.1.3.1.9 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 454.2.17.1.1 through 454.2.17.1.8. 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.~~

~~**454.1.3.2 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 1 ½ inches (38 mm).~~

#### ~~454.1.4 Electrical systems.~~

~~**454.1.4.1 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.~~

~~454.1.4.2 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.~~

~~454.1.4.2.1 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.~~

~~454.1.4.2.2 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.~~

~~454.1.4.2.3 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 center line 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 454.1.4.2.1 and 454.1.4.2.2 above.~~

~~454.1.4.2.4 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.~~

#### ~~454.1.5 Equipment area or rooms.~~

~~454.1.5.1 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.~~

~~**454.1.5.2 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.~~

~~**454.1.5.3 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.~~

~~**454.1.5.4 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.~~

~~**454.1.5.5 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.~~

~~**454.1.5.6 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).~~

~~**454.1.5.7 Lighting.** Equipment rooms or areas shall be lighted to provide 30 footcandles (300 lux) of illumination at floor level.~~

~~**454.1.5.8 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.~~

~~**454.1.5.9 Hose bibbs.** A hose bibb with vacuum breaker shall be located in the equipment room or area.~~

**454.1.6 Plumbing systems.**

**454.1.6.1 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 454.1.6.1. Unisex restrooms shall meet all the requirements for materials, drainage and signage as indicated in Sections 454.1.6.1.1 through 454.1.6.1.4. 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.~~

~~**454.1.6.1.1 Required fixtures.** Fixtures shall be provided as indicated on Table 454.1.6.1. 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.~~

~~**Exception:** When a public swimming pool meets all of the following conditions the following shall apply:~~

- ~~1. the pool serves only a designated group of dwelling units;~~
- ~~2. the pool is not for the use of the general public, and~~
- ~~3. a building provides sanitary facilities;~~

~~The fixture requirement for the building shall be determined and if it exceeds the requirement in Table 454.1.6.1 then the building requirement shall regulate the fixture count, otherwise the fixture count shall be based on the requirement for the pool. Under no circumstances shall the fixture counts be cumulative.~~

**TABLE 454.1.6.1**

**PUBLIC SWIMMING POOL—REQUIRED FIXTURE COUNT**

SIZE OF POOL	MEN'S RESTROOM			WOMEN'S RESTROOM	
	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<sup>2</sup>.

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.

**454.1.6.1.2 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.

**454.1.6.1.3 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.

**454.1.6.1.4 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.

**454.1.6.2 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.

~~454.1.6.3 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.~~

~~454.1.6.4 Plastic pipes. Plastic pipe subject to a period of prolonged sunlight exposure shall be coated to protect it from ultraviolet light degradation.~~

#### ~~454.1.6.5 Recirculation and treatment systems.~~

~~454.1.6.5.1 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.~~

~~454.1.6.5.2 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<sup>2</sup>) at health clubs shall be required to provide eight turnovers per day.~~

~~454.1.6.5.3 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.~~

~~454.1.6.5.3.1 Perimeter overflow gutters. The lip of the gutter shall be uniformly level with a maximum tolerance of 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.~~

~~454.1.6.5.3.1.1 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.~~

~~454.1.6.5.3.1.2 All gutter systems shall discharge into a collector tank.~~



~~454.1.6.5.3.1.3 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.~~

~~454.1.6.5.3.2 Recessed automatic surface skimmers. Recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet (93 m<sup>2</sup>) or less excluding offset stairs and swimouts and the width of the pool is not over 20 feet (6096 mm).~~

~~454.1.6.5.3.2.1 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 m<sup>2</sup>) or fraction thereof of pool water surface area shall be provided.~~

~~454.1.6.5.3.2.2 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.~~

~~454.1.6.5.3.2.3 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.~~

~~454.1.6.5.3.2.4 Wall inlet fitting. A wall inlet fitting shall be provided directly across from each skimmer.~~

~~454.1.6.5.3.2.5 Waterline tile. A minimum 6 inch (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.~~

~~454.1.6.5.4 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.~~

~~454.1.6.5.5 Filters. Filters sized to handle the required recirculation flow shall be provided.~~

~~454.1.6.5.5.1 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 454.1.6.5.1 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].~~

~~454.1.6.5.5.2 Filter appurtenances.~~

~~454.1.6.5.5.2.1 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.~~

~~454.1.6.5.5.2.2 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.~~

~~454.1.6.5.5.2.3 D.E. systems. A precoat pot or collector tank shall be provided for D.E. type systems.~~

~~454.1.6.5.5.3 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<sup>2</sup>) effective area. The spacing between filter elements shall increase 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<sup>2</sup>). 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.~~

~~454.1.6.5.6 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.~~

**454.1.6.5.7 Valves.** Return lines, main drain lines, and surface overflow system lines, shall each have proportioning valves.

**454.1.6.5.8 Flow velocity.** Pressure piping shall not exceed 10 feet per second (2038 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.

**454.1.6.5.9 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.

**454.1.6.5.9.1 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.**

**454.1.6.5.9.2 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).**

**454.1.6.5.9.3 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 454.1.6.5.9.1 or Section 454.1.6.5.9.2 are fully met.**

**454.1.6.5.9.4 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).**

**454.1.6.5.9.5 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 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.~~

~~454.1.6.5.9.6 The flow rate through each inlet shall not exceed 20 gpm (1 L/s).~~

~~454.1.6.5.10 Main drain outlets. All pools shall be provided with an outlet at the deepest point.~~

~~454.1.6.5.10.1 The depth at the outlet shall not deviate more than 3 inches (76 mm) from the side wall.~~

~~454.1.6.5.10.2 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 1½ 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.~~

~~454.1.6.5.10.3 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.~~

~~454.1.6.5.10.4 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.~~

~~454.1.6.5.10.5 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.~~

~~454.1.6.5.11 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.~~

~~454.1.6.5.12 Cleaning system. A portable or plumbed in vacuum cleaning system shall be provided. 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.~~

~~**454.1.6.5.13 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.~~

~~**454.1.6.5.14 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.~~

~~**454.1.6.5.15 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.~~

~~**454.1.6.5.16 Addition of chemicals.** Disinfection and ph 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.~~

~~**454.1.6.5.16.1 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.~~

~~**454.1.6.5.16.1.1 Gas chlorinators** shall be located in above grade rooms and in areas which are inaccessible to unauthorized persons.~~

~~454.1.6.5.16.1.1.1 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.~~

~~454.1.6.5.16.1.1.2 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.~~

~~454.1.6.5.16.1.2 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.~~

~~454.1.6.5.16.1.3 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.~~

~~454.1.6.5.16.2 Hypohalogenation and electrolytic 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.~~

~~454.1.6.5.16.3 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<sup>2</sup>) 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 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.~~

~~454.1.6.5.16.4 Ozone generating equipment. Ozone generating equipment may be used for supplemental water treatment on public swimming pools subject to the conditions of this section.~~

~~454.1.6.5.16.4.1 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.~~

~~454.1.6.5.16.4.2 Ozone generating equipment shall meet the NSF/ANSI Standard 50.~~

~~454.1.6.5.16.4.3 The concentration of ozone in the return line to the pool shall not exceed 0.1 mg/L.~~

~~454.1.6.5.16.4.4 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.~~

~~454.1.6.5.16.4.5 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.~~

~~454.1.6.5.16.4.6 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.~~

~~454.1.6.5.16.5 Ionization units may be used as supplemental water treatment on public pools subject to the condition of this section.~~

~~454.1.6.5.16.5.1 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.~~

~~454.1.6.5.16.5.2 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.~~

~~454.1.6.5.16.6 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 Ultra violet 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/t2/pdfs/guide\\_t2\\_uvguidance.pdf](http://www.epa.gov/safewater/disinfection/t2/pdfs/guide_t2_uvguidance.pdf).~~

~~4. UV equipment shall constantly produce a validated dosage of at least 40 mJ/cm<sup>2</sup> (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.~~

~~454.1.7 Wading pools.~~



~~454.1.7.1 General. Wading pools shall meet the requirements of Sections 454.1.1 through 454.1.6.5, 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.~~

~~454.1.7.2 Depth. 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.~~

~~454.1.7.3 Recirculation. Wading pools shall have a minimum of one turnover every hour. Lines from main drains shall discharge into a collector tank.~~

~~454.1.7.3.1 Skimmer equalizer lines when required shall be plumbed into the main drain installed in the pool floor with a grate covering.~~

~~454.1.7.3.2 The grate cover shall be sized so as not to allow the flow to exceed 1 ½ feet per second (457 mm/s) when the equalizer line is operating.~~

~~454.1.7.4 Inlets. Wading pools with 20 feet (6096 mm) or less of perimeter shall have a minimum of two equally spaced adjustable inlets.~~

~~454.1.7.5 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.~~

~~454.1.7.6 Vacuuming. Wading pools with 200 square feet (19 mm) or more of pool water surface area shall have provisions for vacuuming.~~

~~454.1.7.7 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 (12192 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.~~

~~454.1.7.8 Lighting.~~ Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use.

#### ~~454.1.8 Spa pools.~~

~~454.1.8.1 General.~~ Spa pools shall meet the requirements of Sections 454.1.1 through 454.1.6.5, unless specifically indicated otherwise.

~~454.1.8.2 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.

~~454.1.8.3 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 m<sup>2</sup>) or less of water surface area.

~~454.1.8.4 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 454.1.2.5. Step sets for spa type pools with 200 square feet (19 m<sup>2</sup>) 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 454.1.2.5.

~~454.1.8.4.1 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.~~

~~454.1.8.4.2 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.~~

~~454.1.8.5 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 m<sup>2</sup>) 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 m<sup>2</sup>) or greater, 10 percent of the deck along the pool perimeter may be obstructed.~~

#### ~~454.1.8.6 Therapy or jet systems.~~

~~454.1.8.6.1 The return lines of spa type therapy or jet systems shall be independent of the recirculation filtration and heating systems.~~

~~454.1.8.6.2 Therapy or jet pumps shall take suction from the collector tank. Collector tank sizing shall take this additional gallonage into consideration.~~

~~454.1.8.7 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.~~

~~454.1.8.8 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 454.1.6.5. All recirculation lines to and from the pool shall be individually valved with proportional flow type valves in order to control the recirculation flow.~~

~~454.1.8.9 Vacuuming. Spa type pools of over 200 square feet (19 m<sup>2</sup>) of pool water surface area shall have provisions for vacuuming.~~

~~454.1.8.10 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.~~

~~454.1.8.11 Portable and wooden spa pools. Portable and wooden type spa pools are prohibited.~~

~~454.1.9 Water recreation attractions and specialized pools.~~

~~454.1.9.1 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 454.1.1 through 454.1.6.5 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.~~

#### ~~454.1.9.2 Water slides.~~

~~454.1.9.2.1 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 454.1.9.2.1.1 through 454.1.9.2.1.6.~~

~~454.1.9.2.1.1 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.~~

~~454.1.9.2.1.2 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.~~

#### ~~454.1.9.2.1.3 Slide flume terminus.~~

~~454.1.9.2.1.3.1 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.~~

~~454.1.9.2.1.3.2 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 (1828 mm).~~

~~454.1.9.2.1.3.3 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.~~

~~454.1.9.2.1.4 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.

**454.1.9.2.1.5 Plunge pool floor slope.** The plunge pool floor shall slope to the main drains and the slope shall not exceed 1 in 10.

**454.1.9.2.1.6 Plunge pool decks.**

**454.1.9.2.1.6.1 Width.** The minimum width of plunge pool decks along the exit side shall be 10 feet (3048 mm).

**454.1.9.2.1.6.2 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.

**454.1.9.2.2 Run out lanes.**

**454.1.9.2.2.1** 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.

**454.1.9.2.2.2** Five foot wide (1524 mm) walkways shall be provided adjacent to run out lanes.

**454.1.9.2.2.3** 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.

**454.1.9.2.2.4** Water park personnel shall be provided at the top of the slides and at the run out.

**454.1.9.2.3 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 454.1.9.2.3.1 through 454.1.9.2.3.5.

~~454.1.9.2.3.1 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.

~~454.1.9.2.3.2 Pump reservoir security.~~ Pump reservoirs shall be accessible only to authorized individuals.

~~454.1.9.2.3.3 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.

~~454.1.9.2.3.4 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.

~~454.1.9.2.3.5 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 ½ 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).

~~454.1.9.2.3.6~~ 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 1 ½ feet per second (457 mm/s) through the main drain grating and 3 feet per second (914 mm/s) through the reservoir piping.

~~454.1.9.2.4 Slide pump check valves.~~ Slide pumps shall have check valves on all discharge lines.

~~454.1.9.2.5 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.

~~454.1.9.2.5.1 Perimeter overflow gutter systems.~~ Perimeter overflow gutter systems shall meet the requirements of Section 454.1.6.5.3.1 except that gutters are not required directly under slide flumes or along the weirs which separate plunge pools and pump reservoirs.

~~454.1.9.2.5.2 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 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.~~

#### ~~454.1.9.2.6 Water slide recirculation filtration equipment.~~

~~454.1.9.2.6.1 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.~~

~~454.1.9.2.6.2 Filter areas. minimum filter area requirements shall be twice the filter areas specified for the recirculation rates stipulated in Section 454.1.6.5.5.1. 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.~~

~~454.1.9.2.6.3 Hair and lint strainer. Any filtration system pump which takes suction directly from the plunge pool and reservoir shall have a minimum 8 inch (203 mm) diameter hair and lint strainer on the suction side of the pump.~~

~~454.1.9.2.7 Disinfection. The disinfection equipment shall be capable of feeding 12 mg/L of halogen to the continuous recirculation flow of the filtration system.~~

~~454.1.9.2.8 Slide design and construction is the responsibility of a professional engineer licensed in Florida and the applicant.~~

~~454.1.9.2.9 A lockable gate shall be provided at the stair or ladder entrance to the slide.~~

~~454.1.9.2.10 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.~~

#### ~~454.1.9.3 Water activity pools.~~

~~454.1.9.3.1 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.~~

~~454.1.9.3.2 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.~~

~~454.1.9.3.3 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.~~

~~454.1.9.3.4 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.~~

~~454.1.9.3.5 Fence requirements shall be in accordance with Section 454.1.7.7.~~

~~454.1.9.3.6 Play features with an overhead clearance of less than 4 feet (1219 mm) shall be blocked or barricaded to preclude children becoming entrapped.~~

#### ~~454.1.9.4 Wave pools.~~

~~454.1.9.4.1 Wave pools shall be designed and constructed within the limits of sound engineering practice.~~

~~454.1.9.4.2 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.~~

~~454.1.9.4.3 The recirculation filtration system of wave pools shall be capable of a minimum of one turnover every 3 hours.~~

~~454.1.9.4.4 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 454.1.2.2.3.~~



**~~454.1.9.5 River rides.~~**

~~454.1.9.5.1 River rides shall be constructed within the limits of sound engineering practice.~~

~~454.1.9.5.2 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.~~

~~454.1.9.5.3 The recirculation filtration system of the river ride shall be capable of a minimum of one turnover every 3 hours.~~

~~454.1.9.5.4 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.~~

~~454.1.9.5.5 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.~~

~~454.1.9.5.6 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.~~

**~~454.1.9.6 Zero depth entry pools.~~**

~~454.1.9.6.1 Zero depth entry pools shall have a continuous floor slope from the water edge to the deep end.~~

~~454.1.9.6.2 The deck level perimeter overflow system with grate shall be provided at the water's edge across the entire zero depth portion of the pool.~~

~~454.1.9.6.3 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 454.1.2.2.3.~~

~~454.1.9.6.4 "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.~~

~~454.1.9.6.5 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.~~

~~454.1.9.6.6 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.~~

~~454.1.9.6.7 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.~~

~~454.1.9.6.8 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.~~

#### ~~454.1.9.7 Special purpose pools:~~

~~454.1.9.7.1 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 454.1.2.~~

~~454.1.9.7.2 A special purpose pool may incorporate ledges which do not overhang into the pool.~~

**454.1.9.8 Interactive water features (IWFs).**

~~454.1.9.8.1 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.~~

~~454.1.9.8.2 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.~~

~~454.1.9.8.3 Chemical feeders shall be in accordance with Section 454.1.6.5; 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).~~

~~454.1.9.8.4 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.~~

~~454.1.9.8.5 All electrical work shall comply with Chapter 27 of the Florida Building Code, Building.~~

**454.1.9.8.6 Hydraulics.**

~~454.1.9.8.6.1 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.~~

~~454.1.9.8.6.2 The water feature pump shall draft from the collector tank.~~

~~454.1.9.8.6.3 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 454.1.6.5-16.6. 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.~~

~~454.1.9.8.6.4 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.~~

~~454.1.9.8.6.5 An automatic water level controller shall be provided.~~

~~454.1.9.8.6.6 An overflow waste line with air gap shall be provided.~~

~~454.1.9.8.6.7 A means of vacuuming and completely draining the tank(s) shall be provided.~~

~~454.1.9.8.6.8 Where the filter system described in Section 454.1.9.8.6.1 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.~~

~~454.1.9.8.6.9 IWFs shall be fenced in the same fashion as wading pools as noted in Section 454.1.7.7. 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.~~

~~454.1.9.8.6.10 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 454.1.2.2.3; however, up to 50 percent of the perimeter may be obstructed.~~

~~454.1.9.8.6.11 IWFs shall be constructed of concrete or other impervious and structurally rigid material.~~

~~454.1.9.8.6.12 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.~~

~~454.1.9.8.7 Water theme parks shall meet all other aspects of these rules for the features provided.~~

~~454.1.9.8.7.1 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.~~

~~454.1.9.8.7.2 Showers shall be provided at or near the entrance (queue line) to a water recreation attraction.~~

~~454.1.9.8.7.3 Water theme parks are exempt from the fencing requirements of Section 454.1.3.1.9, 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.~~

~~454.1.9.8.7.4 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.~~

#### ~~454.1.10 Modifications.~~

~~454.1.10.1 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 454.1.3.1, and deck markings are upgraded in accordance with Section 454.1.2.3. 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:~~

~~454.1.10.1.1 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.~~

~~454.1.10.1.2 Tile step markings must be installed meeting the requirements of Section 454.1.2.5.3.~~

~~454.1.10.1.3 Where applicable the slope break marking must be installed meeting the requirements of Section 454.1.2.2.3.2 and safety line must be installed 2 feet (610 mm) before the marking.~~

~~454.1.10.1.4 Depth markers and NO DIVING markers must be installed in accordance with Section 454.1.2.3.~~

~~454.1.10.1.5 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 454.1.2.5.1 during a pool resurfacing.~~

~~454.1.10.1.6 Should resurfacing works affect the step riser heights, no riser shall exceed 12 inches (305 mm) and the intermediate risers shall be made uniform.~~

~~454.1.10.1.7 When fiberglass is used to resurface a pool any existing tile shall not be covered by the fiberglass finish.~~

~~454.1.10.1.8 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.~~

~~454.1.10.1.9 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 454.1.2.5.2.~~

~~454.1.10.2 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.~~

~~454.1.10.3 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.~~

~~e. 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.~~

Text of Modification

## SECTION 454

## SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

**454.1 Public swimming pools and bathing places.** Public swimming pools, spas, private swimming pools, and bathing places shall comply with the design and construction standards of this section: The International Swimming Pool and Spa Code (ISPSC)

**454.1.1 Flood hazard areas.** ~~Public swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.~~

**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<sup>2</sup>) 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, wherein 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 practitioner (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.

**454.1.1 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 m<sup>2</sup>) 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-a-boards 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.

#### 454.1.2 Swimming pool construction standards.

**454.1.2.1 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.

#### 454.1.2.2 Dimensions.

**454.1.2.2.1 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.

**454.1.2.2.2 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 1 1/2 inches (38 mm).

**454.1.2.2.3 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.

**454.1.2.2.3.1 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.

**454.1.2.2.3.2** 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.

**454.1.2.2.4 Pool depths.** The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.

#### **454.1.2.3 Markings.**

**454.1.2.3.1 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 mm) 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.

**454.1.2.3.2 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.

**454.1.2.3.3 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.

**454.1.2.3.4 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.

**454.1.2.4 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.

**454.1.2.5 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.

**454.1.2.5.1 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.

**454.1.2.5.2 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.

**454.1.2.5.3 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 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 3/4 to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (51 mm) 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.

**454.1.2.5.4 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 454.1.2.5.3 above.

**454.1.2.5.5 Handrails and grabrails.** Handrails shall be provided for all stairs, shall be anchored in the bottom step and the deck. Where "figure 4" deck mounted 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.

**454.1.2.5.6 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.

**454.1.2.6 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 454.1.2.5.3. Vinyl liner, stainless steel and fiberglass pools may use other material for the bench edge marking as detailed in Section 454.1.2.3.1, 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 454.1.2.6.

**454.1.2.7 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.

#### **454.1.3 Pool appurtenances.**

##### **454.1.3.1 Decks and walkways.**

**454.1.3.1.1** 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.

**454.1.3.1.2** 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.

**454.1.3.1.3** 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.

**454.1.3.1.4** Traffic barriers shall be provided as needed so that parked vehicles do not extend over the deck area.

**454.1.3.1.5** 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.

**454.1.3.1.6** 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).

**454.1.3.1.7** Food or drink service facilities shall not be located within 12 feet (3658 mm) of the water's edge.

**454.1.3.1.8** The vertical clearance above the pool deck shall be at least 7 feet (2137 mm).

**454.1.3.1.9** 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 454.2.17.1.1 through 454.2.17.1.8. 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.

**454.1.3.2 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 1 ½ inches (38 mm).

**454.1.4 Electrical systems.**

**454.1.4.1 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.*

**454.1.4.2 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.

**454.1.4.2.1 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.

**454.1.4.2.2 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.

**454.1.4.2.3 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 center line 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 454.1.4.2.1 and 454.1.4.2.2 above.

**454.1.4.2.4 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.*

#### **454.1.5 Equipment area or rooms.**

**454.1.5.1 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.

**454.1.5.2 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.

**454.1.5.3 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.

**454.1.5.4 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.

**454.1.5.5 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.

**454.1.5.6 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).

**454.1.5.7 Lighting.** Equipment rooms or areas shall be lighted to provide 30 footcandles (300 lux) of illumination at floor level.

**454.1.5.8 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.

**454.1.5.9 Hose bibbs.** A hose bibb with vacuum breaker shall be located in the equipment room or area.

#### **454.1.6 Plumbing systems.**

**454.1.6.1 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 454.1.6.1. Unisex restrooms shall meet all the requirements for materials, drainage and signage as indicated in Sections 454.1.6.1.1 through 454.1.6.1.4. 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.

**454.1.6.1.1 Required fixtures.** Fixtures shall be provided as indicated on Table 454.1.6.1. 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.

**Exception:** When a public swimming pool meets all of the following conditions the following shall apply:

1. the pool serves only a designated group of dwelling units;
2. the pool is not for the use of the general public, and
3. a building provides sanitary facilities;

The fixture requirement for the building shall be determined and if it exceeds the requirement in Table 454.1.6.1 then the building requirement shall regulate the fixture count, otherwise the fixture count shall be based on the requirement for the pool. Under no circumstances shall the fixture counts be cumulative.

**TABLE 454.1.6.1**

**PUBLIC SWIMMING POOL—REQUIRED FIXTURE COUNT**

SIZE OF POOL	MEN'S RESTROOM			WOMEN'S RESTROOM	
	Urinals	WC	Lavatory	WC	Lavatory
0–2,500 sq. ft.	1	1	1	1	1
2,501–5,000 sq. ft.	2	1	1	3	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<sup>2</sup>.

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.

**454.1.6.1.2 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.

**454.1.6.1.3 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.

**454.1.6.1.4 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.

**454.1.6.2 Rinse shower.** A minimum of one rinse shower shall be provided on the pool deck of all outdoor pools within 20 feet (60960 mm) of the nearest pool water's edge.

**454.1.6.3 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.

**454.1.6.4 Plastic pipes.** Plastic pipe subject to a period of prolonged sunlight exposure shall be coated to protect it from ultraviolet light degradation.

**454.1.6.5 Recirculation and treatment systems.**

**454.1.6.5.1 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.

**454.1.6.5.2 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<sup>3</sup>) at health clubs shall be required to provide eight turnovers per day.

**454.1.6.5.3 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.

**454.1.6.5.3.1 Perimeter overflow gutters.** The lip of the gutter shall be uniformly level with a maximum tolerance of 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.

**454.1.6.5.3.1.1** 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.

**454.1.6.5.3.1.2** All gutter systems shall discharge into a collector tank.

**454.1.6.5.3.1.3** 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.

**454.1.6.5.3.2 Recessed automatic surface skimmers.** Recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet (93 m<sup>2</sup>) or less excluding offset stairs and swimouts and the width of the pool is not over 20 feet (6096 mm).

**454.1.6.5.3.2.1 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 m<sup>2</sup>) or fraction thereof of pool water surface area shall be provided.

**454.1.6.5.3.2.2 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.

**454.1.6.5.3.2.3 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.

**454.1.6.5.3.2.4 Wall inlet fitting.** A wall inlet fitting shall be provided directly across from each skimmer.

**454.1.6.5.3.2.5 Waterline tile.** A minimum 6-inch (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.

**454.1.6.5.4 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.

**454.1.6.5.5 Filters.** Filters sized to handle the required recirculation flow shall be provided.

**454.1.6.5.5.1 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 454.1.6.5.1 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].

**454.1.6.5.5.2 Filter appurtenances.**

**454.1.6.5.5.2.1 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.

**454.1.6.5.5.2.2 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.

**454.1.6.5.5.2.3 D.E. systems.** A precoat pot or collector tank shall be provided for D.E. type systems.

**454.1.6.5.5.3 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<sup>2</sup>) effective area. The spacing between filter elements shall increase 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<sup>2</sup>). 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.

**454.1.6.5.5.6 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.

**454.1.6.5.5.7 Valves.** Return lines, main drain lines, and surface overflow system lines, shall each have proportioning valves.

**454.1.6.5.5.8 Flow velocity.** Pressure piping shall not exceed 10 feet per second (2038 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.

**454.1.6.5.5.9 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.

**454.1.6.5.9.1 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.

**454.1.6.5.9.2** 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).

**454.1.6.5.9.3** 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 454.1.6.5.9.1 or Section 454.1.6.5.9.2 are fully met.

**454.1.6.5.9.4** 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).

**454.1.6.5.9.5** 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 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.

**454.1.6.5.9.6** The flow rate through each inlet shall not exceed 20 gpm (1 L/s).

**454.1.6.5.10 Main drain outlets.** All pools shall be provided with an outlet at the deepest point.

**454.1.6.5.10.1** The depth at the outlet shall not deviate more than 3 inches (76 mm) from the side wall.

**454.1.6.5.10.2** 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 1½ 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.

**454.1.6.5.10.3** 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.

**454.1.6.5.10.4** 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.

**454.1.6.5.10.5** 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.

**454.1.6.5.11 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.

**454.1.6.5.12 Cleaning system.** A portable or plumbed in vacuum cleaning system shall be

provided. 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.

**454.1.6.5.13 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.

**454.1.6.5.14 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.

**454.1.6.5.15 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.

**454.1.6.5.16 Addition of chemicals.** Disinfection and ph 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.

**454.1.6.5.16.1 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.

**454.1.6.5.16.1.1** Gas chlorinators shall be located in above-grade rooms and in areas which are inaccessible to unauthorized persons.

**454.1.6.5.16.1.1.1** 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.

**454.1.6.5.16.1.1.2** 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.

**454.1.6.5.16.1.2** 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.

**454.1.6.5.16.1.3** 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.

**454.1.6.5.16.2 Hypohalogenation and electrolytic 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.

**454.1.6.5.16.3 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<sup>2</sup>) 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 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.

**454.1.6.5.16.4 Ozone generating equipment.** Ozone generating equipment may be used for supplemental water treatment on public swimming pools subject to the conditions of this section.

**454.1.6.5.16.4.1** 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.

**454.1.6.5.16.4.2** Ozone generating equipment shall meet the NSF/ANSI Standard 50.

**454.1.6.5.16.4.3** The concentration of ozone in the return line to the pool shall not exceed 0.1 mg/L.

**454.1.6.5.16.4.4** 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 meter and a means to control the flow.

**454.1.6.5.16.4.5 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.

**454.1.6.5.16.4.6** 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.

**454.1.6.5.16.5** Ionization units may be used as supplemental water treatment on public pools subject to the condition of this section.

**454.1.6.5.16.5.1** 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.

**454.1.6.5.16.5.2** 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.

**454.1.6.5.16.6** 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/t2/pdfs/guide\\_t2\\_uvguidance.pdf](http://www.epa.gov/safewater/disinfection/t2/pdfs/guide_t2_uvguidance.pdf).

4. UV equipment shall constantly produce a validated dosage of at least 40 mJ/cm<sup>2</sup> (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.

#### **454.1.7 Wading pools.**

**454.1.7.1 General.** Wading pools shall meet the requirements of Sections 454.1.1 through 454.1.6.5, 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.

**454.1.7.2 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.

**454.1.7.3 Recirculation.** Wading pools shall have a minimum of one turnover every hour. Lines from main drains shall discharge into a collector tank.

**454.1.7.3.1 Skimmer equalizer lines** when required shall be plumbed into the main drain installed in the pool floor with a grate covering.

**454.1.7.3.2** The grate cover shall be sized so as not to allow the flow to exceed 1 ½ feet per second (457 mm/s) when the equalizer line is operating.

**454.1.7.4 Inlets.** Wading pools with 20 feet (6096 mm) or less of perimeter shall have a minimum of two equally spaced adjustable inlets.

**454.1.7.5 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.

**454.1.7.6 Vacuuming.** Wading pools with 200 square feet (19 mm) or more of pool water surface area shall have provisions for vacuuming.

**454.1.7.7 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.

**454.1.7.8 Lighting.** Wading pools are exempt from underwater lighting requirements but shall have overhead lighting installed for night use.

**454.1.8 Spa pools.**

**454.1.8.1 General.** Spa pools shall meet the requirements of Sections 454.1.1 through 454.1.6.5, unless specifically indicated otherwise.

**454.1.8.2 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.

**454.1.8.3 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 m<sup>2</sup>) or less of water surface area.

**454.1.8.4 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 454.1.2.5. Step sets for spa type pools with 200 square feet (19 m<sup>2</sup>) 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 454.1.2.5.

**454.1.8.4.1 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.

**454.1.8.4.2** 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.

**454.1.8.5 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 m<sup>2</sup>) 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 m<sup>2</sup>) or greater, 10 percent of the deck along the pool perimeter may be obstructed.

**454.1.8.6 Therapy or jet systems.**

**454.1.8.6.1** The return lines of spa type therapy or jet systems shall be independent of the recirculation filtration and heating systems.

**454.1.8.6.2** Therapy or jet pumps shall take suction from the collector tank. Collector tank sizing shall take this additional gallonage into consideration.

**454.1.8.7 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.

**454.1.8.8 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 454.1.6.5. All recirculation lines to and from the pool shall be individually valved with proportional flow type valves in order to control the recirculation flow.

**454.1.8.9 Vacuuming.** Spa type pools of over 200 square feet (19 m<sup>2</sup>) of pool water surface area shall have provisions for vacuuming.

**454.1.8.10 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.

**454.1.8.11 Portable and wooden spa pools.** Portable and wooden type spa pools are prohibited.

#### **454.1.9 Water recreation attractions and specialized pools.**

**454.1.9.1 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 454.1.1 through 454.1.6.5 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.

#### **454.1.9.2 Water slides.**

**454.1.9.2.1 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 454.1.9.2.1.1 through 454.1.9.2.1.6.

**454.1.9.2.1.1 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.

**454.1.9.2.1.2 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.

#### **454.1.9.2.1.3 Slide flume terminus.**

**454.1.9.2.1.3.1** 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.

**454.1.9.2.1.3.2** 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).

**454.1.9.2.1.3.3** 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.

**454.1.9.2.1.4 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.

**454.1.9.2.1.5 Plunge pool floor slope.** The plunge pool floor shall slope to the main drains and the slope shall not exceed 1 in 10.

**454.1.9.2.1.6 Plunge pool decks.**

**454.1.9.2.1.6.1 Width.** The minimum width of plunge pool decks along the exit side shall be 10 feet (3048 mm).

**454.1.9.2.1.6.2 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.

**454.1.9.2.2 Run out lanes.**

**454.1.9.2.2.1** 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.

**454.1.9.2.2.2** Five foot wide (1524 mm) walkways shall be provided adjacent to run out lanes.

**454.1.9.2.2.3** 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.

**454.1.9.2.2.4** Water park personnel shall be provided at the top of the slides and at the run out.

**454.1.9.2.3 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 454.1.9.2.3.1 through 454.1.9.2.3.5.

**454.1.9.2.3.1 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.

**454.1.9.2.3.2 Pump reservoir security.** Pump reservoirs shall be accessible only to authorized individuals.

**454.1.9.2.3.3 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.

**454.1.9.2.3.4 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.

**454.1.9.2.3.5 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 ½ 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).

**454.1.9.2.3.6** 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 1 ½ feet per second (457 mm/s) through the main drain grating and 3 feet per second (3962 mm/s) through the reservoir piping.

**454.1.9.2.4 Slide pump check valves.** Slide pumps shall have check valves on all discharge lines.

**454.1.9.2.5 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.

**454.1.9.2.5.1 Perimeter overflow gutter systems.** Perimeter overflow gutter systems shall meet the requirements of Section 454.1.6.5.3.1 except that gutters are not required directly under slide flumes or along the weirs which separate plunge pools and pump reservoirs.

**454.1.9.2.5.2 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 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.

**454.1.9.2.6 Water slide recirculation filtration equipment.**

**454.1.9.2.6.1 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.

**454.1.9.2.6.2 Filter areas.** minimum filter area requirements shall be twice the filter areas specified for the recirculation rates stipulated in Section 454.1.6.5.5.1. 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.

**454.1.9.2.6.3 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.

**454.1.9.2.7 Disinfection.** The disinfection equipment shall be capable of feeding 12 mg/L of halogen to the continuous recirculation flow of the filtration system.

**454.1.9.2.8** Slide design and construction is the responsibility of a professional engineer licensed in Florida and the applicant.

**454.1.9.2.9** A lockable gate shall be provided at the stair or ladder entrance to the slide.

**454.1.9.2.10** 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.

#### **454.1.9.3 Water activity pools.**

**454.1.9.3.1** 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.

**454.1.9.3.2** 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.

**454.1.9.3.3** 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.

**454.1.9.3.4** 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.

**454.1.9.3.5** Fence requirements shall be in accordance with Section 454.1.7.7.

**454.1.9.3.6** Play features with an overhead clearance of less than 4 feet (1219 mm) shall be blocked or barricaded to preclude children becoming entrapped.

#### **454.1.9.4 Wave pools.**

**454.1.9.4.1** Wave pools shall be designed and constructed within the limits of sound engineering practice.

**454.1.9.4.2** 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.

**454.1.9.4.3** The recirculation-filtration system of wave pools shall be capable of a minimum of one turnover every 3 hours.

**454.1.9.4.4** 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 454.1.2.2.3.



**454.1.9.5 River rides.**

~~454.1.9.5.1 River rides shall be constructed within the limits of sound engineering practice.~~

~~454.1.9.5.2 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.~~

~~454.1.9.5.3 The recirculation-filtration system of the river ride shall be capable of a minimum of one turnover every 3 hours.~~

~~454.1.9.5.4 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.~~

~~454.1.9.5.5 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.~~

~~454.1.9.5.6 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.~~

**454.1.9.6 Zero depth entry pools.**

~~454.1.9.6.1 Zero depth entry pools shall have a continuous floor slope from the water edge to the deep end.~~

~~454.1.9.6.2 The deck level perimeter overflow system with grate shall be provided at the water's edge across the entire zero depth portion of the pool.~~

~~454.1.9.6.3 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 454.1.2.2.3.~~

~~454.1.9.6.4 "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.~~

~~454.1.9.6.5 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.~~

~~454.1.9.6.6 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.

**454.1.9.6.7** 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.

**454.1.9.6.8** 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.

**454.1.9.7 Special purpose pools.**

**454.1.9.7.1 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 454.1.2.

**454.1.9.7.2** A special purpose pool may incorporate ledges which do not overhang into the pool.

**454.1.9.8 Interactive water features (IWFs).**

**454.1.9.8.1** 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.

**454.1.9.8.2** 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.

**454.1.9.8.3** Chemical feeders shall be in accordance with Section 454.1.6.5; 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).

**454.1.9.8.4** 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.

**454.1.9.8.5** All electrical work shall comply with Chapter 27 of the *Florida Building Code, Building*.

**454.1.9.8.6 Hydraulics.**

**454.1.9.8.6.1** 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.

**454.1.9.8.6.2** The water feature pump shall draft from the collector tank.

**454.1.9.8.6.3** 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 454.1.6.5.16.6. 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.

**454.1.9.8.6.4** 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.

**454.1.9.8.6.5** An automatic water level controller shall be provided.

**454.1.9.8.6.6** An overflow waste line with air gap shall be provided.

**454.1.9.8.6.7** A means of vacuuming and completely draining the tank(s) shall be provided.

**454.1.9.8.6.8** Where the filter system described in Section 454.1.9.8.6.1 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.

**454.1.9.8.6.9** IWFs shall be fenced in the same fashion as wading pools as noted in Section 454.1.7.7. 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.

**454.1.9.8.6.10** 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 454.1.2.2.3; however, up to 50 percent of the perimeter may be obstructed.

**454.1.9.8.6.11** IWFs shall be constructed of concrete or other impervious and structurally rigid material.

**454.1.9.8.6.12** 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.

**454.1.9.8.7** Water theme parks shall meet all other aspects of these rules for the features provided.

**454.1.9.8.7.1** 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.

**454.1.9.8.7.2** Showers shall be provided at or near the entrance (queue line) to a water recreation attraction.

**454.1.9.8.7.3** Water theme parks are exempt from the fencing requirements of Section 454.1.3.1.9, 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.

**454.1.9.8.7.4** 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.

**454.1.10 Modifications.**

**454.1.10.1 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 454.1.3.1, and deck markings are upgraded in accordance with Section 454.1.2.3. 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:

**454.1.10.1.1** 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.

**454.1.10.1.2** Tile step markings must be installed meeting the requirements of Section 454.1.2.5.3.

**454.1.10.1.3** Where applicable the slope break marking must be installed meeting the requirements of Section 454.1.2.2.3.2 and safety line must be installed 2 feet (610 mm) before the marking.

**454.1.10.1.4** Depth markers and NO DIVING markers must be installed in accordance with Section 454.1.2.3.

**454.1.10.1.5** 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 454.1.2.5.1 during a pool resurfacing.

**454.1.10.1.6** Should resurfacing works affect the step riser heights, no riser shall exceed 12 inches (305 mm) and the intermediate risers shall be made uniform.

**454.1.10.1.7** When fiberglass is used to resurface a pool any existing tile shall not be covered by the fiberglass finish.

**454.1.10.1.8** 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.

~~454.1.10.1.9 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 454.1.2.5.2.~~

~~454.1.10.2 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.~~

~~454.1.10.3 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.~~

Florida Supplement to the I Codes:

This draft is prepared under the following assumptions:

For the purposes of using this supplement the following references apply throughout:

International Building Code, use the current Florida Building Code, Building

International Residential Code, use the current Florida Building Code, Residential

International Plumbing Code, use the current International Plumbing Code with the Florida Supplement to the I Codes Florida Building Code, Plumbing Section.

International Mechanical Code, use the current International Mechanical Code with the Florida Supplement to the I Codes Florida Building Code, Mechanical Section.

International Fire Code, use the current Florida Fire Prevention Code.

International Fuel Gas Code, use the current International Fuel Gas Code with the Florida Supplement to the I Codes Florida Building Code, Fuel Gas Section.

International Energy Conservation, use the current Florida Building Code, Energy Conservation

Where accessibility is required, Use the current Florida Building Code, Building, Accessibility

The Florida Supplement lists the Florida Code Changes and the sections that do not apply in Florida

**FLORIDA BUILDING CODE, INTERNATIONAL SWIMMING POOL AND SPA  
CODE SUPPLEMENT 2013**

**Chapter 1 - Scope and Administration**

**101.1 Title.** These regulations shall be known as the Swimming Pool and Spa Code of the State of Florida [NAME OF JURISDICTION], hereinafter referred to as “this code.”

**103, 104, 107 & 108 are Reserved** and The provisions of Chapter 1 Sections 103 - 109, & 111 - 117 *Florida Building Code, Building* shall govern the administration and enforcement of the *Florida Building Code, ISPSC supplement*.

## SECTION 106 INSPECTIONS

### 106.3 Required inspections and testing.

All *aquatic vessel* installations or alterations thereto, including equipment, piping, and appliances related thereto, shall be inspected by the *code official* to ensure compliance with all of the requirements of this code. Inspections shall include the following as applicable, but shall not be limited to:

Ø **Pool Steel:** Inspection of the steel reinforcing bar creating the shell of the pool. (Prior to shooting the pool) (Can be performed with the pool bonding and the 1<sup>st</sup> pool piping inspection)

Ø **Pool Bonding:** Inspection of the electrical bonding to the wet niche, the shell and any embedded metal accessories associated with the pool shell. (Prior to shooting the pool) (Can be performed with the pool steel and the 1<sup>st</sup> pool piping inspections)

Ø **1<sup>st</sup> Pool Piping:** Inspection of the piping to be concealed by the pool shell, including the main drain and suction lines. (Prior to shooting the pool) (Can be performed with the pool bonding and the pool steel inspections)

Ø **Underground Electrical:** Inspection of any underground/under deck electrical conduit, wiring or required grounding or bonding, (inspected prior to the pool deck inspection.) (Can be made with the 2<sup>nd</sup> pool piping inspection.)

Ø **2<sup>nd</sup> Pool Piping:** Inspection of the pool piping under the deck to the equipment. A pressure test shall be performed at this time. (Inspected prior to the pool deck inspection.) (Can be made with the underground electrical inspection.)

Ø **Pool Equipotential Bonding:** Inspection of the method of providing equipotential bonding grid.

(Inspection prior to pouring/placing the pool deck) (Can be made with the pool deck inspection.)

Ø **Pool Deck:** Inspection of the pool deck area (prior to pouring/placing the pool deck) (Can be made with the pool equipotential bonding inspection.)

Ø **Pool Pre-final Safety Inspection:** Inspection of the electrical bonding system prior to energizing the system and inspection of the required barriers prior to filling the pool with water.

Ø **Final Pool Piping:** Inspection of the finished pool piping and the TDH flow test. (Can be made with the final electrical and final building inspections.)

Ø **Final Electric:** Inspection of the finished electrical system. (Can be made with the final pool piping and final building inspections.)

Ø **Final Building:** Inspection of the finished pool. (Can be made with the final pool piping and final electrical inspections.)

**In order to pass final inspection and receive a certificate of completion, The Florida Department of Health form DH-914 shall be filled out and signed by the owner, contractor, and the designer of record and shall be submitted to the Building Department prior to the issuance of the Certificate of Completion.**

**106.12 Special inspections.**

~~Special inspections of alternative engineered design systems shall be conducted in accordance with Section 104.11.6.~~

**Chapter 2 - Definitions**

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have the meanings as defined in Webster's *Third New International Dictionary of the English Language Unabridged*. ~~ordinarily accepted meanings such as the context implies.~~



## Chapter 3 - General Compliance

### 301.1 Scope.

The provisions of this chapter shall govern the general design and construction of public and *residential aquatic vessels* and all related piping, equipment, and materials. Provisions that are unique to a specific type of *aquatic vessel* are located in Chapters 4 through 10. Public pools and spas shall be designed to meet the safety and sanitation requirements of the current edition of rule 64E-9 F. A.C.

#### 301.1.1 Application of Chapters 4 through 10.

Where differences occur between the provisions of this chapter and the provisions of Chapters 4 through 10, the provisions of Chapter 4 through 10 shall apply.

### 302.3 Pipe, fittings and components.

Pipe, fittings and components shall be *listed* and *labeled* in accordance with NSF 50 or NSF 14. Plastic jets, fittings, and outlets used in public *spas* shall be *listed* and *labeled* in accordance with NSF 50. Pipe, fittings and components shall be installed to the manufactures installation specifications and any prescriptive requirements contained in this code..

#### 305.2.10 Poolside barrier setbacks.

The *aquatic vessel* side of the required *barrier* shall be not less than 20 inches (508 mm) from the water's edge. For public pools and spas the *aquatic vessel* side of the required *barrier* shall be not less than 48 inches (1219 mm) from the water's edge

### 306.1 General.

Decks shall be designed and installed in accordance with the *International Residential Code* or the *International Building Code*, as applicable in accordance with Section 102.7, except as provided in this section.

306.1.1 Wood decks or carpet decks are not allowed for public pools.

306.8.2 For public pools equipped with restrooms a hose bibb with vacuum breaker shall be provided in or within 25 feet of each restroom to allow for ease of cleaning, additionally the hose bib shall be in a flush to grade box.

306.9 Deck width. Decks for public pools shall have an unobstructed minimum width of 48 inches (1219 mm)

### 307.3 Materials.

*Aquatic vessels* and appurtenances thereto shall be constructed of materials that are nontoxic to humans and the environment; that are generally or commonly regarded to be impervious and enduring; that will

withstand the design stresses; and that will provide a watertight structure with a smooth and easily cleanable surface without cracks or joints, excluding structural joints, or that will provide a watertight structure to which a smooth, easily cleaned surface/finish is applied or attached. Material surfaces that come in contact with the user shall be finished, so that they do not constitute a cutting, pinching, puncturing or abrasion hazard under casual contact and intended use.

### 307.3.1 Beach pools.

Clean sand or similar material, where used in a beach pool environment, shall be used over an impervious surface. The sand area shall be designed and controlled so that the *circulation system*, maintenance, safety, sanitation, and operation of the pool are not adversely affected. Sand area for a beach pool environment is not allowed for public pools.

### 307.3.2 Compatibility.

Assemblies of different materials shall be chemically and mechanically compatible for their intended use and environment.

### 307.7 Colors and finishes.

The colors, patterns, or finishes of the vessel interior shall not obscure objects or surfaces within the vessel, and shall be of white or light pastel colors.

**Exception:** *Residential pools and spas.*

### 308.1 Floor slope.

The slope of the floor from the point of the first slope change to the deep area shall not exceed one unit vertical in three units horizontal. For public pools 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.

**Exception:** *Portable residential spas and portable residential exercise spas.*

### 308.2 Walls.

Walls shall intersect with the floor at an angle or a transition profile. Where a transitional profile is provided at water depths of 3 feet (914 mm) or less, a transitional radius shall not exceed 6 inches (150 mm) and shall be tangent to the wall and is permitted to be tangent to or intersect the floor. For public pools any 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 2½ 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<sup>1</sup>/<sub>2</sub> 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<sup>1</sup>/<sub>2</sub> feet (762 mm) from which point the wall may join the floor with a maximum radius of 2<sup>1</sup>/<sub>2</sub> 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 1<sup>1</sup>/<sub>2</sub> inches (38 mm).

**Exceptions:**

1. *Portable residential spas and portable residential exercise spas.*
2. *Onground storable pools.*

**308.3 Shape.**

This code is not intended to regulate the shape of *aquatic vessels* other than to take into account the effect that a given shape will have on the safety of the occupants and to maintain the minimum required level of circulation to ensure sanitation. A minimum width of 15 feet, and a minimum depth of 3 feet is required for public pools.

**310.1 General.**

Suction entrapment avoidance for aquatic vessels shall be provided in accordance with the appropriate section of APSP 7. Public pools shall be required to have a gravity system per FS 514.0315 (1) designed and constructed with a collector tank and gravity drainage system (aka: a vented reservoir) serving all recirculation and therapy drain suction outlets.

**Exception:** *Portable residential spas and portable residential exercise spas listed and labeled in accordance with UL 1563 or CSA C22.2 No. 218.1.*

**312.2 Design.**

*Filters* shall have a flow rating equal to or greater than the design flow rate of the system. Filters shall be installed in accordance with the manufacturer's instructions. Filters shall be designed so that *filtration* surfaces can be inspected and serviced.

**312.2.1 Public pool and Public Spa Filter requirements**

**312.2.1.1 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].

**312.2.1.2 Filter appurtenances.**

**312.2.1.2.1 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.

#### **312.2.1.2.2 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.

#### **312.2.1.2.3 D.E. systems.**

A precoat pot or collector tank shall be provided for D.E.-type systems.

#### **312.2.1.3 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<sup>2</sup>) effective area. The spacing between filter elements shall increase 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<sup>2</sup>). 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 covered 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.

#### **314.3. Flow distribution.**

The suction outlet fitting assemblies, where installed, and the skimming systems shall each be designed to accommodate 100 percent of the circulation turnover rate.

##### **314.3.1 Multiple systems.**

Where multiple systems are used in a single pool to meet this requirement, each subsystem shall proportionately be designed such that the maximum design flow rates cannot be exceeded during normal operation.

##### **314.3.2 Flow for public pools, public spas**

The suction outlet fitting assemblies, where installed, and the skimming systems shall each be designed to accommodate 60 percent of the circulation turnover rate.

**314.4 Return inlets.**

There shall be one *return inlet* for each 300 square feet (27.87 m<sup>2</sup>) of pool surface area, or fraction thereof. Public pools shall have one return inlet every 20 feet maximum and the flow shall be 20 gpm maximum, if the pool width is over 30 feet floor inlets shall be used..

**Exception:** *Onground storable pools.*

**315.1 General.**

The provisions of this section apply to *skimmers for aquatic vessels*. For public pools recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet (93 m<sup>2</sup>) or less excluding offset stairs and swimouts and the width of the pool is not over 20 feet (6096 mm).

**Exception:** *Portable residential spas and portable residential exercise spas.*

**315.4 Perimeter coverage.**

Where a perimeter-type *surface skimming system* is used as the sole surface skimming system, the system shall extend around not less than of 50 percent of the aquatic vessel perimeter. Public Pools the system shall extend around not less than of 90 percent of the aquatic vessel perimeter.

**315.4.1 Surge capacity.**

Where perimeter *surface skimming systems* are used, they shall be connected to a circulation system with a system surge capacity of not less than 1 gallon for each square foot (40.7 liters per square meter) of water surface. The capacity of the perimeter overflow system and related piping is permitted to be considered as a portion of the *surge capacity*.

**315.4.2 Collector Tanks.**

Public pool collector tank dimensions min.2.25 sq ft open area, 63fps max velocity, capacity is one minute of recirculation flow, and IWFs to have a capacity of 3 minutes of recirculation and feature water flow.

**315.5 Equalizers.**

Equalizers on *skimmers* shall be prohibited.

**Exception:** Allowed on public pools with ANSI/APSP-16 certified drain cover/grate is installed.

**318.3 Over-the-rim spouts.**

Over-the-rim spouts shall be located under a *diving board*, adjacent to a *ladder*, or otherwise shielded so as not to create a hazard. The open end of such spouts shall not have sharp edges and shall not protrude more than 2 inches

(51 mm) beyond the edge of the pool. The open end shall be separated from the water by an air gap of at least 1.5 pipe diameters measured from the pipe outlet to the rim. For public pools 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.

### 321.2.2 Illumination intensity.

For outdoor pools, the combination of overhead and underwater lighting shall provide not less than 3 foot-candles of illumination at the pool water surface and the pool deck surface. For indoor pools, the combination of overhead and underwater lighting shall provide not less than of 10 foot-candles at the pool water surface and the pool deck surface.

### 322.3 Ladders.

*Ladder* treads shall have a uniform horizontal depth of not less than 2 inches (51 mm). There shall be a uniform distance between *ladder* treads, with a distance of not less than 7 inches (178 mm) and not greater than 12 inches (305 mm). The top tread of a *ladder* shall be located not greater than 12 inches (305 mm) below the top of the deck or coping. Ladder treads shall have *slip-resistant* surfaces. Ladders for public pools shall be of the cross-braced type and shall be constructed of corrosion-resistant materials and be securely anchored into the pool deck. Ladders shall extend at least 28 inches (711 mm) and no more than 40 inches (1016 mm) above the pool deck. The back of the ladder shall be between 3 to 6 inches from the pools wall. Ladder bottom braces shall have intact end caps or bumpers that rest firmly against the pool wall.

### 322.4 Recessed treads.

*Recessed treads* shall have minimum depth of not less than 5 inches (127 mm) and a width of not less than 12 inches (305 mm). The vertical distance between the pool coping edge, deck, or step surface and the uppermost *recessed tread* shall be not greater than 12 inches (305 mm). *Recessed treads* shall have *slip-resistant* surfaces.

#### 322.4.1 Vertical spacing.

*Recessed treads* at the centerline shall have a uniform vertical spacing of not less than 7 inches (178 mm) and not greater than 12 inches (305 mm).

#### 322.4.2 Drainage.

*Recessed treads* shall drain into the pool.

#### 322.4.3 Handrails and grab rails.

*Recessed treads* shall be provided with a *handrail* or grab rail on each side of the treads. The clear distance between *handrails* and grab rails shall be not less than 17 inches (432 mm) and not greater than 24 inches (610 mm). For Public pools the grab rails shall extend a minimum of 28 inches above the deck.

**323.2 Handrails.**

Where *handrails* are installed, they shall conform to this section.

**323.2.1 Height.**

Handrails shall be between 34 inches (864 mm) and 38 inches (965 mm) above the ramp or step surface as measured at the nosing of the step or finished surface of the slope.

**323.2.2 Material.**

*Handrails* shall be made of corrosion-resistant materials.

**323.2.3 Nonremovable.**

*Handrails* shall be installed so that they cannot be removed without the use of tools.

**323.2.4 Leading edge distance.**

The leading edge of handrails for stairs, pool entries and exits shall be located not greater than 18 inches (457 mm) from the vertical face of the bottom riser. For Public pools the handrail shall be mounted in the deck and the bottom step.

**323.2.5 Diameter.**

The outside diameter or width of *handrails* shall be not less than  $1\frac{1}{4}$  inches (32 mm) and not greater than 2 inches (51 mm).

**401.5 Floor slope.**

Except where required to meet the accessibility requirements in accordance with Section 323.1, the slope of the floor in the shallow area of a pool shall not exceed 1 unit vertical in 10 units horizontal for *Class C* pools and 1 unit vertical in 12 units horizontal for *Class B* pools. The slope limit shall apply in any direction to the point of the first slope change, where a slope change exists. The point of the first slope change shall be defined as the point at which the floor slope exceeds 1 unit vertical in 10 units horizontal for *Class C* pools and 1 unit vertical in 12 units horizontal for *Class B* pools. 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. Minimum floor slope of 1:40.

**402.12 Water envelopes.**

The minimum diving water envelopes shall be in accordance with Table 402.12. Diving facilities for public pools shall meet the minimum requirements of the FINA dimensions for diving facilities in accordance with the 2005-2009 FINA Handbook.

**SECTION 403 BATHER LOAD**

**403.1 Maximum bather load.**

The bathing load for 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 m<sup>2</sup>) 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.

The maximum *bather load* of *Class B* and *Class C* pools shall be in accordance with Table 403.1.

**TABLE 403.1 MAXIMUM BATHER LOAD**

<b>POOL/DECK AREA</b>	<b>SHALLOW INSTRUCTIONAL OR WADING AREAS</b>	<b>DEEP AREA (NOT INCLUDING THE DIVING AREA)</b>	<b>DIVING AREA (PER EACH DIVING BOARD)</b>
Pools with minimum deck area	15 sq. ft. per user	20 sq. ft. per user	300 sq. ft.
Pools with deck area at least equal to	12 sq. ft. per user	15 sq. ft. per user	300 sq. ft.



water surface area			
Pools with deck area at least twice the water surface area	8 sq. ft. per user	10 sq. ft. per user	300 sq. ft.

For SI: 1 square foot = 0.09 square meters.

**SECTION 404 REST LEDGES**

**404.1 Rest ledges.**

Rest ledges along the pool walls are permitted. They shall be not less than 4 feet (1220 mm) below the water surface. Where a ledge is provided, the ledge shall be 4 inches (102 mm) minimum in width and 6 inches (152 mm) maximum in width.

**409.3 No diving symbol.**

Where the pool depth is 5 feet (1524 mm) or less, the "No Diving" symbol shall be displayed. The symbol shall be placed on the deck at intervals of not more than 25 feet (7620 mm). Additional signage shall be in accordance with NEMA Z535. 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.

**409.4.1 Accessory pole.**

A swimming pool accessory pole not less than ~~12~~ 16 feet (3658 mm) in length and including a body hook shall be provided. Two hooks are required if the pool is 50 feet or longer.

**409.4.2 Throwing rope.**

A throwing rope attached to *ring buoy* or similar flotation device shall be provided. The rope shall be not less than 1/4 inch (6 mm) in diameter and shall have a length of not less than 1 1/2 times the maximum width of the pool or 50 feet (15 240 mm), whichever is less. A *ring buoy* shall have an outside diameter is not less than 15 inches (381 mm). Two rings are required if the pool is 50 feet or longer.

**411.1 Entry and exit.**

Pools shall have at least two means of entry and exit, located so as to serve both ends of a pool. Public pools shall have a means of egress at the deep portion of the pool even it this requires an additional means of egress.

**411.2 Pool stairs.**

The design and construction of stairs extending into the pool in either shallow or deep water, including recessed pool stairs, shall comply with Sections 411.2.1 through 411.2.4.

**411.2.1 Tread dimensions and area.**

Treads shall be not less than 24 inches (607 mm) at the leading edge. Treads shall have an unobstructed surface area of not less than 240 square inches (0.154 m<sup>2</sup>) and an unobstructed horizontal depth of not less than 10 inches (254 mm) at the centerline.

**411.2.2 Risers.**

Risers, except for the bottom riser, shall have a uniform height of not greater than ~~12~~ 10 inches (305 mm) measured at the centerline. The bottom riser height is allowed to vary to the floor.

**411.2.3 Top tread.**

The vertical distance from the pool coping, deck, or step surface to the uppermost tread shall be not greater than ~~12~~ 10 inches (305 mm).

**411.2.4 Bottom tread.**

~~Where stairs are located in water depths greater than 48 inches (1219 mm), the lowest tread shall be not less than 48 inches (1219 mm) below the deck and shall be recessed in the pool wall. The bottom tread shall not be more than 10 inches from the bottom of the pool.~~

**411.2.5 Uniformity**

Treads and risers between the top and bottom treads shall be uniform to within 1/2 inch (12.7 mm) in width and height.

**411.2.6 Marking**

For public pools; the riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front 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.

**~~411.3.2 Vertical drops.~~**

~~A vertical drop exceeding 12 inches (305 mm) within a sloping entry shall be provided with a *handrail*.~~

**411.5.2 Underwater seats and benches.**

*Underwater seats* and benches, whether used alone or in conjunction with pool stairs, shall comply with all of the following:

1. The horizontal surface shall be not greater than 20 inches (508 mm) below the waterline.
2. An unobstructed surface shall be provided that is not less than of 10 inches (254 mm) in depth and not less than 24 inches (607 mm) in width.
3. *Underwater seats* and benches shall not be used as the required entry and exit access.
4. Where *underwater seats* are located in the deep area of the pool where manufactured or constructed diving equipment is installed, such seats shall be located outside of the minimum water envelope for diving equipment.
5. The leading edge shall be visually set apart.
6. The horizontal surface shall be at or below the waterline.
7. ~~A tanning ledge or sun shelf used as the required entry and exit access shall be located not greater than 12 inches (305 mm) below the waterline.~~

**Chapter 6 - Aquatic Recreation Facilities****610.4.3 Steps.**

Where steps are used in conjunction with sloping entries, all of the requirements of Section 605.5.6 610.5.6 shall apply.

**610.5.3 Color to mark leading edge.**

The leading edge of all steps shall be distinguished by a color contrasting with the color of the steps and the pool floor. The front 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.

**610.5.6 Tread surface area.**

Treads shall have an unobstructed surface area of not less than 240 square inches (.017 m<sup>2</sup>) and shall be slip resistant.

**610.7.2 Surface dimensions.**

~~Underwater seats shall have an unobstructed surface dimension of not less than 10 inches (254 mm) measured front to back and not less than 24 inches (610 mm) in width.~~

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.

**610.8.1 Floating devices.**

~~Floating devices not intended to be mobile shall be anchored in a manner to restrict movement to the range established by the designer. The anchoring of such floating devices shall be configured to minimize the possibility of entrapment of bathers, bodies, hair, limbs, and appendages should they come in contact with any element of the floating device or its anchors.~~

CHAPTER 11 REFERENCED STANDARDS

**Florida Codes**

**Florida Building Commission**

**c/o Florida Department of Business and Professional Regulation**

**Building Codes and Standards**

**1940 North Monroe Street**

**Tallahassee, FL 32399-1027**

**Standard Referenced in code**

**Reference Number Title section number**

FBC-B 2013 Florida Building Code, Building 201.3, 305.4, 307.1, 307.2, 307.3, 308.2, 309.1, 310.1, 310.3, 315.1, 403.1, Table 403.1,

404.1, 407.3, 417.6, 502.6, 606.5.2, 1106.5

Ch. 11 Florida Building Code, Building - Accessibility 404.1.1 315.1

Ch. 553.86 Florida Statute, Public Restrooms 403.1.1

Florida Building Code, Energy Conservation 313.1, 607.2, 607.2.1

Ch. 27 Florida Building Code, Building-Electrical (National Electrical Code, NFPA 70)

201.3, 502.1, 504.3, 1113.1.3

FEBC—2013 Florida Existing Building Code 101.2

FBC-FG 2013 Florida Building Code, Fuel Gas 101.2, 201.3, 502.1

FBC-M 2013 Florida Building Code, Mechanical 201.3, 307.6, 310.1, 422.9, 502.1, 612.1, 1202.1

FRC-2013 Florida Residential Code 101.2

FFPC-2013 Florida Fire Prevention Code 201.3, 1201.1

Ch. 62-610 Florida Administrative Code-Reuse of Reclaimed Water

and Land Application 602.4

Ch. 64E-6 Florida Administrative Code-Standards for Onsite Sewage

and Disposal Systems 701.2, 1003.5.2

Ch. 373 Florida Statute, Water Resources 602.3

Ch. 381 Florida Statute, Food Products 317.1

Ch. 500 Florida Statute, Lodging and Food Service Establishments 317.1

Ch. 509 Florida Statute, Public Lodging and Food Service Establishments 317.1

Rick Scott  
Governor



John H. Armstrong, MD, FACS, FCCP  
State Surgeon General

September 21, 2012

### 2012 International Swimming Pool and Spa Code

**Comments by the Florida Department of Health related to public health and safety in the construction of public pools in Florida concerning this proposed code adoption into the 2013 FBC, with comparisons to the current Florida Building and Administrative Codes, and with recommendations for corrections listed as critical or not critical.**

**Contact: Patti Anderson, P.E., Chief, Bureau of Environmental Health, Division of Disease Control and Health Protection 850-245-4250**

- 108 Appeals Board is authorized by this code. *(To our knowledge there is no appeals process in the Florida Building Code so this would be a change in process.)*
- 202 Definitions in the ICC code breaks out public pools into 12 types. There are 3 types just for swimming pools. *(This makes consistency with FL statute and codes confusing, and will be difficult for designers, contractors and officials.)*
- 305.2.1 (4.) Allows above ground pools. *(CRITICAL-FL codes do not allow above ground public pools since these are generally built with prohibited wooden decks; commonly these elevated structures have additional safety and structural issues.)*
- 305.2.10 Allows a 20 inch set back from pool edge to barrier. *(CRITICAL-FL codes require an unobstructed 48 inch deck to ensure accessibility of rescue and EMS personnel.)*
- 306 There is no minimum width specified for pool decks. *(CRITICAL-FL codes require an unobstructed 48 inch deck to ensure accessibility of rescue and EMS personnel.)*
- 306.4, 306.5 and Table 306.4 These sections refer to wood and carpet as a deck material. *(CRITICAL- Unacceptable per FL codes since it weathers, rots, splinters, harbors microbes, difficult to keep sanitary, and is slippery when wet.)*
- 306.8.1 Requires that hose bibbs be every 150 feet, but doesn't indicate how close to the pool they must be. *(FL codes require a hose bibb on pool deck to ensure easy access for maintaining the deck area in a sanitary condition.)*
- Requires a dedicated hose bib for an ADA lift, but doesn't require it to be in a valve box below the deck. *(CRITICAL- This produces a hose / trip hazard and ADA obstruction on the pool deck.)*
- 307.3.1 Allows sand in beach areas of a swimming pool. *(CRITICAL- not allowed in FL due to experience with pool water filtration system maintenance and maintaining sanitary conditions in the pool area.)*

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Bureau of Environmental Health  
Division of Disease Control & Health Protection  
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- 307.7 Colors and finishes. Does not specify that pool interior is white or light in color as required by FL codes. *(CRITICAL- Non-white pool interior hinders the detection of bathers in distress creating a drowning safety hazard, especially when wind, poor lighting, overcast, glare, and high bather density conditions exist.)*
- 308 Dimensional designs are not provided. No minimum pool width is specified as required in FL codes. *(CRITICAL- Minimum width of 15 feet needed to prevent diver or running entry from injuring bather on opposite wall.)*
- 308.1 Floor slope. ICC does not specify where the 1:3 floor slope begins. *(CRITICAL-Slope break location is specified in FL code at 5 feet deep to assure that non-swimmers do not unintentionally enter water depth deeper than they can safely stand. This is especially important for non-swimming children safety.)*
- 308.2 Walls. Wall and floor intersection specified only mentions depths of 3 feet or less. Also does not specify that pool walls be vertical above wall/floor transition. *(CRITICAL- FL codes specify both of these and need to specify these to prevent injuries to bathers entering pool by diving or jumping.)*
- 310 Suction entrapment avoidance. Requires suction entrapment remediation per APSP 7, which allows pools with no drains, and direct suction drains. *(CRITICAL- Reference does not comply with safety aspects of FL codes or statute 514.0315, FS. All suction outlets must drain by gravity to a collector tank built to code and maximum current velocity allowed to avoid entrapment drowning or injury. Gravity systems have proven to be 100% reliable preventing entrapment in FL over their 35 year history.)*
- 311.6 Is unclear with distinction between pressure and vacuum filters for placement of pressure/vacuum gauge. Does not require a pressure gauge downstream of a pressure filter.  
*(CRITICAL- Pressure and vacuum filters are confused in this ICC code. Sanitation and proper operation of the pool can only be accomplished correctly with the current FL code requirements as distinctions are made between the types of filters. )*
- 311.6(2.) Requires a vacuum gauge before and after a pump. Why after the pump, it will not read pressure.  
*(CRITICAL- Pressure and vacuum filters are confused in this ICC code. Sanitation and proper operation of the pool can only be accomplished correctly with the current FL code requirements. )*
- 311.7 Requires a flow meter, but doesn't require installation per manufacturer specifications.  
*(All devices shall be installed per manufacturer specifications in order to function properly.)*
- 312 Only mentions pressure filters. *(CRITICAL- FL codes for vacuum filters must be included too.)*
- 312.2 Indicates that the flow rate through the filter is set by the manufacturer.  
Not NSF. *(CRITICAL- All filter flow rates must be in accordance with NSF Standard 50 approval as referenced in the current FL codes.)*

- 312.3.2 Unclear what the purpose of the Separation tank is. *(We assume this is a DE separator tank that would be necessary for a DE filter, but not for other filters, such as sand or cartridge filters. Requiring a separation tank for filtration systems other than DE is unnecessary for operation and an unnecessary expense.)*
- 313.5 Allows pump design and installation per manufacturer, not the design engineer of record. *(FL Professional Engineer law Ch. 471, FS and 61G-15, Florida Administrative code require design specifications by a Professional Engineer. It is critical that the hydraulic design of a public pool be provided by a professional engineer to ensure effectiveness. This relates directly to the functioning of the water treatment system that ensures water quality to prevent disease.)*
- 313.7 Requires an emergency shut off switch on all pools. *(Not necessary on gravity drainage pools with collector tanks, only needed on direct suction pools.)*
- 314 Does not distinguish between wall return inlets and floor return inlets. *(CRITICAL- FL codes require both types under specific conditions for to maintain optimal sanitary water quality.)*  
Does not require the latter to be flush with the floor, and the former does not require that it not protrude out from the wall. *(CRITICAL- This is a safety hazard for bathers.)*
- 314.3 Requires skimmer to do a 100% design flow, not the 60% we use. *(CRITICAL- Would not allow use of a collector tank and gravity drainage, as well as all vacuum filtration systems; unless the pool has an extraordinary number of skimmers and larger piping is installed.)*
- 314.4 Allows one return inlet per 300 ft<sup>2</sup> of surface. This means that if you have a 20 x 15 pool with a 50 gpm filter, you would be putting 50 gpm through one inlet. *(CRITICAL- FL codes allow maximum of 20 gpm per inlet to have sufficient recirculation flow to create optimal sanitary conditions of the pool water; and we require spacing maximum of 20 feet apart for the same reason.)*
- 314.4(1.) Requires suction and return inlet fittings to be designed so it is not a hazard to bathers. *(Needs better specifications; FL codes have the specifics that have proven effectiveness.)*
- 315.4.1 Requires a surge tank equal to one gallon per square foot of pool surface for pools with perimeter overflow systems. *(CRITICAL-Additional cost is onerous, and may prevent the use of overflow gutter systems that are more effective for sanitary water quality than other types.)*
- 315.4 Requires gutters on only 50% of pool perimeter. *(CRITICAL- FL codes require 90% of pool perimeter to be guttered. 50% would create a proportional decrease in the timely removal of all floating debris and associated microbes thereby negatively impacting the sanitary water quality.)*
- 315.5 Does not allow equalizer lines on skimmers. *(Conflicts with FL codes and federal VGB Pool and Spa Safety Act options.)*



- 315.6 Skimmer devices to be designed and installed not to create a hazard. *(Needs more detailed specifications otherwise design and/or construction would be based on opinion rather than standards.)*
- 315 Makes no limitation of pool size that may employ skimmers. *(CRITICAL- Skimmers are not as effective at debris removal as perimeter gutters when in larger sized pools. This will negatively affect sanitation and water quality. FL codes allow maximum of 1000 ft<sup>2</sup>, and 20 feet wide maximum pool width. Most state codes at least have some kind of a limitation, up to 2500 ft<sup>2</sup>.)*
- 318.3 Allows over the rim make up water. *(CRITICAL- this is a trip or injury hazard. This is accomplished in FL codes by autofill devices into the collector tank.)*
- 319 Sanitizing equipment. Provides no sizing criteria for chlorinators. It doesn't even require halogen disinfection. There is no provision for pH control feeders. *(CRITICAL- Prescriptive requirements for dosing chemicals are needed to assure that designers and contractors can readily size disinfection and pH equipment for worst case sanitary conditions to assure that outbreaks and illnesses resulting in disease or death do not occur. FL codes specify these dosage and construction requirements.)*
- 321.2.2 Spells out under water lighting and surface lighting, but not deck lighting unless surface means the deck too. *(This is vague and may be confusing to designers and contractors with the consequence for inadequately lit pool decks creating a safety hazard to pool visitors.)*
- 322.3 Ladders. Does not require that ladders be cross braced. Does not specify height at least 28 inches above deck. *(CRITICAL- FL codes specifications for these items will result in less injury and greater bather safety. Cross-braced ladders prevent bending out away from wall that has resulted in drowning of children entrapped behind them.)*
- 322.4 Recessed treads. Does not require grab rails extend at least 28 inches above deck. *(A safety issue for egress, especially as the population ages. Is specified in FL codes.)*
- 323.2 Does not require step handrails to be mounted in the deck and bottom step. Instead it requires that they be mounted no more than 18 inches from the leading edge of the bottom step. *(This design makes it more difficult for bather to use the handrail than the current FL codes, and increases the possibility of injury.)*
- 401.5 Does not provide a minimum depth for a slope break. *(CRITICAL-Slope break location is specified in FL code at 5 feet deep to assure that non-swimmers do not unintentionally enter water depth deeper than they can safety stand. This is especially a risk for non-swimming children.)*
- 401.5 Maximum pool floor slope at 1 in 10, but no minimum is listed, so the floor could be flat. *(CRITICAL- Debris and dirt on pool bottom won't migrate to drain creating a water quality sanitary problem. FL codes specify minimum of 1:40 slope.)*
- 402.12 Diving Table. Does not provide information on the height of the diving board. It just gives pool type VI to IX, not giving board heights and not defined anywhere else in the

- 402.13 code. *(CRITICAL- Safety aspects of diving pools design to prevent head, neck and back trauma must be specified by the FINA or NCAA standard as is currently referenced in FL codes.)*
- 403 Bather load based on square footage not water treatment. *(CRITICAL- This method for calculating bathing load for pools (other than spa pools) does not consider the volume of pool., Using water flow determination assures the sanitary water quality regardless of depth of pool.)*
- 404.1 Allows Rest Ledges in the pool. *(This invites non-swimmers to venture into deep water potentially creating a drowning safety hazard.)*
- 409.3 Only requires No Diving symbols to areas of pool depth 5 feet or less. *(CRITICAL- FL codes require these in all areas not part of a approved diving bowl. This is a safety feature important to prevent drowning of non-swimmers especially children.)*
- 409.4 Does not require multiple sets of safety equipment for larger pools. Twelve foot safety poles are allowed. *(CRITICAL- Duplicate sets are required for larger pool in FL codes to assure that access is rapid to prevent drowning injuries. Longer poles allow reach to center of deep pools.)*
- 411.1 Does not require means of entry/exit in the deep area of the pool when the deep area is in the middle of the pool. Only requires them at both ends of the pool. *(CRITICAL- Deepest point of the pool is the most important one to have an egress point.)*
- 411.2 Pool Stairs. Allows maximum 12 inch risers. There is no limitation on bottom step riser height. Bottom step must be recessed into wall. *(CRITICAL- this section is vague and will be difficult to enforce. Risers are different than current FL codes and will be a significant change from decades of practice. Elder persons and children have difficulty with higher step risers.)*
- 411.3.2 Vertical drops (within a sloping entry) coupled with no minimum floor slope could provide a means to permit a double level pool. Hand rails in the middle of the pool would be required. There is no maximum defined for the pool floor drop. *(CRITICAL- The requirement for a handrail creates an underwater obstruction that may cause a head injury to a bather. The double level could be cluttered with chairs that create sanitary and safety hazards including obstruction for emergency rescue. Drop off could be very deep creating a hazard for non-swimmers. FL codes do not allow these.)*
- 411.5.7 Allows tanning ledges or sun shelves. *(CRITICAL- This creates an underwater obstruction that may cause a head injury to a bather. The double level could be cluttered with chairs that create sanitary and safety hazards and obstruction for emergency rescue. FL codes do not allow these.)*
- 412 Signage. Signage requirements are very minimal. It does not provide for more than a couple of warnings stating: "No diving" and "watch children". *(CRITICAL- FL codes signage has the few important information instructions to bathers that are essential for their safety and health.)*

- 509.1 & 509.2 Spa safety features. Signage is minimal. Does reference local jurisdictions signage.  
(CRITICAL- FL codes signage has the few important information instructions to bathers that are essential for their safety and health.)
- 509.3 Spa Depth markers required. (FL codes allow no markers on spas less than 200 square feet, however this ICC requirement provides more information to the bather.)
- 610.4.3 This is vague. (This could allow double level pools that are not allowed by FL codes.)
- 610.5.3 Step edge must be contrasting, but not made of tile, slip resistant or dark in color. (CRITICAL- Trip injury safety hazards created. FL codes specify these safety features. Non-tile edge markings will wear off quickly.)
- 610.7.2 Allows benches to be 10 to 20 inches wide. (FL codes allow 14-18 inches wide and maximum of 24 inches deep.)
- 610.8.1 Floating devices allowed if installed per manufacturer. (CRITICAL- entanglement drowning hazard created, these must be designed by professional and approved by construction authority in FL codes.)

Other important deficiencies in the ICC Code that are currently in FL codes:

#### Sanitation Issues

1. ICC Code does not require a cleanable tile line at water level. Does not have a sizing criteria based on number of living units. This relates to the size of pool to ensure it is large enough to serve the intended population. A 'too-small' pool with a high density
2. bather load can result in injuries from overcrowding and poor water quality which can lead to illness.
3. Does not require a wall inlet opposite each skimmer.
4. Does not require an automatic water level controller.
5. Does not address vacuum pumps specification.
6. Does not give information on sand, cartridge and DE filters and the differences between them.
7. Does not require pH control feeders.
8. Does not require a rinse shower on the pool deck.
9. Does not prohibit food or drink serving facilities near the pool.
10. Does not require ORP and pH controllers on spas, wading pools and Interactive Water Features.
11. Does not have specifications for overflow gutter design.

#### Safety issues

12. Does not require a dark line and safety floats at the slope break.
13. Does not have a maximum obstruction of pool perimeter.
14. Does not specify a minimum overhead clearance on pool decks.
15. Does not specify minimum heights of overhead clearance above pool water.
16. Does not require maximum flow velocity through main drain gratings of 1.5 feet per second.

17. Does not require proportioning type valves.
18. Does not have any specifications for equipment rooms.

Thank you for considering these comments from the Department of Health from the perspective of a long history of prevention of illness and injury in Florida public swimming pool design and construction and from the responsibility of the Department of Health to set safety and sanitation standards as established in s. 514, Florida Statutes. Your partnership and collaboration in enforcing these standards is crucial to the public health of Florida public pool patrons.

Sincerely,  
Patti Anderson, P.E., Chief  
Bureau of Environmental Health  
Division of Disease Control and Health  
Protection

<b>Date Submitted</b>	8/2/2012	<b>Section</b>	APSP	<b>Proponent</b>	Jennifer Hatfield
<b>Chapter</b>	35	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

Chapter 44 -- Referenced Standards, Residential Code

**Summary of Modification**

Provides latest revisions to pool and spa standards.

**Rationale**

To ensure the latest editions of pool and spa standards are referenced within the 2013 Code.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Referenced standards are currently adopted by the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Referenced standards are currently adopted by the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Referenced standards are currently adopted by the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. The referenced standards in this modification are currently included in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. The referenced standards in this modification are currently included in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No. The referenced standards in this modification are currently included in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

No. The referenced standards in this modification are currently included in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

OTHER

**Explanation of Choice**

The IBC references one of the standards, the IRC references all of them. If the 2013 Florida Code, Building, includes language for residential pools in the Special Occupancy Chapter (as proposed by separate modification), the additional standards referenced in the IRC need to be incorporated into the Building Code.

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

The State of Florida has over 1.2 million pools and spas, the third largest in the country. The IBC has limited pool and spa requirements that do not include all the provisions found in the 2010 Florida Code and prior editions pertaining to pools and spas.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

5872-A1

**Proponent** Jennifer Hatfield      **Submitted** 12/14/2012      **Attachments** Yes

**Rationale**

The alternate language adds the reference to APSP-16, which is referenced in SW 5744 for public pools.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

None

**Impact to building and property owners relative to cost of compliance with code**

None

**Impact to industry relative to the cost of compliance with code**

None

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Provides for ANSI approved standards that protect the public.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

**Is the proposed code modification part of a prior code version? No**

	The Association of Pool & Spa Professionals 2111 Eisenhower Avenue Alexandria, VA 22314	
<b>APSP</b>		Referenced
Standard		in code
reference		section number
number	Title	
<u>ANSI/NSPI</u>	<u>Standard for Permanently Installed Residential Spas</u>	
<u>3—99</u>		
	<u>Standard for Aboveground/Onground Residential</u>	
<u>ANSI/APSP</u>	<u>Swimming Pools</u>	<u>454.2.6.1</u>
<u>4—12</u>		
	<u>Standard for Residential Inground Swimming Pools</u>	<u>454.2.6.1</u>
<u>ANSI/APSP</u>		
<u>5—11</u>	<u>Standard for Portable Spas</u>	<u>454.2.6.1</u>
<u>ANSI/APSP</u>	Standard for Suction Entrapment Avoidance in	<u>454.2.6.1</u>
<u>6—12</u>	Swimming Pools, Wading Pools, Spas, Hot Tubs and	
	Catch Basins	<u>454.2.6.1,</u>
<u>ANSI/APSP</u>		<u>454.2.6.3,</u>
<u>7—06</u>		<u>454.2.6.6 3109.5</u>

The Association of Pool & Spa Professionals  
 2111 Eisenhower Avenue Alexandria, VA  
 22314

**APSP**

Standard reference number	Title	Referenced in code section number
<u>ANSI/NSPI 3—99</u>	<u>Standard for Permanently Installed Residential Spas</u>	<u>454.2.6.1</u>
<u>ANSI/APSP 4—12</u>	<u>Standard for Aboveground/Onground Residential Swimming Pools</u>	<u>454.2.6.1</u>
<u>ANSI/APSP 5—11</u>	<u>Standard for Residential Inground Swimming Pools</u>	<u>454.2.6.1</u>
<u>ANSI/APSP 6—12</u>	<u>Standard for Portable Spas</u>	<u>454.2.6.1</u>
<u>ANSI/APSP 7—06</u>	<u>Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spa, Hot Tubs and Catch Basins</u>	<u>454.2.6.1, 454.2.6.3, 454.2.6.6</u> <u>3109.5</u>
	<u>Standard for Suction Fittings for Use in Swimming Pools,</u>	



<u>ANSI/APSP 16—11</u>	<u>Wading Pools, Spas, and Hot Tubs</u>	<u>454.1.6.5.10.2</u>
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<b>Date Submitted</b>	7/17/2012	<b>Section</b>	Referenced Standards	<b>Proponent</b>	Suzanne Davis
<b>Chapter</b>	35	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	Yes	<b>Alternate Language</b>	No
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**Related Modifications****Summary of Modification**

To be consistent with the Florida Statutes and to implement the Commission plan to update the 2013 Code

**Rationale**

To supplement requirements for swimming pools to be consistent with Florida Statutes and to implement the Commission plan to update the 2013 Code

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

Currently used under the 2010 Code, no new requirements being established

**Impact to building and property owners relative to cost of compliance with code**

Currently used under the 2010 Code, no new requirements being established

**Impact to industry relative to the cost of compliance with code**

Currently used under the 2010 Code, no new requirements being established

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Carried over from the previous, field tested and proven to be effective

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Carried over from the previous, field tested and proven to be effective

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

Carried over from the previous, field tested and proven to be effective

**Does not degrade the effectiveness of the code**

Carried over from the previous, field tested and proven to be effective

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

To supplement requirements for swimming pools to be consistent with Florida Statutes and to implement the Commission plan to update the 2013 Code

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

**2nd Comment Period**10/31/2012 - 12/14/2012

Page 191 of 277

<b>Proponent</b>	Ken Cureton	<b>Submitted</b>	12/11/2012	<b>Attachments</b>	No
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**SW5227-G2****Comment:**

Mod 5227 received NAR vote. Staff requests that the TAC support the original Mod. The proposed Mod is related to Mod 5317 and provides for implementation of F.S. sections 515.25, 515.27 and 553.73(2).

**1st Comment Period History**08/09/2012 - 09/23/2012

<b>Proponent</b>	Ken Cureton	<b>Submitted</b>	9/21/2012	<b>Attachments</b>	No
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**SW5227-G1****Comment:**

The proposal provides for implementation of sections 553.73(2), 515.25 and 515.27 FS

APSP

Association of Pool and Spa Professionals

2111 Eisenhower Avenue

Alexandria, VA 22314

Standard reference number	Title	Referenced in section number
ANSI/NSF	International Standard 50-1996, Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs	424.1.6.5.1, 424.1.6.5.2, 424.1.6.5.16, 424.1.6.5.16.4.2, <u>424.1.6.5.16.5.2, 424.1.9.2.5.2</u>
<u>ANSI/NSPI 3—99</u>	<u>American National Standard for Permanently Installed Residential Spas</u>	<u>424.2.6.1</u>
<u>ANSI/NSPI 4—99</u>	<u>American National Standard for Aboveground/Onground Residential Swimming Pools</u>	<u>424.2.6.1</u>
<u>ANSI/ NSPI 5—03</u>	<u>American National Standard for Residential Inground Swimming Pools</u>	<u>424.2.6.1 [4311]</u>
<u>ANSI/NSPI 6—99</u>	<u>American National Standard for Portable Spas.....</u>	<u>424.2.6.1</u>
<u>ANSI/APSP 7—06</u>	<u>American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins.....</u>	<u>424.2.6.1, 424.2.6.3, 424.2.6.6</u>



<b>Date Submitted</b>	7/31/2012	<b>Section</b>	4201 Swimming Pools	<b>Proponent</b>	BOAF CDC
<b>Chapter</b>	42	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications**

Revise Section 454 FBCB to reference International Swimming Pool and Spa Code (ISPSC)  
 Add reference standard in ch 35 FBCB International Swimming Pool and Spa Code (ISPSC)  
 Add reference standard in ch 44 FBCR International Swimming Pool and Spa Code (ISPSC)

**Summary of Modification**

The ICC codes are the base code for Florida, there is now an International Swimming Pool and Spa Code (ISPSC) and that should be the base code for Florida.

**Rationale**

The ICC codes are the base code for Florida, there is now an International Swimming Pool and Spa Code (ISPSC) and that should be the base code for Florida, and should be added as the referenced standard.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to building and property owners relative to cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to industry relative to the cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level protection of health, safety and welfare.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and does not discriminate against materials, products, methods, or systems of construction.

**Does not degrade the effectiveness of the code**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

Is the proposed code modification part of a prior code version? No

5841-A1

<b>Proponent</b>	BOAF CDC	<b>Submitted</b>	12/14/2012	<b>Attachments</b>	Yes
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**Rationale**

The ICC codes are the base code for Florida, there is now an International Swimming Pool and Spa Code (ISPSC) and that should be the base code for Florida. The International Swimming Pool and Spa Code (ISPSC) is based in part on the Florida provisions and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to building and property owners relative to cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Impact to industry relative to the cost of compliance with code**

None, the International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and is a consensus code that will follow the same tri annual review and update process as the rest of the base codes.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety, and does not discriminate against materials, products, methods, or systems of construction.

**Does not degrade the effectiveness of the code**

The International Swimming Pool and Spa Code (ISPSC) is similar to the current Florida requirements and will provide the same level of lifesafety.

**Is the proposed code modification part of a prior code version? No**

Revise Chapter 42 of the Florida Building Code, Residential as follows

Revise as follows:

Part VIII-Electrical

Chapter 42

SWIMMING POOLS

**SECTION E4201 GENERAL**

**E4201.1 Scope.**

The provisions of the International Swimming Pool and Spa Code (ISPSC) shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment.

~~**SECTION E4201 GENERAL**~~

~~**E4201.1 Scope.**~~

~~The provisions of this chapter shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment. [Sections E4202](#) through [E4206](#) provide general rules for permanent pools, spas and hot tubs. [Section E4207](#) provides specific rules for storable pools. [Section E4208](#) provides specific rules for spas and hot tubs. [Section E4209](#) provides specific rules for hydromassage bathtubs.~~

~~**E4201.2 Definitions.**~~

~~**CORD AND PLUG CONNECTED LIGHTING ASSEMBLY.** A lighting assembly consisting of a cord and plug connected transformer and a luminaire intended for installation in the wall of a spa, hot tub, or storable pool.~~

~~**DRY NICHE LUMINAIRE.** A luminaire intended for installation in the floor or wall of a pool, spa or fountain in a niche that is sealed against the entry of water.~~

~~**FORMING SHELL.** A structure designed to support a wet niche luminaire assembly and intended for mounting in a pool or fountain structure.~~

~~**FOUNTAIN.** Fountains, ornamental pools, display pools, and reflection pools. The definition does not include drinking fountains.~~

~~**HYDROMASSAGE BATHTUB.** A permanently installed bathtub equipped with a recirculating piping system, pump, and associated equipment. It is designed so it can accept, circulate and discharge water upon each use.~~

~~**LOW VOLTAGE CONTACT LIMIT.** A voltage not exceeding the following values:~~

- ~~1. 15 volts (RMS) for sinusoidal AC~~



2. 21.2 volts peak for nonsinusoidal AC

3. 30 volts for continuous DC

4. 12.4 volts peak for DC that is interrupted at a rate of 10 to 200 Hz

~~**MAXIMUM WATER LEVEL.** The highest level that water can reach before it spills out.~~

~~**NO NICHE LUMINAIRE.** A luminaire intended for installation above or below the water without a niche.~~

~~**PACKAGED SPA OR HOT TUB EQUIPMENT ASSEMBLY.** A factory fabricated unit consisting of water-circulating, heating and control equipment mounted on a common base, intended to operate a spa or hot tub. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.~~

~~**PERMANENTLY INSTALLED SWIMMING, WADING, IMMERSION AND THERAPEUTIC POOLS.** Those that are constructed in the ground or partially in the ground, and all others capable of holding water with a depth greater than 42 inches (1067 mm), and all pools installed inside of a building, regardless of water depth, whether or not served by electrical circuits of any nature.~~

~~**POOL.** Manufactured or field constructed equipment designed to contain water on a permanent or semipermanent basis and used for swimming, wading, immersion, or therapeutic purposes.~~

~~**POOL COVER, ELECTRICALLY OPERATED.** Motor driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame.~~

~~**SELF-CONTAINED SPA OR HOT TUB.** A factory fabricated unit consisting of a spa or hot tub vessel with all water circulating, heating and control equipment integral to the unit. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.~~

~~**SPA OR HOT TUB.** A hydromassage pool, or tub for recreational or therapeutic use, not located in health care facilities, designed for immersion of users, and usually having a filter, heater, and motor driven blower. They are installed indoors or outdoors, on the ground or supporting structure, or in the ground or supporting structure. Generally, a spa or hot tub is not designed or intended to have its contents drained or discharged after each use.~~

~~**STORABLE SWIMMING OR WADING POOL.** Those that are constructed on or above the ground and are capable of holding water with a maximum depth of 42 inches (1067 mm), or a pool with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension.~~

~~**THROUGH WALL LIGHTING ASSEMBLY.** A lighting assembly intended for installation above grade, on or through the wall of a pool, consisting of two interconnected groups of components separated by the pool wall.~~

~~**WET NICHE LUMINAIRE.** A luminaire intended for installation in a forming shell mounted in a pool or fountain structure where the luminaire will be completely surrounded by water.~~

## **SECTION E4202 WIRING METHODS FOR POOLS, SPAS, HOT TUBS AND HYDROMASSAGE BATHTUBS**

### **E4202.1 General.**

Wiring methods used in conjunction with permanently installed swimming pools, spas, hot tubs or hydromassage bathtubs shall be installed in accordance with Table E4202.1 and [Chapter 38](#) except as otherwise stated in this section. Storable swimming pools shall comply with [Section E4207](#).

**TABLE E4202.1 ALLOWABLE APPLICATIONS FOR WIRING METHODS**<sup>a, b, c, d, e, f, g, h, i</sup>

<b>WIRING LOCATION OR PURPOSE</b> (Application allowed where marked with an "A")	<b>AC, FMC, NM, SR, SE</b>	<b>EMT</b>	<b>ENT</b>	<b>IMC<sup>d</sup>, RMC<sup>d</sup>, RNC<sup>d</sup></b>	<b>LFMC</b>	<b>LFNMC</b>	<b>UF</b>	<b>MC<sup>k</sup></b>	<b>FLEX CORD</b>
Panelboard(s) that supply pool equipment: from service equipment to panelboard	A <sup>b,c</sup> SR not permitted	A <sup>e</sup>	A <sup>b</sup>	A	—	A	A <sup>e</sup>	A <sup>e</sup>	—
Wet niche and no niche luminaires: from branch circuit OCPD to deck or junction box	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	—	A	—	A <sup>b</sup>	—
Wet niche and no niche luminaires: from deck or junction box to forming shell	—	—	—	A <sup>d</sup>	—	A	—	—	A <sup>h</sup>
Dry niche: from branch circuit OCPD to luminaires	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	—	A	—	A <sup>b</sup>	—
Pool associated motors: from branch circuit OCPD to motor	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>f</sup>	A <sup>f</sup>	A <sup>b</sup>	A	A <sup>h</sup>
Packaged or self-contained outdoor spas and hot tubs with underwater luminaire: from branch circuit OCPD to spa or hot tub	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>g</sup>	A <sup>g</sup>	—	A <sup>b</sup>	A <sup>h</sup>
Packaged or self-contained outdoor spas and hot tubs without underwater luminaire: from branch circuit OCPD to spa or hot tub	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>g</sup>	A <sup>g</sup>	A <sup>b</sup>	A	A <sup>h</sup>
Indoor spas and hot tubs, hydromassage bathtubs, and other pool, spa or hot tub associated equipment: from branch circuit OCPD to equipment	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A	A	A	A	A <sup>h</sup>
Connection at pool lighting transformers or power supplies	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>m,g</sup>	A <sup>g</sup>	—	A <sup>b</sup>	—

For SI: 1 foot = 304.8 mm.

a. For all wiring methods, see [Section E4205](#) for equipment grounding conductor requirements.

b. Limited to use within buildings.

c. Limited to use on or within buildings.

- ~~d. Metal conduit shall be constructed of brass or other approved corrosion-resistant metal.~~
- ~~e. Permitted only for existing installations in accordance with the exception to [Section E4205.6](#).~~
- ~~f. Limited to where necessary to employ flexible connections at or adjacent to a pool motor.~~
- ~~g. Sections installed external to spa or hot tub enclosure limited to individual lengths not to exceed 6 feet. Length not limited inside spa or hot tub enclosure.~~
- ~~h. Flexible cord shall be installed in accordance with Section E4202.2.~~
- ~~i. Nonmetallic conduit shall be rigid polyvinyl chloride conduit Type PVC or reinforced thermosetting resin conduit Type RTRC.~~
- ~~j. Aluminum conduits shall not be permitted in the pool area where subject to corrosion.~~
- ~~k. Where installed as direct burial cable or in wet locations, Type MC cable shall be listed and identified for the location.~~
- ~~l. See Section E4202.3 for listed, double-insulated pool pump motors.~~
- ~~m. Limited to use in individual lengths not to exceed 6 feet. The total length of all individual runs of LEMC shall not exceed 10 feet.~~

#### **E4202.2 Flexible cords.**

Flexible cords used in conjunction with a pool, spa, hot tub or hydromassage bathtub shall be installed in accordance with the following:

- ~~1. For other than underwater luminaires, fixed or stationary equipment shall be permitted to be connected with a flexible cord to facilitate removal or disconnection for maintenance or repair. For other than storable pools, the flexible cord shall not exceed 3 feet (914 mm) in length. Cords that supply swimming pool equipment shall have a copper equipment grounding conductor not smaller than 12 AWG and shall terminate in a grounding type attachment plug.~~
- ~~2. Other than listed low voltage lighting systems not requiring grounding, wet niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. Such grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure and shall be not smaller than the supply conductors and not smaller than 16 AWG.~~
- ~~3. A listed packaged spa or hot tub installed outdoors that is GFCI protected shall be permitted to be cord-and-plug-connected provided that such cord does not exceed 15 feet (4572 mm) in length.~~
- ~~4. A listed packaged spa or hot tub rated at 20 amperes or less and installed indoors shall be permitted to be cord-and-plug-connected to facilitate maintenance and repair.~~
- ~~5. For other than underwater and storable pool lighting luminaire, the requirements of Item 1 shall apply to any cord-equipped luminaire that is located within 16 feet (4877 mm) radially from any point on the water surface.~~

#### **E4202.3 Double-insulated pool pumps.**

~~A listed cord-and-plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, noncurrent-carrying metal parts of the pump shall be connected to any wiring method recognized in [Chapter 38](#) that is suitable for the location. Where the bonding grid is connected to the equipment grounding conductor of the motor circuit in accordance with [Section E4204.2](#), Item 6.1, the branch-circuit wiring shall comply with Sections E4202.1 and [E4205.5](#).~~

### **SECTION E4203 EQUIPMENT LOCATION AND CLEARANCES**

**E4203.1 Receptacle outlets.**

Receptacle outlets shall be installed and located in accordance with Sections E4203.1.1 through E4203.1.5. Distances shall be measured as the shortest path that an appliance supply cord connected to the receptacle would follow without penetrating a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

**E4203.1.1 Location.**

Receptacles that provide power for water pump motors or other loads directly related to the circulation and sanitation system shall be permitted to be located between 6 feet and 10 feet (1829 mm and 3048 mm) from the inside walls of pools and outdoor spas and hot tubs, where the receptacle is single and of the locking and grounding type and protected by ground fault circuit interrupters.

Other receptacles on the property shall be located not less than 6 feet (1829 mm) from the inside walls of pools and outdoor spas and hot tubs.

**E4203.1.2 Where required.**

At least one 125 volt, 15 or 20 ampere receptacle supplied by a general purpose branch circuit shall be located a minimum of 6 feet (1829 mm) from and not more than 20 feet (6096 mm) from the inside wall of pools and outdoor spas and hot tubs. This receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the floor, platform or grade level serving the pool, spa or hot tub.

**E4203.1.3 GFCI protection.**

All 15 and 20 ampere, single phase, 125 volt receptacles located within 20 feet (6096 mm) of the inside walls of pools and outdoor spas and hot tubs shall be protected by a ground fault circuit interrupter. Outlets supplying pool pump motors from branch circuits with short circuit and ground fault protection rated 15 or 20 amperes, 125 volts through 240 volts, single phase, whether by receptacle or direct connection, shall be provided with ground fault circuit interrupter protection for personnel.

**E4203.1.4 Indoor locations.**

Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of indoor spas and hot tubs. A minimum of one 125 volt receptacle shall be located between 6 feet (1829 mm) and 10 feet (3048 mm) from the inside walls of indoor spas or hot tubs.

**E4203.1.5 Indoor GFCI protection.**

All 125 volt receptacles rated 30 amperes or less and located within 10 feet (3048 mm) of the inside walls of spas and hot tubs installed indoors, shall be protected by ground fault circuit interrupters.

**E4203.2 Switching devices.**

Switching devices shall be located not less than 5 feet (1524 mm) horizontally from the inside walls of pools, spas and hot tubs except where separated from the pool, spa or hot tub by a solid fence, wall, or other permanent barrier or the switches are listed for use within 5 feet (1524 mm). Switching devices located in a room or area containing a hydromassage bathtub shall be located in accordance with the general requirements of this code.

**E4203.3 Disconnecting means.**

One or more means to simultaneously disconnect all ungrounded conductors for all utilization equipment, other than lighting, shall be provided. Each of such means shall be readily accessible and within sight from the equipment it serves and shall be located at least 5 feet (1524 mm) horizontally from the inside walls of a pool, spa, or hot tub unless separated from the open water by a permanently installed barrier that provides a 5 foot (1524 mm) or greater reach path. This horizontal distance shall be measured from the water's edge along the shortest path required to reach the disconnect.

**E4203.4 Luminaires and ceiling fans.**

~~Lighting outlets, luminaires, and ceiling suspended paddle fans shall be installed and located in accordance with Sections E4203.4.1 through E4203.4.5.~~

#### **E4203.4.1 Outdoor location.**

~~In outdoor pool, outdoor spas and outdoor hot tubs areas, luminaires, lighting outlets, and ceiling suspended paddle fans shall not be installed over the pool or over the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool except where no part of the luminaire or ceiling suspended paddle fan is less than 12 feet (3658 mm) above the maximum water level.~~

#### **E4203.4.2 Indoor locations.**

~~In indoor pool areas, the limitations of Section E4203.4.1 shall apply except where the luminaires, lighting outlets and ceiling suspended paddle fans comply with all of the following conditions:~~

- ~~1. The luminaires are of a totally enclosed type;~~
- ~~2. A ground fault circuit interrupter is installed in the branch circuit supplying the luminaires or ceiling suspended (paddle) fans; and~~
- ~~3. The distance from the bottom of the luminaire or ceiling suspended (paddle) fan to the maximum water level is not less than 7 feet, 6 inches (2286 mm).~~

#### **E4203.4.3 Existing lighting outlets and luminaires.**

~~Existing lighting outlets and luminaires that are located within 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor spas and hot tubs shall be permitted to be located not less than 5 feet (1524 mm) vertically above the maximum water level, provided that such luminaires and outlets are rigidly attached to the existing structure and are protected by a ground fault circuit interrupter.~~

#### **E4203.4.4 Indoor spas and hot tubs.**

- ~~1. Luminaires, lighting outlets, and ceiling suspended paddle fans located over the spa or hot tub or within 5 feet (1524 mm) from the inside walls of the spa or hot tub shall be a minimum of 7 feet, 6 inches (2286 mm) above the maximum water level and shall be protected by a ground fault circuit interrupter.~~

~~Luminaires, lighting outlets, and ceiling suspended paddle fans that are located 12 feet (3658 mm) or more above the maximum water level shall not require ground fault circuit interrupter protection.~~

- ~~2. Luminaires protected by a ground fault circuit interrupter and complying with Item 2.1 or 2.2 shall be permitted to be installed less than 7 feet, 6 inches (2286 mm) over a spa or hot tub.~~

~~2.1. Recessed luminaires shall have a glass or plastic lens and nonmetallic or electrically isolated metal trim, and shall be suitable for use in damp locations.~~

~~2.2. Surface mounted luminaires shall have a glass or plastic globe and a nonmetallic body or a metallic body isolated from contact. Such luminaires shall be suitable for use in damp locations.~~

#### **E4203.4.5 GFCI protection in adjacent areas.**

~~Luminaires and outlets that are installed in the area extending between 5 feet (1524 mm) and 10 feet (3048 mm) from the inside walls of pools and outdoor spas and hot tubs shall be protected by ground fault circuit interrupters except where such fixtures and outlets are installed not less than 5 feet (1524 mm) above the maximum water level and are rigidly attached to the structure.~~

#### **E4203.5 Other outlets.**

~~Other outlets such as for remote control, signaling, fire alarm and communications shall be not less than 10 feet~~

~~(3048 mm) from the inside walls of the pool. Measurements shall be determined in accordance with Section E4203.1.~~

**TABLE E4203.5 OVERHEAD CONDUCTOR CLEARANCES**

<b>INSULATED SUPPLY OR SERVICE DROP CABLES, 0-750 VOLTS TO GROUND, SUPPORTED ON AND CABLED TOGETHER WITH AN EFFECTIVELY GROUNDED BARE MESSENGER OR EFFECTIVELY GROUNDED NEUTRAL CONDUCTOR (feet)</b>	<b>ALL OTHER SUPPLY OR SERVICE DROP CONDUCTORS (feet)</b>		
	<b>Voltage to ground</b>		
	<b>0-15 kV</b>	<b>Greater than 15 to 50 kV</b>	
A. Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft	22.5	25	27
B. Clearance in any direction to the diving platform	14.5	17	18

-

For SI: 1 foot = 304.8 mm.

**~~E4203.6 Overhead conductor clearances.~~**

~~Except where installed with the clearances specified in Table E4203.5, the following parts of pools and outdoor spas and hot tubs shall not be placed under existing service drop conductors or any other open overhead wiring; nor shall such wiring be installed above the following:~~

- ~~1. Pools and the areas extending 10 feet (3048 mm) horizontally from the inside of the walls of the pool;~~
- ~~2. Diving structures; or~~
- ~~3. Observation stands, towers, and platforms.~~

~~Overhead conductors of network powered broadband communications systems shall comply with the provisions in Table E4203.5 for conductors operating at 0 to 750 volts to ground.~~

~~Utility owned, operated and maintained communications conductors, community antenna system coaxial cables and the supporting messengers shall be permitted at a height of not less than 10 feet (3048 mm) above swimming and wading pools, diving structures, and observation stands, towers, and platforms.~~

**~~E4203.7 Underground wiring.~~**

~~Underground wiring shall not be installed under or within the area extending 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor hot tubs and spas except where the wiring is installed to supply pool, spa or hot tub equipment or where space limitations prevent wiring from being routed 5 feet (1524 mm) or more horizontally from the inside walls. Where installed within 5 feet (1524 mm) of the inside walls, the wiring method shall be a complete raceway system of rigid metal conduit, intermediate metal conduit or a nonmetallic raceway system. Metal conduit shall be corrosion resistant and suitable for the location. The minimum cover depth shall be in accordance with Table E4203.7.~~

**TABLE E4203.7 MINIMUM BURIAL DEPTHS**

<b>WIRING METHOD</b>	<b>UNDERGROUND (inches)</b>
Rigid metal conduit	6
Intermediate metal conduit	6
Nonmetallic raceways listed for direct burial and under concrete exterior slab not less than 4 inches in thickness and extending not less than 6 inches (162 mm) beyond the underground installation	6
Nonmetallic raceways listed for direct burial without concrete encasement	18
Other approved raceways*	18

For SI: 1 inch = 25.4 mm.

a. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 2 inches in thickness.

## **SECTION E4204 BONDING**

### **E4204.1 Performance.**

The equipotential bonding required by this section shall be installed to reduce voltage gradients in the pool area as prescribed.

### **E4204.2 Bonded parts.**

The parts of pools, spas, and hot tubs specified in Items 1 through 7 shall be bonded together using insulated, covered or bare solid copper conductors not smaller than 8 AWG or using rigid metal conduit of brass or other identified corrosion resistant metal. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool, spa, or hot tub area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Connections shall be made by exothermic welding, by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy, machine screw type fasteners that engage not less than two threads or are secured with a nut, thread forming machine screws that engage not less than two threads, or terminal bars. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices.

1. ~~Conductive pool shells. Bonding to conductive pool shells shall be provided as specified in Item 1.1 or 1.2. Poured concrete, pneumatically applied or sprayed concrete, and concrete block with painted or plastered coatings shall be considered to be conductive materials because of their water permeability and porosity. Vinyl liners and fiberglass composite shells shall be considered to be nonconductive materials.~~

1.1. ~~Structural reinforcing steel. Unencapsulated structural reinforcing steel shall be bonded together by steel tie wires or the equivalent. Where structural reinforcing steel is encapsulated in a nonconductive compound, a copper conductor grid shall be installed in accordance with Item 1.2.~~

1.2. ~~Copper conductor grid. A copper conductor grid shall be provided and shall comply with Items 1.2.1 through 1.2.4:~~

~~1.2.1. It shall be constructed of minimum 8 AWG bare solid copper conductors bonded to each other at all points of crossing.~~

~~1.2.2. It shall conform to the contour of the pool and the pool deck.~~

~~1.2.3. It shall be arranged in a 12-inch (305 mm) by 12-inch (305 mm) network of conductors in a uniformly spaced perpendicular grid pattern with a tolerance of 4 inches (102 mm).~~

~~1.2.4. It shall be secured within or under the pool not more than 6 inches (152 mm) from the outer contour of the pool shell.~~

~~2. Perimeter surfaces. The perimeter surface shall extend for 3 feet (914 mm) horizontally beyond the inside walls of the pool and shall include unpaved surfaces, poured concrete surfaces and other types of paving. Perimeter surfaces that extend less than 3 feet (914 mm) beyond the inside wall of the pool and that are separated from the pool by a permanent wall or building 5 feet (1524 mm) or more in height shall require equipotential bonding on the pool side of the permanent wall or building. Bonding to perimeter surfaces shall be provided as specified in Item 2.1 or 2.2 and shall be attached to the pool, spa, or hot tub reinforcing steel or copper conductor grid at a minimum of four points uniformly spaced around the perimeter of the pool, spa, or hot tub. For nonconductive pool shells, bonding at four points shall not be required.~~

~~Exception: The equipotential bonding requirements for perimeter surfaces shall not apply to a listed self-contained spa or hot tub located indoors and installed above a finished floor.~~

~~2.1. Structural reinforcing steel. Structural reinforcing steel shall be bonded in accordance with Item 1.1.~~

~~2.2. Alternate means. Where structural reinforcing steel is not available or is encapsulated in a nonconductive compound, a copper conductor(s) shall be used in accordance with Items 2.2.1 through 2.2.5:~~

~~2.2.1. At least one minimum 8 AWG bare solid copper conductor shall be provided.~~

~~2.2.2. The conductors shall follow the contour of the perimeter surface.~~

~~2.2.3. Splices shall be listed.~~

~~2.2.4. The required conductor shall be 18 to 24 inches (457 to 610 mm) from the inside walls of the pool.~~

~~2.2.5. The required conductor shall be secured within or under the perimeter surface 4 to 6 inches (102 mm to 152 mm) below the subgrade.~~

~~3. Metallic components. All metallic parts of the pool structure, including reinforcing metal not addressed in Item 1.1, shall be bonded. Where reinforcing steel is encapsulated with a nonconductive compound, the reinforcing steel shall not be required to be bonded.~~

~~4. Underwater lighting. All metal forming shells and mounting brackets of no niche luminaires shall be bonded.~~

~~Exception: Listed low voltage lighting systems with nonmetallic forming shells shall not require bonding.~~

~~5. Metal fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 4 inches (102 mm) in any dimension and do not penetrate into the pool structure more than 1 inch (25.4 mm) shall not require bonding.~~

~~6. Electrical equipment. Metal parts of electrical equipment associated with the pool water circulating system, including pump motors and metal parts of equipment associated with pool covers, including electric motors, shall be~~



~~bonded.~~

~~Exception: Metal parts of listed equipment incorporating an approved system of double insulation shall not be bonded.~~

~~6.1. Double insulated water pump motors. Where a double insulated water pump motor is installed under the provisions of this item, a solid 8 AWG copper conductor of sufficient length to make a bonding connection to a replacement motor shall be extended from the bonding grid to an accessible point in the vicinity of the pool pump motor. Where there is no connection between the swimming pool bonding grid and the equipment grounding system for the premises, this bonding conductor shall be connected to the equipment grounding conductor of the motor circuit.~~

~~6.2. Pool water heaters. For pool water heaters rated at more than 50 amperes and having specific instructions regarding bonding and grounding, only those parts designated to be bonded shall be bonded and only those parts designated to be grounded shall be grounded.~~

~~7. All fixed metal parts including, but not limited to, metal sheathed cables and raceways, metal piping, metal awnings, metal fences and metal door and window frames.~~

~~Exceptions:~~

~~1. Those separated from the pool by a permanent barrier that prevents contact by a person shall not be required to be bonded.~~

~~2. Those greater than 5 feet (1524 mm) horizontally from the inside walls of the pool shall not be required to be bonded.~~

~~3. Those greater than 12 feet (3658 mm) measured vertically above the maximum water level of the pool, or as measured vertically above any observation stands, towers, or platforms, or any diving structures, shall not be required to be bonded.~~

~~E4204.3 Pool water.~~

~~The pool water shall be intentionally bonded by means of a conductive surface area not less than 9 square inches (5806 mm<sup>2</sup>) installed in contact with the pool water. This bond shall be permitted to consist of parts that are required to be bonded in Section E4204.2.~~

~~E4204.4 Bonding of outdoor hot tubs and spas.~~

~~Outdoor hot tubs and spas shall comply with the bonding requirements of Sections E4204.1 through E4204.3. Bonding by metal to metal mounting on a common frame or base shall be permitted. The metal bands or hoops used to secure wooden staves shall not be required to be bonded as required in Section E4204.2.~~

~~E4204.5 Bonding of indoor hot tubs and spas.~~

~~The following parts of indoor hot tubs and spas shall be bonded together:~~

~~1. All metal fittings within or attached to the hot tub or spa structure.~~

~~2. Metal parts of electrical equipment associated with the hot tub or spa water circulating system, including pump motors unless part of a listed self-contained spa or hot tub.~~

~~3. Metal raceway and metal piping that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the spa or hot tub by a permanent barrier.~~

~~4. All metal surfaces that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the hot tub or spa area by a permanent barrier.~~

~~Exception: Small conductive surfaces not likely to become energized, such as air and water jets and drain fittings, where not connected to metallic piping, towel bars, mirror frames, and similar nonelectrical equipment, shall not be required to be bonded.~~

~~5. Electrical devices and controls that are not associated with the hot tubs or spas and that are located less than 5 feet (1524 mm) from such units.~~

#### ~~E4204.5.1 Methods.~~

~~All metal parts associated with the hot tub or spa shall be bonded by any of the following methods:~~

- ~~1. The interconnection of threaded metal piping and fittings.~~
- ~~2. Metal to metal mounting on a common frame or base.~~
- ~~3. The provision of an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. It shall not be the intent to require that the 8 AWG or larger solid copper bonding conductor be extended or attached to any remote panelboard, service equipment, or any electrode, but only that it shall be employed to eliminate voltage gradients in the hot tub or spa area as prescribed.~~

#### ~~E4204.5.2 Connections.~~

~~Connections shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices.~~

### ~~SECTION E4205 GROUNDING~~

#### ~~E4205.1 Equipment to be grounded.~~

~~The following equipment shall be grounded:~~

- ~~1. Through wall lighting assemblies and underwater luminaires other than those low voltage lighting products listed for the application without a grounding conductor.~~
- ~~2. All electrical equipment located within 5 feet (1524 mm) of the inside wall of the pool, spa or hot tub.~~
- ~~3. All electrical equipment associated with the recirculating system of the pool, spa or hot tub.~~
- ~~4. Junction boxes.~~
- ~~5. Transformer and power supply enclosures.~~
- ~~6. Ground fault circuit interrupters.~~
- ~~7. Panelboards that are not part of the service equipment and that supply any electrical equipment associated with the pool, spa or hot tub.~~

#### ~~E4205.2 Luminaires and related equipment.~~

~~Other than listed low voltage luminaires not requiring grounding, all through wall lighting assemblies, wet niche, dry niche, or no niche luminaires shall be connected to an insulated copper equipment grounding conductor sized in~~

accordance with Table E3908.12 but not smaller than 12 AWG. The equipment grounding conductor between the wiring chamber of the secondary winding of a transformer and a junction box shall be sized in accordance with the overcurrent device in such circuit. The junction box, transformer enclosure, or other enclosure in the supply circuit to a wet niche or no niche luminaire and the field wiring chamber of a dry niche luminaire shall be grounded to the equipment grounding terminal of the panelboard. The equipment grounding terminal shall be directly connected to the panelboard enclosure. The equipment grounding conductor shall be installed without joint or splice.

#### **Exceptions:**

1. Where more than one underwater luminaire is supplied by the same branch circuit, the equipment grounding conductor, installed between the junction boxes, transformer enclosures, or other enclosures in the supply circuit to wet niche luminaires, or between the field wiring compartments of dry niche luminaires, shall be permitted to be terminated on grounding terminals.
2. Where an underwater luminaire is supplied from a transformer, ground fault circuit interrupter, clock operated switch, or a manual snap switch that is located between the panelboard and a junction box connected to the conduit that extends directly to the underwater luminaire, the equipment grounding conductor shall be permitted to terminate on grounding terminals on the transformer, ground fault circuit interrupter, clock operated switch enclosure, or an outlet box used to enclose a snap switch.

#### **E4205.3 Nonmetallic conduit.**

Where a nonmetallic conduit is installed between a forming shell and a junction box, transformer enclosure, or other enclosure, a 8 AWG insulated copper bonding jumper shall be installed in this conduit except where a listed low-voltage lighting system not requiring grounding is used. The bonding jumper shall be terminated in the forming shell, junction box or transformer enclosure, or ground fault circuit interrupter enclosure. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a listed potting compound to protect such connection from the possible deteriorating effect of pool water.

#### **E4205.4 Flexible cords.**

Other than listed low voltage lighting systems not requiring grounding, wet niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. This grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure. The grounding conductor shall not be smaller than the supply conductors and not smaller than 16 AWG.

#### **E4205.5 Motors.**

Pool associated motors shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12, but not smaller than 12 AWG. Where the branch circuit supplying the motor is installed in the interior of a one family dwelling or in the interior of accessory buildings associated with a one family dwelling, using a cable wiring method permitted by Table E4202.1, an uninsulated equipment grounding conductor shall be permitted provided that it is enclosed within the outer sheath of the cable assembly.

#### **E4205.6 Feeders.**

An equipment grounding conductor shall be installed with the feeder conductors between the grounding terminal of the pool equipment panelboard and the grounding terminal of the applicable service equipment or source of a separately derived system. The equipment grounding conductor shall be insulated, shall be sized in accordance with Table E3908.12, and shall be not smaller than 12 AWG.

**Exception:** An existing feeder between an existing remote panelboard and service equipment shall be permitted to run in flexible metal conduit or an approved cable assembly that includes an equipment grounding conductor within its outer sheath. The equipment grounding conductor shall not be connected to the grounded conductor in the remote panelboard.

**~~E4205.6.1 Separate buildings.~~**

~~A feeder to a separate building or structure shall be permitted to supply swimming pool equipment branch circuits, or feeders supplying swimming pool equipment branch circuits, provided that the grounding arrangements in the separate building meet the requirements of [Section E3607.3](#). Where installed in other than existing feeders covered in the exception to Section E4205.6, a separate equipment grounding conductor shall be an insulated conductor.~~

**~~E4205.7 Cord connected equipment.~~**

~~Where fixed or stationary equipment is connected with a flexible cord to facilitate removal or disconnection for maintenance, repair, or storage, as provided in [Section E4202.2](#), the equipment grounding conductors shall be connected to a fixed metal part of the assembly. The removable part shall be mounted on or bonded to the fixed metal part.~~

**~~E4205.8 Other equipment.~~**

~~Other electrical equipment shall be grounded in accordance with [Section E3908](#).~~

**SECTION E4206 EQUIPMENT INSTALLATION****~~E4206.1 Transformers and power supplies.~~**

~~Transformers and power supplies used for the supply of underwater luminaires, together with the transformer or power supply enclosure, shall be listed for swimming pool and spa use. The transformer or power supply shall incorporate either a transformer of the isolated winding type with an ungrounded secondary that has a grounded metal barrier between the primary and secondary windings, or a transformer that incorporates an approved system of double insulation between the primary and secondary windings.~~

**~~E4206.2 Ground fault circuit interrupters.~~**

~~Ground fault circuit interrupters shall be self contained units, circuit breaker types, receptacle types or other approved types.~~

**~~E4206.3 Wiring on load side of ground fault circuit interrupters and transformers.~~**

~~For other than grounding conductors, conductors installed on the load side of a ground fault circuit interrupter or transformer used to comply with the provisions of Section E4206.4, shall not occupy raceways, boxes, or enclosures containing other conductors except where the other conductors are protected by ground fault circuit interrupters or are grounding conductors. Supply conductors to a feed through type ground fault circuit interrupter shall be permitted in the same enclosure. Ground fault circuit interrupters shall be permitted in a panelboard that contains circuits protected by other than ground fault circuit interrupters.~~

**~~E4206.4 Underwater luminaires.~~**

~~The design of an underwater luminaire supplied from a branch circuit either directly or by way of a transformer or power supply meeting the requirements of Section E4206.1, shall be such that, where the fixture is properly installed without a ground fault circuit interrupter, there is no shock hazard with any likely combination of fault conditions during normal use (not relamping). In addition, a ground fault circuit interrupter shall be installed in the branch circuit supplying luminaires operating at more than the low voltage contact limit, such that there is no shock hazard during relamping. The installation of the ground fault circuit interrupter shall be such that there is no shock hazard with any likely fault condition combination that involves a person in a conductive path from any ungrounded part of the branch circuit or the luminaire to ground. Compliance with this requirement shall be obtained by the use of a listed underwater luminaire and by installation of a listed ground fault circuit interrupter in the branch circuit or a listed transformer or power supply for luminaires operating at more than the low voltage contact limit. Luminaires that depend on submersion for safe operation shall be inherently protected against the hazards of overheating when not submerged.~~

**~~E4206.4.1 Maximum voltage.~~**

~~Luminaires shall not be installed for operation on supply circuits over 150 volts between conductors.~~

**E4206.4.2 Luminaire location.**

Luminaires mounted in walls shall be installed with the top of the fixture lens not less than 18 inches (457 mm) below the normal water level of the pool, except where the luminaire is listed and identified for use at a depth of not less than 4 inches (102 mm) below the normal water level of the pool. A luminaire facing upward shall have the lens adequately guarded to prevent contact by any person or shall be listed for use without a guard.

**E4206.5 Wet niche luminaires.**

Forming shells shall be installed for the mounting of all wet niche underwater luminaires and shall be equipped with provisions for conduit entries. Conduit shall extend from the forming shell to a suitable junction box or other enclosure located as provided in Section E4206.9. Metal parts of the luminaire and forming shell in contact with the pool water shall be of brass or other approved corrosion resistant metal.

The end of flexible cord jackets and flexible cord conductor terminations within a luminaire shall be covered with, or encapsulated in, a suitable potting compound to prevent the entry of water into the luminaire through the cord or its conductors. If present, the grounding connection within a luminaire shall be similarly treated to protect such connection from the deteriorating effect of pool water in the event of water entry into the luminaire.

Luminaires shall be bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to remove the luminaire from the forming shell.

**E4206.5.1 Servicing.**

All wet niche luminaires shall be removable from the water for inspection, relamping, or other maintenance. The forming shell location and length of cord in the forming shell shall permit personnel to place the removed luminaire on the deck or other dry location for such maintenance. The luminaire maintenance location shall be accessible without entering or going into the pool water.

**E4206.6 Dry niche luminaires.**

Dry niche luminaires shall have provisions for drainage of water. Other than listed low voltage luminaires not requiring grounding, a dry niche luminaire shall have means for accommodating one equipment grounding conductor for each conduit entry. Junction boxes shall not be required but, if used, shall not be required to be elevated or located as specified in Section E4206.9 if the luminaire is specifically identified for the purpose.

**E4206.7 No niche luminaires.**

No niche luminaires shall be listed for the purpose and shall be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the mounting bracket.

**E4206.8 Through wall lighting assembly.**

A through wall lighting assembly shall be equipped with a threaded entry or hub, or a nonmetallic hub, for the purpose of accommodating the termination of the supply conduit. A through wall lighting assembly shall meet the construction requirements of [Section E4205.4](#) and be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the conduit termination point.

**E4206.9 Junction boxes and enclosures for transformers or ground fault circuit interrupters.**

Junction boxes for underwater luminaires and enclosures for transformers and ground fault circuit interrupters that supply underwater luminaires shall comply with the following:

**E4206.9.1 Junction boxes.**

A junction box connected to a conduit that extends directly to a forming shell or mounting bracket of a no niche luminaire shall be:

1. Listed as a swimming pool junction box;
2. Equipped with threaded entries or hubs or a nonmetallic hub;

~~3. Constructed of copper, brass, suitable plastic, or other approved corrosion resistant material;~~

~~4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass, or other approved corrosion resistant metal that is integral with the box; and~~

~~5. Located not less than 4 inches (102 mm), measured from the inside of the bottom of the box, above the ground level, or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greatest elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, unless separated from the pool by a solid fence, wall or other permanent barrier. Where used on a lighting system operating at the low voltage contact limit or less, a flush deck box shall be permitted provided that an approved potting compound is used to fill the box to prevent the entrance of moisture; and the flush deck box is located not less than 4 feet (1219 mm) from the inside wall of the pool.~~

#### **E4206.9.2 Other enclosures.**

~~An enclosure for a transformer, ground fault circuit interrupter or a similar device connected to a conduit that extends directly to a forming shell or mounting bracket of a no niche luminaire shall be:~~

~~1. Listed and labeled for the purpose, comprised of copper, brass, suitable plastic, or other approved corrosion resistant material;~~

~~2. Equipped with threaded entries or hubs or a nonmetallic hub;~~

~~3. Provided with an approved seal, such as duct seal at the conduit connection, that prevents circulation of air between the conduit and the enclosure;~~

~~4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass or other approved corrosion resistant metal that is integral with the enclosure; and~~

~~5. Located not less than 4 inches (102 mm), measured from the inside bottom of the enclosure, above the ground level or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greater elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, except where separated from the pool by a solid fence, wall or other permanent barrier.~~

#### **E4206.9.3 Protection of junction boxes and enclosures.**

~~Junction boxes and enclosures mounted above the grade of the finished walkway around the pool shall not be located in the walkway unless afforded additional protection, such as by location under diving boards or adjacent to fixed structures.~~

#### **E4206.9.4 Grounding terminals.**

~~Junction boxes, transformer and power supply enclosures, and ground fault circuit interrupter enclosures connected to a conduit that extends directly to a forming shell or mounting bracket of a no niche luminaire shall be provided with grounding terminals in a quantity not less than the number of conduit entries plus one.~~

#### **E4206.9.5 Strain relief.**

~~The termination of a flexible cord of an underwater luminaire within a junction box, transformer or power supply enclosure, ground fault circuit interrupter, or other enclosure shall be provided with a strain relief.~~

#### **E4206.10 Underwater audio equipment.**

~~Underwater audio equipment shall be identified for the purpose.~~

#### **E4206.10.1 Speakers.**

~~Each speaker shall be mounted in an approved metal forming shell, the front of which is enclosed by a captive metal screen, or equivalent, that is bonded to and secured to the forming shell by a positive locking device that ensures a~~

~~low resistance contact and requires a tool to open for installation or servicing of the speaker. The forming shell shall be installed in a recess in the wall or floor of the pool.~~

#### ~~E4206.10.2 Wiring methods.~~

~~Rigid metal conduit of brass or other identified corrosion resistant metal, rigid polyvinyl chloride conduit, rigid thermosetting resin conduit or liquid tight flexible nonmetallic conduit (LFNC-B) shall extend from the forming shell to a suitable junction box or other enclosure as provided in Section E4206.9. Where rigid nonmetallic conduit or liquid tight flexible nonmetallic conduit is used, an 8 AWG solid or stranded insulated copper bonding jumper shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a suitable potting compound to protect such connection from the possible deteriorating effect of pool water.~~

#### ~~E4206.10.3 Forming shell and metal screen.~~

~~The forming shell and metal screen shall be of brass or other approved corrosion resistant metal. All forming shells shall include provisions for terminating an 8 AWG copper conductor.~~

#### ~~E4206.11 Electrically operated pool covers.~~

~~The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet (1524 mm) from the inside wall of the pool except where separated from the pool by a wall, cover, or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a circuit protected by a ground fault circuit interrupter. The device that controls the operation of the motor for an electrically operated pool cover shall be located so that the operator has full view of the pool.~~

#### ~~E4206.12 Electric pool water heaters.~~

~~All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch circuit conductors and the rating or setting of overcurrent protective devices shall be not less than 125 percent of the total nameplate load rating.~~

#### ~~E4206.13 Pool area heating.~~

~~The provisions of Sections E4206.13.1 through E4206.13.3 shall apply to all pool deck areas, including a covered pool, where electrically operated comfort heating units are installed within 20 feet (6096 mm) of the inside wall of the pool.~~

##### ~~E4206.13.1 Unit heaters.~~

~~Unit heaters shall be rigidly mounted to the structure and shall be of the totally enclosed or guarded types. Unit heaters shall not be mounted over the pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool.~~

##### ~~E4206.13.2 Permanently wired radiant heaters.~~

~~Electric radiant heaters shall be suitably guarded and securely fastened to their mounting devices. Heaters shall not be installed over a pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of the pool and shall be mounted not less than 12 feet (3658 mm) vertically above the pool deck.~~

##### ~~E4206.13.3 Radiant heating cables prohibited.~~

~~Radiant heating cables embedded in or below the deck shall be prohibited.~~

## **SECTION E4207 STORABLE SWIMMING POOLS**

### **E4207.1 Pumps.**

**A cord and plug connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided with means for grounding only the internal and nonaccessible noncurrent carrying metal parts of the appliance.**

~~The means for grounding shall be an equipment grounding conductor run with the power supply conductors in a flexible cord that is properly terminated in a grounding type attachment plug having a fixed grounding contact. Cord and plug connected pool filter pumps shall be provided with a ground fault circuit interrupter that is an integral part of the attachment plug or located in the power supply cord within 12 inches (305 mm) of the attachment plug.~~

~~**E4207.2 Ground fault circuit interrupters required.**~~

~~Electrical equipment, including power supply cords, used with storable pools shall be protected by ground fault circuit interrupters. All 125 volt, 15 and 20 ampere receptacles located within 20 feet (6096 mm) of the inside walls of a storable pool shall be protected by a ground fault circuit interrupter. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.~~

~~**E4207.3 Luminaires.**~~

~~Luminaires for storable pools shall not have exposed metal parts and shall be listed for the purpose as an assembly. In addition, luminaires for storable pools shall comply with the requirements of Section E4207.3.1 or E4207.3.2.~~

~~**E4207.3.1 Within the low voltage contact limit.**~~

~~A luminaire installed in or on the wall of a storable pool shall be part of a cord and plug connected lighting assembly. The assembly shall:~~

- ~~1. Have a luminaire lamp that is suitable for the use at the supplied voltage;~~
- ~~2. Have an impact resistant polymeric lens, luminaire body, and transformer enclosure;~~
- ~~3. Have a transformer meeting the requirements of [section E4206.1](#) with a primary rating not over 150 volts; and~~
- ~~4. Have no exposed metal parts.~~

~~**E4207.3.2 Over the low voltage contact limit but not over 150 volts.**~~

~~A lighting assembly without a transformer or power supply, and with the luminaire lamp(s) operating at over the low voltage contact limit, but not over 150 volts, shall be permitted to be cord and plug connected where the assembly is listed as an assembly for the purpose and complies with all of the following:~~

- ~~1. It has an impact resistant polymeric lens and luminaire body.~~
- ~~2. A ground fault circuit interrupter with open neutral conductor protection is provided as an integral part of the assembly.~~
- ~~3. The luminaire lamp is permanently connected to the ground fault circuit interrupter with open neutral protection.~~
- ~~4. It complies with the requirements of [Section E4206.4](#).~~
- ~~-~~
- ~~5. It has no exposed metal parts.~~

~~**E4207.4 Receptacle locations.**~~

~~Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of a pool. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.~~



**SECTION E4208 SPAS AND HOT TUBS****~~E4208.1 Ground fault circuit interrupters.~~**

~~The outlet(s) that supplies a self-contained spa or hot tub, or a packaged spa or hot tub equipment assembly, or a field-assembled spa or hot tub with a heater load of 50 amperes or less, shall be protected by a ground fault circuit interrupter.~~

~~A listed self-contained unit or listed packaged equipment assembly marked to indicate that integral ground fault circuit interrupter protection is provided for all electrical parts within the unit or assembly, including pumps, air blowers, heaters, lights, controls, sanitizer generators and wiring, shall not require that the outlet supply be protected by a ground fault circuit interrupter.~~

**~~E4208.2 Electric water heaters.~~**

~~Electric spa and hot tub water heaters shall be listed and shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch circuit conductors, and the rating or setting of overcurrent protective devices, shall be not less than 125 percent of the total nameplate load rating.~~

**~~E4208.3 Underwater audio equipment.~~**

~~Underwater audio equipment used with spas and hot tubs shall comply with the provisions of [Section E4206.10](#).~~

**~~E4208.4 Emergency switch for spas and hot tubs.~~**

~~A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provides power to the recirculation system and jet system shall be installed at a point that is readily accessible to the users, adjacent to and within sight of the spa or hot tub and not less than 5 feet (1524 mm) away from the spa or hot tub. This requirement shall not apply to single family dwellings.~~

**SECTION E4209 HYDROMASSAGE BATHTUBS****~~E4209.1 Ground fault circuit interrupters.~~**

~~Hydromassage bathtubs and their associated electrical components shall be supplied by an individual branch circuit(s) and protected by a readily accessible ground fault circuit interrupter. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within 6 feet (1829 mm) measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground fault circuit interrupter(s).~~

**~~E4209.2 Other electric equipment.~~**

~~Luminaires, switches, receptacles, and other electrical equipment located in the same room, and not directly associated with a hydromassage bathtub, shall be installed in accordance with the requirements of this code relative to the installation of electrical equipment in bathrooms.~~

**~~E4209.3 Accessibility.~~**

~~Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish.~~

~~Where the hydromassage bathtub is cord-and-plug connected with the supply receptacle accessible only through a service access opening, the receptacle shall be installed so that its face is within direct view and not more than 12 inches (305 mm) from the plane of the opening.~~

**~~E4209.4 Bonding.~~**

~~All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together.~~

~~using an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. The bonding jumper shall be connected to the terminal on the circulating pump motor that is intended for this purpose. The bonding jumper shall not be required to be connected to a double insulated circulating pump motor. The 8 AWG or larger solid copper bonding jumper shall be required for equipotential bonding in the area of the hydromassage bathtub and shall not be required to be extended or attached to any remote panelboard, service equipment, or any electrode.~~

~~Where a double insulated circulating pump motor is used, the 8 AWG or larger solid copper bonding jumper shall be long enough to terminate on a replacement nondouble insulated pump motor and shall be terminated to the equipment grounding conductor of the branch circuit for the motor.~~

Revise Chapter 42 of the Florida Building Code, Residential as follows

Revise as follows:

Part VIII-Electrical

Chapter 42

SWIMMING POOLS

**SECTION E4201 GENERAL**

**E4201.1 Scope.**

The provisions of the International Swimming Pool and Spa Code (ISPSC) shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment.

~~**SECTION E4201 GENERAL**~~

~~**E4201.1 Scope.**~~

~~The provisions of this chapter shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment. Sections E4202 through E4206 provide general rules for permanent pools, spas and hot tubs. Section E4207 provides specific rules for storable pools. Section E4208 provides specific rules for spas and hot tubs. Section E4209 provides specific rules for hydromassage bathtubs.~~

~~**E4201.2 Definitions.**~~

~~**CORD AND PLUG CONNECTED LIGHTING ASSEMBLY.** A lighting assembly consisting of a cord and plug connected transformer and a luminaire intended for installation in the wall of a spa, hot tub, or storable pool.~~

~~**DRY NICHE LUMINAIRE.** A luminaire intended for installation in the floor or wall of a pool, spa or fountain in a niche that is sealed against the entry of water.~~

~~**FORMING SHELL.** A structure designed to support a wet niche luminaire assembly and intended for mounting in a pool or fountain structure.~~

~~**FOUNTAIN.** Fountains, ornamental pools, display pools, and reflection pools. The definition does not include drinking fountains.~~

~~**HYDROMASSAGE BATHTUB.** A permanently installed bathtub equipped with a recirculating piping system, pump, and associated equipment. It is designed so it can accept, circulate and discharge water upon each use.~~

~~**LOW VOLTAGE CONTACT LIMIT.** A voltage not exceeding the following values:~~

- ~~1. 15 volts (RMS) for sinusoidal AC~~
- ~~2. 21.2 volts peak for nonsinusoidal AC~~
- ~~3. 30 volts for continuous DC~~

4. 12.4 volts peak for DC that is interrupted at a rate of 10 to 200 Hz

**MAXIMUM WATER LEVEL.** The highest level that water can reach before it spills out.

**NO NICHE LUMINAIRE.** A luminaire intended for installation above or below the water without a niche.

**PACKAGED SPA OR HOT TUB EQUIPMENT ASSEMBLY.** A factory-fabricated unit consisting of water-circulating, heating and control equipment mounted on a common base, intended to operate a spa or hot tub. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

**PERMANENTLY INSTALLED SWIMMING, WADING, IMMERSION AND THERAPEUTIC POOLS.** Those that are constructed in the ground or partially in the ground, and all others capable of holding water with a depth greater than 42 inches (1067 mm), and all pools installed inside of a building, regardless of water depth, whether or not served by electrical circuits of any nature.

**POOL.** Manufactured or field-constructed equipment designed to contain water on a permanent or semipermanent basis and used for swimming, wading, immersion, or therapeutic purposes.

**POOL COVER, ELECTRICALLY OPERATED.** Motor-driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame.

**SELF-CONTAINED SPA OR HOT TUB.** A factory-fabricated unit consisting of a spa or hot tub vessel with all water-circulating, heating and control equipment integral to the unit. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

**SPA OR HOT TUB.** A hydromassage pool, or tub for recreational or therapeutic use, not located in health care facilities, designed for immersion of users, and usually having a filter, heater, and motor-driven blower. They are installed indoors or outdoors, on the ground or supporting structure, or in the ground or supporting structure. Generally, a spa or hot tub is not designed or intended to have its contents drained or discharged after each use.

**STORABLE SWIMMING OR WADING POOL.** Those that are constructed on or above the ground and are capable of holding water with a maximum depth of 42 inches (1067 mm), or a pool with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension.

**THROUGH-WALL LIGHTING ASSEMBLY.** A lighting assembly intended for installation above grade, on or through the wall of a pool, consisting of two interconnected groups of components separated by the pool wall.

**WET NICHE LUMINAIRE.** A luminaire intended for installation in a forming shell mounted in a pool or fountain structure where the luminaire will be completely surrounded by water.

**SECTION E4202 WIRING METHODS FOR POOLS, SPAS, HOT TUBS AND HYDROMASSAGE BATHTUBS**

**E4202.1 General.**

Wiring methods used in conjunction with permanently installed swimming pools, spas, hot tubs or hydromassage bathtubs shall be installed in accordance with Table E4202.1 and Chapter 38 except as otherwise stated in this section. Storable swimming pools shall comply with Section E4207.

**TABLE E4202.1 ALLOWABLE APPLICATIONS FOR WIRING METHODS**<sup>a, b, c, d, e, f, g, h, i</sup>

WIRING LOCATION OR PURPOSE	AC, FMC, NM, SR, SE	EMT	ENT	IMC <sup>j</sup> , RMC <sup>j</sup>	LFMC	LFNMC	UF	MC <sup>k</sup>	FLEX CORD
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(Application allowed where marked with an "A")				RNC <sup>d</sup>					
Panelboard(s) that supply pool equipment: from service equipment to panelboard	A <sup>b,e</sup> SR not permitted	A <sup>e</sup>	A <sup>b</sup>	A	—	A	A <sup>e</sup>	A <sup>e</sup>	—
Wet niche and no-niche luminaires: from branch circuit OCPD to deck or junction box	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	—	A	—	A <sup>b</sup>	—
Wet niche and no-niche luminaires: from deck or junction box to forming shell	—	—	—	A <sup>d</sup>	—	A	—	—	A <sup>h</sup>
Dry niche: from branch circuit OCPD to luminaires	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	—	A	—	A <sup>b</sup>	—
Pool-associated motors: from branch circuit OCPD to motor	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>f</sup>	A <sup>f</sup>	A <sup>b</sup>	A	A <sup>h</sup>
Packaged or self-contained outdoor spas and hot tubs with underwater luminaire: from branch circuit OCPD to spa or hot tub	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>g</sup>	A <sup>g</sup>	—	A <sup>b</sup>	A <sup>h</sup>
Packaged or self-contained outdoor spas and hot tubs without underwater luminaire: from branch circuit OCPD to spa or hot tub	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>g</sup>	A <sup>g</sup>	A <sup>b</sup>	A	A <sup>h</sup>
Indoor spas and hot tubs, hydromassage bathtubs, and other pool, spa or hot tub associated equipment: from branch circuit OCPD to equipment	A <sup>b</sup>	A <sup>e</sup>	A <sup>b</sup>	A	A	A	A	A	A <sup>h</sup>
Connection at pool lighting transformers or power supplies	AC <sup>b</sup> only	A <sup>e</sup>	A <sup>b</sup>	A	A <sup>m,g</sup>	A <sup>g</sup>	—	A <sup>b</sup>	—

For SI: 1 foot = 304.8 mm.

a. For all wiring methods, see Section E4205 for equipment grounding conductor requirements.

b. Limited to use within buildings.

c. Limited to use on or within buildings.

d. Metal conduit shall be constructed of brass or other approved corrosion resistant metal.

e. Permitted only for existing installations in accordance with the exception to Section E4205.6.

f. Limited to where necessary to employ flexible connections at or adjacent to a pool motor.

g. Sections installed external to spa or hot tub enclosure limited to individual lengths not to exceed 6 feet. Length not limited inside spa or hot tub enclosure.

h. Flexible cord shall be installed in accordance with Section E4202.2.

i. Nonmetallic conduit shall be rigid polyvinyl chloride conduit Type PVC or reinforced thermosetting resin conduit

Type RTRC.

- j. Aluminum conduits shall not be permitted in the pool area where subject to corrosion.
- k. Where installed as direct burial cable or in wet locations, Type MC cable shall be listed and identified for the location.
- l. See Section E4202.3 for listed, double-insulated pool pump motors.
- m. Limited to use in individual lengths not to exceed 6 feet. The total length of all individual runs of LFMC shall not exceed 10 feet.

#### **E4202.2 Flexible cords.**

Flexible cords used in conjunction with a pool, spa, hot tub or hydromassage bathtub shall be installed in accordance with the following:

1. For other than underwater luminaires, fixed or stationary equipment shall be permitted to be connected with a flexible cord to facilitate removal or disconnection for maintenance or repair. For other than storable pools, the flexible cord shall not exceed 3 feet (914 mm) in length. Cords that supply swimming pool equipment shall have a copper equipment grounding conductor not smaller than 12 AWG and shall terminate in a grounding-type attachment plug.
2. Other than listed low-voltage lighting systems not requiring grounding, wet-niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. Such grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure and shall be not smaller than the supply conductors and not smaller than 16 AWG.
3. A listed packaged spa or hot tub installed outdoors that is GFCI protected shall be permitted to be cord-and-plug-connected provided that such cord does not exceed 15 feet (4572 mm) in length.
4. A listed packaged spa or hot tub rated at 20 amperes or less and installed indoors shall be permitted to be cord-and-plug-connected to facilitate maintenance and repair.
5. For other than underwater and storable pool lighting luminaire, the requirements of Item 1 shall apply to any cord-equipped luminaire that is located within 16 feet (4877 mm) radially from any point on the water surface.

#### **E4202.3 Double-insulated pool pumps.**

A listed cord and plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, noncurrent-carrying metal parts of the pump shall be connected to any wiring method recognized in Chapter 38 that is suitable for the location. Where the bonding grid is connected to the equipment grounding conductor of the motor circuit in accordance with Section E4204.2, Item 6.1, the branch circuit wiring shall comply with Sections E4202.1 and E4205.5.

### **SECTION E4203 EQUIPMENT LOCATION AND CLEARANCES**

#### **E4203.1 Receptacle outlets.**

Receptacle outlets shall be installed and located in accordance with Sections E4203.1.1 through E4203.1.5. Distances shall be measured as the shortest path that an appliance supply cord connected to the receptacle would follow without penetrating a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

##### **E4203.1.1 Location.**

Receptacles that provide power for water pump motors or other loads directly related to the circulation and

sanitation system shall be permitted to be located between 6 feet and 10 feet (1829 mm and 3048 mm) from the inside walls of pools and outdoor spas and hot tubs, where the receptacle is single and of the locking and grounding type and protected by ground-fault circuit interrupters.

Other receptacles on the property shall be located not less than 6 feet (1829 mm) from the inside walls of pools and outdoor spas and hot tubs.

#### **E4203.1.2 Where required.**

At least one 125-volt, 15- or 20-ampere receptacle supplied by a general-purpose branch circuit shall be located a minimum of 6 feet (1829 mm) from and not more than 20 feet (6096 mm) from the inside wall of pools and outdoor spas and hot tubs. This receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the floor, platform or grade level serving the pool, spa or hot tub.

#### **E4203.1.3 GFCI protection.**

All 15- and 20-ampere, single-phase, 125-volt receptacles located within 20 feet (6096 mm) of the inside walls of pools and outdoor spas and hot tubs shall be protected by a ground-fault circuit interrupter. Outlets supplying pool pump motors from branch circuits with short-circuit and ground-fault protection rated 15 or 20 amperes, 125 volts through 240 volts, single-phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

#### **E4203.1.4 Indoor locations.**

Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of indoor spas and hot tubs. A minimum of one 125-volt receptacle shall be located between 6 feet (1829 mm) and 10 feet (3048 mm) from the inside walls of indoor spas or hot tubs.

#### **E4203.1.5 Indoor GFCI protection.**

All 125-volt receptacles rated 30 amperes or less and located within 10 feet (3048 mm) of the inside walls of spas and hot tubs installed indoors, shall be protected by ground-fault circuit interrupters.

#### **E4203.2 Switching devices.**

Switching devices shall be located not less than 5 feet (1524 mm) horizontally from the inside walls of pools, spas and hot tubs except where separated from the pool, spa or hot tub by a solid fence, wall, or other permanent barrier or the switches are listed for use within 5 feet (1524 mm). Switching devices located in a room or area containing a hydromassage bathtub shall be located in accordance with the general requirements of this code.

#### **E4203.3 Disconnecting means.**

One or more means to simultaneously disconnect all ungrounded conductors for all utilization equipment, other than lighting, shall be provided. Each of such means shall be readily accessible and within sight from the equipment it serves and shall be located at least 5 feet (1524 mm) horizontally from the inside walls of a pool, spa, or hot tub unless separated from the open water by a permanently installed barrier that provides a 5-foot (1524 mm) or greater reach path. This horizontal distance shall be measured from the water's edge along the shortest path required to reach the disconnect.

#### **E4203.4 Luminaires and ceiling fans.**

Lighting outlets, luminaires, and ceiling-suspended paddle fans shall be installed and located in accordance with Sections E4203.4.1 through E4203.4.5.

##### **E4203.4.1 Outdoor location.**

In outdoor pool, outdoor spas and outdoor hot tubs areas, luminaires, lighting outlets, and ceiling-suspended paddle fans shall not be installed over the pool or over the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool except where no part of the luminaire or ceiling-suspended paddle fan is less than 12 feet (3658 mm) above the maximum water level.

**E4203.4.2 Indoor locations.**

In indoor pool areas, the limitations of Section E4203.4.1 shall apply except where the luminaires, lighting outlets and ceiling-suspended paddle fans comply with all of the following conditions:

1. The luminaires are of a totally enclosed type;
2. A ground-fault circuit interrupter is installed in the branch circuit supplying the luminaires or ceiling-suspended (paddle) fans; and
3. The distance from the bottom of the luminaire or ceiling-suspended (paddle) fan to the maximum water level is not less than 7 feet, 6 inches (2286 mm).

**E4203.4.3 Existing lighting outlets and luminaires.**

Existing lighting outlets and luminaires that are located within 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor spas and hot tubs shall be permitted to be located not less than 5 feet (1524 mm) vertically above the maximum water level, provided that such luminaires and outlets are rigidly attached to the existing structure and are protected by a ground-fault circuit interrupter.

**E4203.4.4 Indoor spas and hot tubs.**

1. Luminaires, lighting outlets, and ceiling-suspended paddle fans located over the spa or hot tub or within 5 feet (1524 mm) from the inside walls of the spa or hot tub shall be a minimum of 7 feet, 6 inches (2286 mm) above the maximum water level and shall be protected by a ground-fault circuit interrupter.

Luminaires, lighting outlets, and ceiling-suspended paddle fans that are located 12 feet (3658 mm) or more above the maximum water level shall not require ground-fault circuit interrupter protection.

2. Luminaires protected by a ground-fault circuit interrupter and complying with Item 2.1 or 2.2 shall be permitted to be installed less than 7 feet, 6 inches (2286 mm) over a spa or hot tub.

2.1. Recessed luminaires shall have a glass or plastic lens and nonmetallic or electrically isolated metal trim, and shall be suitable for use in damp locations.

2.2. Surface-mounted luminaires shall have a glass or plastic globe and a nonmetallic body or a metallic body isolated from contact. Such luminaires shall be suitable for use in damp locations.

**E4203.4.5 GFCI protection in adjacent areas.**

Luminaires and outlets that are installed in the area extending between 5 feet (1524 mm) and 10 feet (3048 mm) from the inside walls of pools and outdoor spas and hot tubs shall be protected by ground-fault circuit interrupters except where such fixtures and outlets are installed not less than 5 feet (1524 mm) above the maximum water level and are rigidly attached to the structure.

**E4203.5 Other outlets.**

Other outlets such as for remote control, signaling, fire alarm and communications shall be not less than 10 feet (3048 mm) from the inside walls of the pool. Measurements shall be determined in accordance with Section E4203.1.

**TABLE E4203.5 OVERHEAD CONDUCTOR CLEARANCES**

<b>INSULATED SUPPLY OR SERVICE DROP CABLES, 0-750 VOLTS TO GROUND, SUPPORTED ON AND CABLED TOGETHER WITH AN</b>	<b>ALL OTHER SUPPLY OR SERVICE DROP CONDUCTORS (feet)</b>	
	<b>Voltage to ground</b>	
	<b>0-15 kV</b>	<b>Greater than 15</b>



<b>EFFECTIVELY GROUNDED BARE MESSENGER OR EFFECTIVELY GROUNDED NEUTRAL CONDUCTOR (feet)</b>	<b>to 50 kV</b>		
A. Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft	22.5	25	27
B. Clearance in any direction to the diving platform	14.5	17	18

For SI: 1 foot = 304.8 mm.

**E4203.6 Overhead conductor clearances.**

Except where installed with the clearances specified in Table E4203.5, the following parts of pools and outdoor spas and hot tubs shall not be placed under existing service drop conductors or any other open overhead wiring; nor shall such wiring be installed above the following:

1. Pools and the areas extending 10 feet (3048 mm) horizontally from the inside of the walls of the pool;
2. Diving structures; or
3. Observation stands, towers, and platforms.

Overhead conductors of network-powered broadband communications systems shall comply with the provisions in Table E4203.5 for conductors operating at 0 to 750 volts to ground.

Utility-owned, operated and maintained communications conductors, community antenna system coaxial cables and the supporting messengers shall be permitted at a height of not less than 10 feet (3048 mm) above swimming and wading pools, diving structures, and observation stands, towers, and platforms.

**E4203.7 Underground wiring.**

Underground wiring shall not be installed under or within the area extending 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor hot tubs and spas except where the wiring is installed to supply pool, spa or hot tub equipment or where space limitations prevent wiring from being routed 5 feet (1524 mm) or more horizontally from the inside walls. Where installed within 5 feet (1524 mm) of the inside walls, the wiring method shall be a complete raceway system of rigid metal conduit, intermediate metal conduit or a nonmetallic raceway system. Metal conduit shall be corrosion resistant and suitable for the location. The minimum cover depth shall be in accordance with Table E4203.7.

**TABLE E4203.7 MINIMUM BURIAL DEPTHS**

<b>WIRING METHOD</b>	<b>UNDERGROUND (inches)</b>
Rigid metal conduit	6
Intermediate metal conduit	6
Nonmetallic raceways listed for direct burial and under concrete exterior slab not less than 4 inches in thickness and extending not less than 6 inches (162 mm) beyond the underground installation	6
Nonmetallic raceways listed for direct burial without concrete encasement	18
Other approved raceways <sup>a</sup>	18

For SI: 1 inch = 25.4 mm.

a. Raceways approved for burial only where concrete-encased shall require a concrete envelope not less than 2 inches in thickness.

## SECTION E4204 BONDING

### E4204.1 Performance.

The equipotential bonding required by this section shall be installed to reduce voltage gradients in the pool area as prescribed.

### E4204.2 Bonded parts.

The parts of pools, spas, and hot tubs specified in Items 1 through 7 shall be bonded together using insulated, covered or bare solid copper conductors not smaller than 8 AWG or using rigid metal conduit of brass or other identified corrosion-resistant metal. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool, spa, or hot tub area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Connections shall be made by exothermic welding, by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy, machine screw type fasteners that engage not less than two threads or are secured with a nut, thread-forming machine screws that engage not less than two threads, or terminal bars. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices:

1. Conductive pool shells. Bonding to conductive pool shells shall be provided as specified in Item 1.1 or 1.2. Poured concrete, pneumatically applied or sprayed concrete, and concrete block with painted or plastered coatings shall be considered to be conductive materials because of their water permeability and porosity. Vinyl liners and fiberglass composite shells shall be considered to be nonconductive materials.

1.1. Structural reinforcing steel. Unencapsulated structural reinforcing steel shall be bonded together by steel tie wires or the equivalent. Where structural reinforcing steel is encapsulated in a nonconductive compound, a copper conductor grid shall be installed in accordance with Item 1.2.

1.2. Copper conductor grid. A copper conductor grid shall be provided and shall comply with Items 1.2.1 through 1.2.4:

1.2.1. It shall be constructed of minimum 8 AWG bare solid copper conductors bonded to each other at all points of crossing.

1.2.2. It shall conform to the contour of the pool and the pool deck.

1.2.3. It shall be arranged in a 12-inch (305 mm) by 12-inch (305 mm) network of conductors in a uniformly spaced perpendicular grid pattern with a tolerance of 4 inches (102 mm).

1.2.4. It shall be secured within or under the pool not more than 6 inches (152 mm) from the outer contour of the pool shell.

2. Perimeter surfaces. The perimeter surface shall extend for 3 feet (914 mm) horizontally beyond the inside walls of the pool and shall include unpaved surfaces, poured concrete surfaces and other types of paving. Perimeter surfaces that extend less than 3 feet (914 mm) beyond the inside wall of the pool and that are separated from the pool by a permanent wall or building 5 feet (1524 mm) or more in height shall require equipotential bonding on the pool side of the permanent wall or building. Bonding to perimeter surfaces shall be provided as specified in Item 2.1 or 2.2.

and shall be attached to the pool, spa, or hot tub reinforcing steel or copper conductor grid at a minimum of four points uniformly spaced around the perimeter of the pool, spa, or hot tub. For nonconductive pool shells, bonding at four points shall not be required.

**Exception:** The equipotential bonding requirements for perimeter surfaces shall not apply to a listed self-contained spa or hot tub located indoors and installed above a finished floor.

2.1. Structural reinforcing steel. Structural reinforcing steel shall be bonded in accordance with Item 1.1.

2.2. Alternate means. Where structural reinforcing steel is not available or is encapsulated in a nonconductive compound, a copper conductor(s) shall be used in accordance with Items 2.2.1 through 2.2.5:

2.2.1. At least one minimum 8 AWG bare solid copper conductor shall be provided.

2.2.2. The conductors shall follow the contour of the perimeter surface.

2.2.3. Splices shall be listed.

2.2.4. The required conductor shall be 18 to 24 inches (457 to 610 mm) from the inside walls of the pool.

2.2.5. The required conductor shall be secured within or under the perimeter surface 4 to 6 inches (102 mm to 152 mm) below the subgrade.

3. Metallic components. All metallic parts of the pool structure, including reinforcing metal not addressed in Item 1.1, shall be bonded. Where reinforcing steel is encapsulated with a nonconductive compound, the reinforcing steel shall not be required to be bonded.

4. Underwater lighting. All metal forming shells and mounting brackets of no-niche luminaires shall be bonded.

Exception: Listed low-voltage lighting systems with nonmetallic forming shells shall not require bonding.

5. Metal fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 4 inches (102 mm) in any dimension and do not penetrate into the pool structure more than 1 inch (25.4 mm) shall not require bonding.

6. Electrical equipment. Metal parts of electrical equipment associated with the pool water circulating system, including pump motors and metal parts of equipment associated with pool covers, including electric motors, shall be bonded.

**Exception:** Metal parts of listed equipment incorporating an approved system of double insulation shall not be bonded.

6.1. Double-insulated water pump motors. Where a double-insulated water pump motor is installed under the provisions of this item, a solid 8 AWG copper conductor of sufficient length to make a bonding connection to a replacement motor shall be extended from the bonding grid to an accessible point in the vicinity of the pool pump motor. Where there is no connection between the swimming pool bonding grid and the equipment grounding system for the premises, this bonding conductor shall be connected to the equipment grounding conductor of the motor circuit.

6.2. Pool water heaters. For pool water heaters rated at more than 50 amperes and having specific instructions regarding bonding and grounding, only those parts designated to be bonded shall be bonded and only those parts designated to be grounded shall be grounded.

7. All fixed metal parts including, but not limited to, metal sheathed cables and raceways, metal piping, metal awnings, metal fences and metal door and window frames.

**Exceptions:**

1. Those separated from the pool by a permanent barrier that prevents contact by a person shall not be required to be bonded.
2. Those greater than 5 feet (1524 mm) horizontally from the inside walls of the pool shall not be required to be bonded.
3. Those greater than 12 feet (3658 mm) measured vertically above the maximum water level of the pool, or as measured vertically above any observation stands, towers, or platforms, or any diving structures, shall not be required to be bonded.

**E4204.3 Pool water.**

The pool water shall be intentionally bonded by means of a conductive surface area not less than 9 square inches (5806 mm<sup>2</sup>) installed in contact with the pool water. This bond shall be permitted to consist of parts that are required to be bonded in Section E4204.2.

**E4204.4 Bonding of outdoor hot tubs and spas.**

Outdoor hot tubs and spas shall comply with the bonding requirements of Sections E4204.1 through E4204.3. Bonding by metal to metal mounting on a common frame or base shall be permitted. The metal bands or hoops used to secure wooden staves shall not be required to be bonded as required in Section E4204.2.

**E4204.5 Bonding of indoor hot tubs and spas.**

The following parts of indoor hot tubs and spas shall be bonded together:

1. All metal fittings within or attached to the hot tub or spa structure.
2. Metal parts of electrical equipment associated with the hot tub or spa water circulating system, including pump motors unless part of a listed self-contained spa or hot tub.
3. Metal raceway and metal piping that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the spa or hot tub by a permanent barrier.
4. All metal surfaces that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the hot tub or spa area by a permanent barrier.

**Exception:** Small conductive surfaces not likely to become energized, such as air and water jets and drain fittings, where not connected to metallic piping, towel bars, mirror frames, and similar nonelectrical equipment, shall not be required to be bonded.

5. Electrical devices and controls that are not associated with the hot tubs or spas and that are located less than 5 feet (1524 mm) from such units.

**E4204.5.1 Methods.**

All metal parts associated with the hot tub or spa shall be bonded by any of the following methods:

1. The interconnection of threaded metal piping and fittings.
2. Metal to metal mounting on a common frame or base

3. The provision of an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. It shall not be the intent to require that the 8 AWG or larger solid copper bonding conductor be extended or attached to any remote panelboard, service equipment, or any electrode, but only that it shall be employed to eliminate voltage gradients in the hot tub or spa area as prescribed.

#### **E4204.5.2 Connections.**

Connections shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices.

### **SECTION E4205 GROUNDING**

#### **E4205.1 Equipment to be grounded.**

The following equipment shall be grounded:

1. Through-wall lighting assemblies and underwater luminaires other than those low-voltage lighting products listed for the application without a grounding conductor.
2. All electrical equipment located within 5 feet (1524 mm) of the inside wall of the pool, spa or hot tub.
3. All electrical equipment associated with the recirculating system of the pool, spa or hot tub.
4. Junction boxes.
5. Transformer and power supply enclosures.
6. Ground-fault circuit interrupters.
7. Panelboards that are not part of the service equipment and that supply any electrical equipment associated with the pool, spa or hot tub.

#### **E4205.2 Luminaires and related equipment.**

Other than listed low-voltage luminaires not requiring grounding, all through-wall lighting assemblies, wet niche, dry niche, or no-niche luminaires shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12 but not smaller than 12 AWG. The equipment grounding conductor between the wiring chamber of the secondary winding of a transformer and a junction box shall be sized in accordance with the overcurrent device in such circuit. The junction box, transformer enclosure, or other enclosure in the supply circuit to a wet niche or no-niche luminaire and the field-wiring chamber of a dry niche luminaire shall be grounded to the equipment grounding terminal of the panelboard. The equipment grounding terminal shall be directly connected to the panelboard enclosure. The equipment grounding conductor shall be installed without joint or splice.

#### **Exceptions:**

1. Where more than one underwater luminaire is supplied by the same branch circuit, the equipment grounding conductor, installed between the junction boxes, transformer enclosures, or other enclosures in the supply circuit to wet niche luminaires, or between the field-wiring compartments of dry niche luminaires, shall be permitted to be terminated on grounding terminals.
2. Where an underwater luminaire is supplied from a transformer, ground-fault circuit interrupter, clock-operated switch, or a manual snap switch that is located between the panelboard and a junction box connected to the conduit that extends directly to the underwater luminaire, the equipment grounding conductor shall be permitted to terminate

on grounding terminals on the transformer, ground fault circuit interrupter, clock-operated switch enclosure, or an outlet box used to enclose a snap switch.

#### **E4205.3 Nonmetallic conduit.**

Where a nonmetallic conduit is installed between a forming shell and a junction box, transformer enclosure, or other enclosure, a 8 AWG insulated copper bonding jumper shall be installed in this conduit except where a listed low-voltage lighting system not requiring grounding is used. The bonding jumper shall be terminated in the forming shell, junction box or transformer enclosure, or ground fault circuit interrupter enclosure. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a listed potting compound to protect such connection from the possible deteriorating effect of pool water.

#### **E4205.4 Flexible cords.**

Other than listed low-voltage lighting systems not requiring grounding, wet-niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. This grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure. The grounding conductor shall not be smaller than the supply conductors and not smaller than 16 AWG.

#### **E4205.5 Motors.**

Pool-associated motors shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12, but not smaller than 12 AWG. Where the branch circuit supplying the motor is installed in the interior of a one-family dwelling or in the interior of accessory buildings associated with a one-family dwelling, using a cable wiring method permitted by Table E4202.1, an uninsulated equipment grounding conductor shall be permitted provided that it is enclosed within the outer sheath of the cable assembly.

#### **E4205.6 Feeders.**

An equipment grounding conductor shall be installed with the feeder conductors between the grounding terminal of the pool equipment panelboard and the grounding terminal of the applicable service equipment or source of a separately derived system. The equipment grounding conductor shall be insulated, shall be sized in accordance with Table E3908.12, and shall be not smaller than 12 AWG.

**Exception:** An existing feeder between an existing remote panelboard and service equipment shall be permitted to run in flexible metal conduit or an approved cable assembly that includes an equipment grounding conductor within its outer sheath. The equipment grounding conductor shall not be connected to the grounded conductor in the remote panelboard.

#### **E4205.6.1 Separate buildings.**

A feeder to a separate building or structure shall be permitted to supply swimming pool equipment branch circuits, or feeders supplying swimming pool equipment branch circuits, provided that the grounding arrangements in the separate building meet the requirements of Section E3607.3. Where installed in other than existing feeders covered in the exception to Section E4205.6, a separate equipment grounding conductor shall be an insulated conductor.

#### **E4205.7 Cord-connected equipment.**

Where fixed or stationary equipment is connected with a flexible cord to facilitate removal or disconnection for maintenance, repair, or storage, as provided in Section E4202.2, the equipment grounding conductors shall be connected to a fixed metal part of the assembly. The removable part shall be mounted on or bonded to the fixed metal part.

#### **E4205.8 Other equipment.**

Other electrical equipment shall be grounded in accordance with Section E3908.

### **SECTION E4206 EQUIPMENT INSTALLATION**

**E4206.1 Transformers and power supplies.**

Transformers and power supplies used for the supply of underwater luminaires, together with the transformer or power supply enclosure, shall be listed for swimming pool and spa use. The transformer or power supply shall incorporate either a transformer of the isolated winding type with an ungrounded secondary that has a grounded metal barrier between the primary and secondary windings, or a transformer that incorporates an approved system of double insulation between the primary and secondary windings.

**E4206.2 Ground fault circuit interrupters.**

Ground fault circuit interrupters shall be self-contained units, circuit breaker types, receptacle types or other approved types.

**E4206.3 Wiring on load side of ground fault circuit interrupters and transformers.**

For other than grounding conductors, conductors installed on the load side of a ground fault circuit interrupter or transformer used to comply with the provisions of Section E4206.4, shall not occupy raceways, boxes, or enclosures containing other conductors except where the other conductors are protected by ground fault circuit interrupters or are grounding conductors. Supply conductors to a feed-through type ground fault circuit interrupter shall be permitted in the same enclosure. Ground fault circuit interrupters shall be permitted in a panelboard that contains circuits protected by other than ground fault circuit interrupters.

**E4206.4 Underwater luminaires.**

The design of an underwater luminaire supplied from a branch circuit either directly or by way of a transformer or power supply meeting the requirements of Section E4206.1, shall be such that, where the fixture is properly installed without a ground fault circuit interrupter, there is no shock hazard with any likely combination of fault conditions during normal use (not relamping). In addition, a ground fault circuit interrupter shall be installed in the branch circuit supplying luminaires operating at more than the low-voltage contact limit, such that there is no shock hazard during relamping. The installation of the ground fault circuit interrupter shall be such that there is no shock hazard with any likely fault condition combination that involves a person in a conductive path from any ungrounded part of the branch circuit or the luminaire to ground. Compliance with this requirement shall be obtained by the use of a listed underwater luminaire and by installation of a listed ground fault circuit interrupter in the branch circuit or a listed transformer or power supply for luminaires operating at more than the low-voltage contact limit. Luminaires that depend on submersion for safe operation shall be inherently protected against the hazards of overheating when not submerged.

**E4206.4.1 Maximum voltage.**

Luminaires shall not be installed for operation on supply circuits over 150 volts between conductors.

**E4206.4.2 Luminaire location.**

Luminaires mounted in walls shall be installed with the top of the fixture lens not less than 18 inches (457 mm) below the normal water level of the pool, except where the luminaire is listed and identified for use at a depth of not less than 4 inches (102 mm) below the normal water level of the pool. A luminaire facing upward shall have the lens adequately guarded to prevent contact by any person or shall be listed for use without a guard.

**E4206.5 Wet niche luminaires.**

Forming shells shall be installed for the mounting of all wet niche underwater luminaires and shall be equipped with provisions for conduit entries. Conduit shall extend from the forming shell to a suitable junction box or other enclosure located as provided in Section E4206.9. Metal parts of the luminaire and forming shell in contact with the pool water shall be of brass or other approved corrosion-resistant metal.

The end of flexible cord jackets and flexible cord conductor terminations within a luminaire shall be covered with, or encapsulated in, a suitable potting compound to prevent the entry of water into the luminaire through the cord or its conductors. If present, the grounding connection within a luminaire shall be similarly treated to protect such connection from the deteriorating effect of pool water in the event of water entry into the luminaire.

Luminaires shall be bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to remove the luminaire from the forming shell.

**E4206.5.1 Servicing.**

All wet niche luminaires shall be removable from the water for inspection, relamping, or other maintenance. The forming shell location and length of cord in the forming shell shall permit personnel to place the removed luminaire on the deck or other dry location for such maintenance. The luminaire maintenance location shall be accessible without entering or going into the pool water.

**E4206.6 Dry niche luminaires.**

Dry niche luminaires shall have provisions for drainage of water. Other than listed low-voltage luminaires not requiring grounding, a dry niche luminaire shall have means for accommodating one equipment grounding conductor for each conduit entry. Junction boxes shall not be required but, if used, shall not be required to be elevated or located as specified in Section E4206.9 if the luminaire is specifically identified for the purpose.

**E4206.7 No niche luminaires.**

No niche luminaires shall be listed for the purpose and shall be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the mounting bracket.

**E4206.8 Through wall lighting assembly.**

A through wall lighting assembly shall be equipped with a threaded entry or hub, or a nonmetallic hub, for the purpose of accommodating the termination of the supply conduit. A through wall lighting assembly shall meet the construction requirements of Section E4205.4 and be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the conduit termination point.

**E4206.9 Junction boxes and enclosures for transformers or ground fault circuit interrupters.**

Junction boxes for underwater luminaires and enclosures for transformers and ground fault circuit interrupters that supply underwater luminaires shall comply with the following:

**E4206.9.1 Junction boxes.**

A junction box connected to a conduit that extends directly to a forming shell or mounting bracket of a no niche luminaire shall be:

1. Listed as a swimming pool junction box;
2. Equipped with threaded entries or hubs or a nonmetallic hub;
3. Constructed of copper, brass, suitable plastic, or other approved corrosion-resistant material;
4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass, or other approved corrosion-resistant metal that is integral with the box; and
5. Located not less than 4 inches (102 mm), measured from the inside of the bottom of the box, above the ground level, or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greatest elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, unless separated from the pool by a solid fence, wall or other permanent barrier. Where used on a lighting system operating at the low-voltage contact limit or less, a flush deck box shall be permitted provided that an approved potting compound is used to fill the box to prevent the entrance of moisture; and the flush deck box is located not less than 4 feet (1219 mm) from the inside wall of the pool.



**E4206.9.2 Other enclosures.**

An enclosure for a transformer, ground-fault circuit interrupter or a similar device connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be:

1. Listed and labeled for the purpose, comprised of copper, brass, suitable plastic, or other approved corrosion-resistant material;
2. Equipped with threaded entries or hubs or a nonmetallic hub;
3. Provided with an approved seal, such as duct seal at the conduit connection, that prevents circulation of air between the conduit and the enclosures;
4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass or other approved corrosion-resistant metal that is integral with the enclosures; and
5. Located not less than 4 inches (102 mm), measured from the inside bottom of the enclosure, above the ground level or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greater elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, except where separated from the pool by a solid fence, wall or other permanent barrier.

**E4206.9.3 Protection of junction boxes and enclosures.**

Junction boxes and enclosures mounted above the grade of the finished walkway around the pool shall not be located in the walkway unless afforded additional protection, such as by location under diving boards or adjacent to fixed structures.

**E4206.9.4 Grounding terminals.**

Junction boxes, transformer and power supply enclosures, and ground fault circuit interrupter enclosures connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be provided with grounding terminals in a quantity not less than the number of conduit entries plus one.

**E4206.9.5 Strain relief.**

The termination of a flexible cord of an underwater luminaire within a junction box, transformer or power supply enclosure, ground-fault circuit interrupter, or other enclosure shall be provided with a strain relief.

**E4206.10 Underwater audio equipment.**

Underwater audio equipment shall be identified for the purpose.

**E4206.10.1 Speakers.**

Each speaker shall be mounted in an approved metal forming shell, the front of which is enclosed by a captive metal screen, or equivalent, that is bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to open for installation or servicing of the speaker. The forming shell shall be installed in a recess in the wall or floor of the pool.

**E4206.10.2 Wiring methods.**

Rigid metal conduit of brass or other identified corrosion-resistant metal, rigid polyvinyl chloride conduit, rigid thermosetting resin conduit or liquid-tight flexible nonmetallic conduit (LFNC-B) shall extend from the forming shell to a suitable junction box or other enclosure as provided in Section E4206.9. Where rigid nonmetallic conduit or liquid-tight flexible nonmetallic conduit is used, an 8 AWG solid or stranded-insulated copper bonding jumper shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a suitable potting compound to protect such connection from the possible deteriorating effect of pool water.

**E4206.10.3 Forming shell and metal screen.**

The forming shell and metal screen shall be of brass or other approved corrosion-resistant metal. All forming shells shall include provisions for terminating an 8 AWG copper conductor.

**E4206.11 Electrically operated pool covers.**

The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet (1524 mm) from the inside wall of the pool except where separated from the pool by a wall, cover, or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a circuit protected by a ground fault circuit interrupter. The device that controls the operation of the motor for an electrically operated pool cover shall be located so that the operator has full view of the pool.

**E4206.12 Electric pool water heaters.**

All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch circuit conductors and the rating or setting of overcurrent protective devices shall be not less than 125 percent of the total nameplate load rating.

**E4206.13 Pool area heating.**

The provisions of Sections E4206.13.1 through E4206.13.3 shall apply to all pool deck areas, including a covered pool, where electrically operated comfort heating units are installed within 20 feet (6096 mm) of the inside wall of the pool.

**E4206.13.1 Unit heaters.**

Unit heaters shall be rigidly mounted to the structure and shall be of the totally enclosed or guarded types. Unit heaters shall not be mounted over the pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool.

**E4206.13.2 Permanently wired radiant heaters.**

Electric radiant heaters shall be suitably guarded and securely fastened to their mounting devices. Heaters shall not be installed over a pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of the pool and shall be mounted not less than 12 feet (3658 mm) vertically above the pool deck.

**E4206.13.3 Radiant heating cables prohibited.**

Radiant heating cables embedded in or below the deck shall be prohibited.

**SECTION E4207 STORABLE SWIMMING POOLS****E4207.1 Pumps.**

A cord and plug-connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided with means for grounding only the internal and nonaccessible noncurrent-carrying metal parts of the appliance.

The means for grounding shall be an equipment grounding conductor run with the power supply conductors in a flexible cord that is properly terminated in a grounding-type attachment plug having a fixed grounding contact. Cord and plug-connected pool filter pumps shall be provided with a ground fault circuit interrupter that is an integral part of the attachment plug or located in the power supply cord within 12 inches (305 mm) of the attachment plug.

**E4207.2 Ground fault circuit interrupters required.**

Electrical equipment, including power supply cords, used with storable pools shall be protected by ground fault circuit interrupters. All 125-volt, 15- and 20-ampere receptacles located within 20 feet (6096 mm) of the inside walls of a storable pool shall be protected by a ground fault circuit interrupter. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening,

or other effective permanent barrier.

### **E4207.3 Luminaires.**

Luminaires for storable pools shall not have exposed metal parts and shall be listed for the purpose as an assembly. In addition, luminaires for storable pools shall comply with the requirements of Section E4207.3.1 or E4207.3.2.

#### **E4207.3.1 Within the low voltage contact limit.**

A luminaire installed in or on the wall of a storable pool shall be part of a cord and plug connected lighting assembly. The assembly shall:

1. Have a luminaire lamp that is suitable for the use at the supplied voltage;
2. Have an impact resistant polymeric lens, luminaire body, and transformer enclosure;
3. Have a transformer meeting the requirements of section E4206.1 with a primary rating not over 150 volts; and
4. Have no exposed metal parts.

#### **E4207.3.2 Over the low voltage contact limit but not over 150 volts.**

A lighting assembly without a transformer or power supply, and with the luminaire lamp(s) operating at over the low voltage contact limit, but not over 150 volts, shall be permitted to be cord and plug connected where the assembly is listed as an assembly for the purpose and complies with all of the following:

1. It has an impact resistant polymeric lens and luminaire body.
2. A ground fault circuit interrupter with open neutral conductor protection is provided as an integral part of the assembly.
3. The luminaire lamp is permanently connected to the ground fault circuit interrupter with open neutral protection.
4. It complies with the requirements of Section E4206.4.
5. It has no exposed metal parts.

### **E4207.4 Receptacle locations.**

Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of a pool. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

## **SECTION E4208 SPAS AND HOT TUBS**

### **E4208.1 Ground fault circuit interrupters.**

The outlet(s) that supplies a self-contained spa or hot tub, or a packaged spa or hot tub equipment assembly, or a field-assembled spa or hot tub with a heater load of 50 amperes or less, shall be protected by a ground fault circuit interrupter.

A listed self-contained unit or listed packaged equipment assembly marked to indicate that integral ground fault circuit interrupter protection is provided for all electrical parts within the unit or assembly, including pumps, air blowers, heaters, lights, controls, sanitizer generators and wiring, shall not require that the outlet supply be protected by a ground fault circuit interrupter.

**E4208.2 Electric water heaters.**

Electric spa and hot tub water heaters shall be listed and shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch circuit conductors, and the rating or setting of overcurrent protective devices, shall be not less than 125 percent of the total nameplate load rating.

**E4208.3 Underwater audio equipment.**

Underwater audio equipment used with spas and hot tubs shall comply with the provisions of Section E4206.10.

**E4208.4 Emergency switch for spas and hot tubs.**

A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provides power to the recirculation system and jet system shall be installed at a point that is readily accessible to the users, adjacent to and within sight of the spa or hot tub and not less than 5 feet (1524 mm) away from the spa or hot tub. This requirement shall not apply to single-family dwellings.

**SECTION E4209 HYDROMASSAGE BATHTUBS****E4209.1 Ground-fault circuit interrupters.**

Hydromassage bathtubs and their associated electrical components shall be supplied by an individual branch circuit(s) and protected by a readily accessible ground-fault circuit interrupter. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within 6 feet (1829 mm) measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground-fault circuit interrupter(s).

**E4209.2 Other electric equipment.**

Luminaires, switches, receptacles, and other electrical equipment located in the same room, and not directly associated with a hydromassage bathtub, shall be installed in accordance with the requirements of this code relative to the installation of electrical equipment in bathrooms.

**E4209.3 Accessibility.**

Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish.

Where the hydromassage bathtub is cord- and plug-connected with the supply receptacle accessible only through a service access opening, the receptacle shall be installed so that its face is within direct view and not more than 12 inches (305 mm) from the plane of the opening.

**E4209.4 Bonding.**

All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. The bonding jumper shall be connected to the terminal on the circulating pump motor that is intended for this purpose. The bonding jumper shall not be required to be connected to a double-insulated circulating pump motor. The 8 AWG or larger solid copper bonding jumper shall be required for equipotential bonding in the area of the hydromassage bathtub and shall not be required to be extended or attached to any remote panelboard, service equipment, or any electrode.

Where a double-insulated circulating pump motor is used, the 8 AWG or larger solid copper bonding jumper shall be long enough to terminate on a replacement nondouble-insulated pump motor and shall be terminated to the equipment grounding conductor of the branch circuit for the motor.

Florida Supplement to the I Codes:

This draft is prepared under the following assumptions:

For the purposes of using this supplement the following references apply throughout:

International Building Code, use the current Florida Building Code, Building

International Residential Code, use the current Florida Building Code, Residential

International Plumbing Code, use the current International Plumbing Code with the Florida Supplement to the I Codes Florida Building Code, Plumbing Section.

International Mechanical Code, use the current International Mechanical Code with the Florida Supplement to the I Codes Florida Building Code, Mechanical Section.

International Fire Code, use the current Florida Fire Prevention Code.

International Fuel Gas Code, use the current International Fuel Gas Code with the Florida Supplement to the I Codes Florida Building Code, Fuel Gas Section.

International Energy Conservation, use the current Florida Building Code, Energy Conservation

Where accessibility is required, Use the current Florida Building Code, Building, Accessibility

The Florida Supplement lists the Florida Code Changes and the sections that do not apply in Florida

**FLORIDA BUILDING CODE, INTERNATIONAL SWIMMING POOL AND SPA  
CODE SUPPLEMENT 2013**

**Chapter 1 - Scope and Administration**

**101.1 Title.** These regulations shall be known as the Swimming Pool and Spa Code of the State of *Florida* [NAME OF JURISDICTION], hereinafter referred to as “this code.”

**103, 104, 107 & 108 are Reserved** and The provisions of Chapter 1 Sections 103 - 109, & 111 - 117 *Florida Building Code, Building* shall govern the administration and enforcement of the *Florida Building Code, ISPSC supplement*.

**SECTION 106 INSPECTIONS**

**106.3 Required inspections and testing.**

All *aquatic vessel* installations or alterations thereto, including equipment, piping, and appliances related thereto, shall be inspected by the *code official* to ensure compliance with all of the requirements of this code. Inspections shall include the following as applicable, but shall not be limited to:

Ø **Pool Steel:** Inspection of the steel reinforcing bar creating the shell of the pool. (Prior to shooting the pool) (Can be performed with the pool bonding and the 1<sup>st</sup> pool piping inspection)

Ø **Pool Bonding:** Inspection of the electrical bonding to the wet niche, the shell and any embedded metal accessories associated with the pool shell. (Prior to shooting the pool) (Can be performed with the pool steel and the 1<sup>st</sup> pool piping inspections)

Ø **1<sup>st</sup> Pool Piping:** Inspection of the piping to be concealed by the pool shell, including the main drain and suction lines. (Prior to shooting the pool) (Can be performed with the pool bonding and the pool steel inspections)

Ø **Underground Electrical:** Inspection of any underground/under deck electrical conduit, wiring or required grounding or bonding, (inspected prior to the pool deck inspection.) (Can be made with the 2<sup>nd</sup> pool piping inspection.)

Ø 2<sup>nd</sup> Pool Piping: Inspection of the pool piping under the deck to the equipment. A pressure test shall be performed at this time. (Inspected prior to the pool deck inspection.) (Can be made with the underground electrical inspection.)

Ø Pool Equipotential Bonding: Inspection of the method of providing equipotential bonding grid. (Inspection prior to pouring/placing the pool deck) (Can be made with the pool deck inspection.)

Ø Pool Deck: Inspection of the pool deck area (prior to pouring/placing the pool deck) (Can be made with the pool equipotential bonding inspection.)

Ø Pool Pre-final Safety Inspection: Inspection of the electrical bonding system prior to energizing the system and inspection of the required barriers prior to filling the pool with water.

Ø Final Pool Piping: Inspection of the finished pool piping and the TDH flow test. (Can be made with the final electrical and final building inspections.)

Ø Final Electric: Inspection of the finished electrical system. (Can be made with the final pool piping and final building inspections.)

Ø Final Building: Inspection of the finished pool. (Can be made with the final pool piping and final electrical inspections.)

**In order to pass final inspection and receive a certificate of completion, The Florida Department of Health form DH-914 shall be filled out and signed by the owner, contractor, and the designer of record and shall be submitted to the Building Department prior to the issuance of the Certificate of Completion.**

**106.12 Special inspections:**

~~Special inspections of alternative engineered design systems shall be conducted in accordance with Section 104.11.6:~~

## Chapter 2 - Definitions

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have the meanings as defined in Webster's *Third New International Dictionary of the English Language Unabridged*. ~~ordinarily accepted meanings such as the context implies.~~

## Chapter 3 - General Compliance

### 301.1 Scope.

The provisions of this chapter shall govern the general design and construction of public and *residential aquatic vessels* and all related piping, equipment, and materials. Provisions that are unique to a specific type of *aquatic vessel* are located in Chapters 4 through 10. Public pools and spas shall be designed to meet the safety and sanitation requirements of the current edition of rule 64E-9 F. A.C.

#### 301.1.1 Application of Chapters 4 through 10.

Where differences occur between the provisions of this chapter and the provisions of Chapters 4 through 10, the provisions of Chapter 4 through 10 shall apply.

### 302.3 Pipe, fittings and components.

Pipe, fittings and components shall be *listed and labeled* in accordance with NSF 50 or NSF 14. Plastic jets, fittings, and outlets used in public *spas* shall be *listed and labeled* in accordance with NSF 50. Pipe, fittings and components shall be installed to the manufactures installation specifications and any prescriptive requirements contained in this code..

#### 305.2.10 Poolside barrier setbacks.

The *aquatic vessel* side of the required *barrier* shall be not less than 20 inches (508 mm) from the water's edge. For public pools and spas the *aquatic vessel* side of the required *barrier* shall be not less than 48 inches (1219 mm) from the water's edge

### 306.1 General.

Decks shall be designed and installed in accordance with the *International Residential Code* or the *International Building Code*, as applicable in accordance with Section 102.7, except as provided in this section.

**306.1.1** Wood decks or carpet decks are not allowed for public pools.

**306.8.2** For public pools equipped with restrooms a hose bibb with vacuum breaker shall be provided in or within 25 feet of each restroom to allow for ease of cleaning, additionally the hose bib shall be in a flush to grade box.



**306.9 Deck width.** Decks for public pools shall have an unobstructed minimum width of 48 inches (1219 mm)

### 307.3 Materials.

*Aquatic vessels* and appurtenances thereto shall be constructed of materials that are nontoxic to humans and the environment; that are generally or commonly regarded to be impervious and enduring; that will withstand the design stresses; and that will provide a watertight structure with a smooth and easily cleanable surface without cracks or joints, excluding structural joints, or that will provide a watertight structure to which a smooth, easily cleaned surface/finish is applied or attached. Material surfaces that come in contact with the user shall be finished, so that they do not constitute a cutting, pinching, puncturing or abrasion hazard under casual contact and intended use.

#### 307.3.1 Beach pools.

Clean sand or similar material, where used in a beach pool environment, shall be used over an impervious surface. The sand area shall be designed and controlled so that the *circulation system*, maintenance, safety, sanitation, and operation of the pool are not adversely affected. Sand area for a beach pool environment is not allowed for public pools.

#### 307.3.2 Compatibility.

Assemblies of different materials shall be chemically and mechanically compatible for their intended use and environment.

### 307.7 Colors and finishes.

The colors, patterns, or finishes of the vessel interior shall not obscure objects or surfaces within the vessel, and shall be of white or light pastel colors.

**Exception:** *Residential pools and spas.*

### 308.1 Floor slope.

The slope of the floor from the point of the first slope change to the deep area shall not exceed one unit vertical in three units horizontal. For public pools 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.

**Exception:** *Portable residential spas and portable residential exercise spas.*

### 308.2 Walls.

Walls shall intersect with the floor at an angle or a transition profile. Where a transitional profile is provided at water depths of 3 feet (914 mm) or less, a transitional radius shall not exceed 6 inches (150 mm) and shall be tangent to the

wall and is permitted to be tangent to or intersect the floor. For public pools any 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<sup>1</sup>/<sub>2</sub> 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<sup>1</sup>/<sub>2</sub> 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<sup>1</sup>/<sub>2</sub> feet (762 mm) from which point the wall may join the floor with a maximum radius of 2<sup>1</sup>/<sub>2</sub> 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 1<sup>1</sup>/<sub>2</sub> inches (38 mm).

**Exceptions:**

1. *Portable residential spas and portable residential exercise spas.*
2. *Onground storable pools.*

**308.3 Shape.**

This code is not intended to regulate the shape of *aquatic vessels* other than to take into account the effect that a given shape will have on the safety of the occupants and to maintain the minimum required level of circulation to ensure sanitation. A minimum width of 15 feet, and a minimum depth of 3 feet is required for public pools.

**310.1 General.**

Suction entrapment avoidance for aquatic vessels shall be provided in accordance with the appropriate section of APSP 7. Public pools shall be required to have a gravity system per FS 514.0315 (1) designed and constructed with a collector tank and gravity drainage system (aka: a vented reservoir) serving all recirculation and therapy drain suction outlets.

**Exception:** *Portable residential spas and portable residential exercise spas listed and labeled in accordance with UL 1563 or CSA C22.2 No. 218.1.*

**312.2 Design.**

*Filters* shall have a flow rating equal to or greater than the design flow rate of the system. Filters shall be installed in accordance with the manufacturer's instructions. Filters shall be designed so that *filtration* surfaces can be inspected and serviced.

**312.2.1 Public pool and Public Spa Filter requirements****312.2.1.1 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].

### **312.2.1.2 Filter appurtenances.**

#### **312.2.1.2.1 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.

#### **312.2.1.2.2 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.

#### **312.2.1.2.3 D.E. systems.**

A precoat pot or collector tank shall be provided for D.E.-type systems.

### **312.2.1.3 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<sup>2</sup>) effective area. The spacing between filter elements shall increase 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<sup>2</sup>). 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.

### **314.3. Flow distribution.**

The suction outlet fitting assemblies, where installed, and the skimming systems shall each be designed to accommodate 100 percent of the circulation turnover rate.

#### **314.3.1 Multiple systems.**

Where multiple systems are used in a single pool to meet this requirement, each subsystem shall proportionately be designed such that the maximum design flow rates cannot be exceeded during normal operation.

#### **314.3.2 Flow for public pools, public spas**

The suction outlet fitting assemblies, where installed, and the skimming systems shall each be designed to accommodate 60 percent of the circulation turnover rate.

#### **314.4 Return inlets.**

There shall be one *return inlet* for each 300 square feet (27.87 m<sup>2</sup>) of pool surface area, or fraction thereof. Public pools shall have one return inlet every 20 feet maximum and the flow shall be 20 gpm maximum, if the pool width is over 30 feet floor inlets shall be used..

**Exception:** *Onground storable pools.*

#### **315.1 General.**

The provisions of this section apply to *skimmers for aquatic vessels*. For public pools recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet (93 m<sup>2</sup>) or less excluding offset stairs and swimouts and the width of the pool is not over 20 feet (6096 mm).

**Exception:** *Portable residential spas and portable residential exercise spas.*

#### **315.4 Perimeter coverage.**

Where a perimeter-type *surface skimming system* is used as the sole surface skimming system, the system shall extend around not less than of 50 percent of the aquatic vessel perimeter. Public Pools the system shall extend around not less than of 90 percent of the aquatic vessel perimeter.

##### **315.4.1 Surge capacity.**

Where perimeter *surface skimming systems* are used, they shall be connected to a circulation system with a system surge capacity of not less than 1 gallon for each square foot (40.7 liters per square meter) of water surface. The capacity of the perimeter overflow system and related piping is permitted to be considered as a portion of the *surge capacity*.

##### **315.4.2 Collector Tanks.**

Public pool collector tank dimensions min.2.25 sq ft open area, 63fps max velocity, capacity is one minute of recirculation flow, and IWFs to have a capacity of 3 minutes of recirculation and feature water flow.

#### **315.5 Equalizers.**

Equalizers on *skimmers* shall be prohibited.

**Exception:** Allowed on public pools with ANSI/APSP-16 certified drain cover/grate is installed.

**318.3 Over-the-rim spouts.**

Over-the-rim spouts shall be located under a *diving board*, adjacent to a *ladder*, or otherwise shielded so as not to create a hazard. The open end of such spouts shall not have sharp edges and shall not protrude more than 2 inches (51 mm) beyond the edge of the pool. The open end shall be separated from the water by an air gap of at least 1.5 pipe diameters measured from the pipe outlet to the rim. For public pools 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.

**321.2.2 Illumination intensity.**

For outdoor pools, the combination of overhead and underwater lighting shall provide not less than 3 foot-candles of illumination at the pool water surface and the pool deck surface. For indoor pools, the combination of overhead and underwater lighting shall provide not less than of 10 foot-candles at the pool water surface and the pool deck surface.

**322.3 Ladders.**

*Ladder* treads shall have a uniform horizontal depth of not less than 2 inches (51 mm). There shall be a uniform distance between *ladder* treads, with a distance of not less than 7 inches (178 mm) and not greater than 12 inches (305 mm). The top tread of a *ladder* shall be located not greater than 12 inches (305 mm) below the top of the deck or coping. Ladder treads shall have *slip-resistant* surfaces. Ladders for public pools shall be of the cross-braced type and shall be constructed of corrosion-resistant materials and be securely anchored into the pool deck. Ladders shall extend at least 28 inches (711 mm) and no more than 40 inches (1016 mm) above the pool deck. The back of the ladder shall be between 3 to 6 inches from the pools wall. Ladder bottom braces shall have intact end caps or bumpers that rest firmly against the pool wall.

**322.4 Recessed treads.**

*Recessed treads* shall have minimum depth of not less than 5 inches (127 mm) and a width of not less than 12 inches (305 mm). The vertical distance between the pool coping edge, deck, or step surface and the uppermost *recessed tread* shall be not greater than 12 inches (305 mm). *Recessed treads* shall have *slip-resistant* surfaces.

**322.4.1 Vertical spacing.**

*Recessed treads* at the centerline shall have a uniform vertical spacing of not less than 7 inches (178 mm) and not greater than 12 inches (305 mm).

**322.4.2 Drainage.**

*Recessed treads* shall drain into the pool.

**322.4.3 Handrails and grab rails.**

*Recessed treads* shall be provided with a *handrail* or grab rail on each side of the treads. The clear distance between

*handrails* and grab rails shall be not less than 17 inches (432 mm) and not greater than 24 inches (610 mm). For Public pools the grab rails shall extend a minimum of 28 inches above the deck.

### 323.2 Handrails.

Where *handrails* are installed, they shall conform to this section.

#### 323.2.1 Height.

Handrails shall be between 34 inches (864 mm) and 38 inches (965 mm) above the ramp or step surface as measured at the nosing of the step or finished surface of the slope.

#### 323.2.2 Material.

*Handrails* shall be made of corrosion-resistant materials.

#### 323.2.3 Nonremovable.

*Handrails* shall be installed so that they cannot be removed without the use of tools.

#### 323.2.4 Leading edge distance.

The leading edge of handrails for stairs, pool entries and exits shall be located not greater than 18 inches (457 mm) from the vertical face of the bottom riser. For Public pools the handrail shall be mounted in the deck and the bottom step.

#### 323.2.5 Diameter.

The outside diameter or width of *handrails* shall be not less than 1<sup>1</sup>/<sub>4</sub> inches (32 mm) and not greater than 2 inches (51 mm).

**Chapter 4 - Public Swimming Pools**

**401.5 Floor slope.**

Except where required to meet the accessibility requirements in accordance with Section 323.1, the slope of the floor in the shallow area of a pool shall not exceed 1 unit vertical in 10 units horizontal for *Class C* pools and 1 unit vertical in 12 units horizontal for *Class B* pools. The slope limit shall apply in any direction to the point of the first slope change, where a slope change exists. The point of the first slope change shall be defined as the point at which the floor slope exceeds 1 unit vertical in 10 units horizontal for *Class C* pools and 1 unit vertical in 12 units horizontal for *Class B* pools. 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. Minimum floor slope of 1:40.

**402.12 Water envelopes.**

The minimum diving water envelopes shall be in accordance with Table 402.12. Diving facilities for public pools shall meet the minimum requirements of the FINA dimensions for diving facilities in accordance with the 2005-2009 FINA Handbook.

**SECTION 403 BATHER LOAD**

**403.1 Maximum bather load.**

The bathing load for 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 m<sup>2</sup>) 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.

The maximum *bather load* of *Class B* and *Class C* pools shall be in accordance with Table 403.1.

**TABLE 403.1 MAXIMUM BATHER LOAD**

<b>POOL/DECK AREA</b>	<b>SHALLOW INSTRUCTIONAL OR WADING AREAS</b>	<b>DEEP AREA (NOT INCLUDING THE DIVING AREA)</b>	<b>DIVING AREA (PER EACH DIVING BOARD)</b>
Pools with minimum deck area	15 sq. ft. per user	20 sq. ft. per user	300 sq. ft.
Pools with deck area at least	12 sq. ft. per user	15 sq. ft. per user	300 sq. ft.

equal to water surface area			
Pools with deck area at least twice the water surface area	8 sq. ft. per user	10 sq. ft. per user	300 sq. ft.

For SI: 1 square foot = 0.09 square meters.

**SECTION 404 REST LEDGES**

**404.1 Rest ledges.**

Rest ledges along the pool walls are permitted. They shall be not less than 4 feet (1220 mm) below the water surface. Where a ledge is provided, the ledge shall be 4 inches (102 mm) minimum in width and 6 inches (152 mm) maximum in width.

**409.3 No diving symbol.**

Where the pool depth is 5 feet (1524 mm) or less, the "No Diving" symbol shall be displayed. The symbol shall be placed on the deck at intervals of not more than 25 feet (7620 mm). Additional signage shall be in accordance with NEMA Z535. 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.

**409.4.1 Accessory pole.**

A swimming pool accessory pole not less than ~~12~~ 16 feet (3658 mm) in length and including a body hook shall be provided. Two hooks are required if the pool is 50 feet or longer.

**409.4.2 Throwing rope.**

A throwing rope attached to *ring buoy* or similar flotation device shall be provided. The rope shall be not less than 1/4 inch (6 mm) in diameter and shall have a length of not less than 1 1/2 times the maximum width of the pool or 50 feet (15 240 mm), whichever is less. A *ring buoy* shall have an outside diameter is not less than 15 inches (381 mm). Two rings are required if the pool is 50 feet or longer.

**411.1 Entry and exit.**

Pools shall have at least two means of entry and exit, located so as to serve both ends of a pool. Public pools shall have a means of egress at the deep portion of the pool even if this requires an additional means of egress.

**411.2 Pool stairs.**

The design and construction of stairs extending into the pool in either shallow or deep water, including recessed pool stairs, shall comply with Sections 411.2.1 through 411.2.4.



**411.2.1 Tread dimensions and area.**

Treads shall be not less than 24 inches (607 mm) at the leading edge. Treads shall have an unobstructed surface area of not less than 240 square inches (0.154 m<sup>2</sup>) and an unobstructed horizontal depth of not less than 10 inches (254 mm) at the centerline.

**411.2.2 Risers.**

Risers, except for the bottom riser, shall have a uniform height of not greater than ~~12~~ 10 inches (305 mm) measured at the centerline. The bottom riser height is allowed to vary to the floor.

**411.2.3 Top tread.**

The vertical distance from the pool coping, deck, or step surface to the uppermost tread shall be not greater than ~~12~~ 10 inches (305 mm).

**411.2.4 Bottom tread.**

~~Where stairs are located in water depths greater than 48 inches (1219 mm), the lowest tread shall be not less than 48 inches (1219 mm) below the deck and shall be recessed in the pool wall. The bottom tread shall not be more than 10 inches from the bottom of the pool.~~

**411.2.5 Uniformity**

Treads and risers between the top and bottom treads shall be uniform to within 1/2 inch (12.7 mm) in width and height.

**411.2.6 Marking**

For public pools; the riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front 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.

**~~411.3.2 Vertical drops.~~**

~~A vertical drop exceeding 12 inches (305 mm) within a sloping entry shall be provided with a handrail.~~

-

**411.5.2 Underwater seats and benches.**

*Underwater seats* and benches, whether used alone or in conjunction with pool stairs, shall comply with all of the following:

1. The horizontal surface shall be not greater than 20 inches (508 mm) below the waterline.
2. An unobstructed surface shall be provided that is not less than of 10 inches (254 mm) in depth and not less than 24 inches (607 mm) in width.
3. *Underwater seats* and benches shall not be used as the required entry and exit access.
4. Where *underwater seats* are located in the deep area of the pool where manufactured or constructed diving equipment is installed, such seats shall be located outside of the minimum water envelope for diving equipment.
5. The leading edge shall be visually set apart.
6. The horizontal surface shall be at or below the waterline.
7. ~~A tanning ledge or sun shelf used as the required entry and exit access shall be located not greater than 12 inches (305 mm) below the waterline.~~

**Chapter 6 - Aquatic Recreation Facilities****610.4.3 Steps.**

Where steps are used in conjunction with sloping entries, all of the requirements of ~~Section 605.5.6~~ 610.5.6 shall apply.

**610.5.3 Color to mark leading edge.**

The leading edge of all steps shall be distinguished by a color contrasting with the color of the steps and the pool floor. The front 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.

**610.5.6 Tread surface area.**

Treads shall have an unobstructed surface area of not less than 240 square inches (.017 m<sup>2</sup>) and shall be slip resistant.

**610.7.2 Surface dimensions.**

~~*Underwater seats* shall have an unobstructed surface dimension of not less than 10 inches (254 mm) measured front to back and not less than 24 inches (610 mm) in width.~~

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.

**610.8.1 Floating devices.**

~~Floating devices not intended to be mobile shall be anchored in a manner to restrict movement to the range established by the designer. The anchoring of such floating devices shall be configured to minimize the possibility of entrapment of bathers, bodies, hair, limbs, and appendages should they come in contact with any element of the floating device or its anchors.~~

CHAPTER 11 REFERENCED STANDARDS

Florida Codes

Florida Building Commission

c/o Florida Department of Business and Professional Regulation

Building Codes and Standards

1940 North Monroe Street  
Tallahassee, FL 32399-1027

Standard Referenced in code

Reference Number Title section number

FBC-B 2013 Florida Building Code, Building 201.3, 305.4, 307.1, 307.2, 307.3, 308.2, 309.1, 310.1, 310.3, 315.1, 403.1, Table 403.1,

404.1, 407.3, 417.6, 502.6, 606.5.2, 1106.5

Ch. 11 Florida Building Code, Building - Accessibility 404.1.1 315.1

Ch. 553.86 Florida Statute, Public Restrooms 403.1.1

Florida Building Code, Energy Conservation 313.1, 607.2, 607.2.1

Ch. 27 Florida Building Code, Building-Electrical (National Electrical Code, NFPA 70)

201.3, 502.1, 504.3, 1113.1.3

FEBC—2013 Florida Existing Building Code 101.2

FBC-FG 2013 Florida Building Code, Fuel Gas 101.2, 201.3, 502.1

FBC-M 2013 Florida Building Code, Mechanical 201.3, 307.6, 310.1, 422.9,

502.1, 612.1, 1202.1

FRC-2013 Florida Residential Code 101.2

FFPC-2013 Florida Fire Prevention Code 201.3, 1201.1

Ch. 62-610 Florida Administrative Code-Reuse of Reclaimed Water

and Land Application 602.4

Ch. 64E-6 Florida Administrative Code-Standards for Onsite Sewage

and Disposal Systems 701.2, 1003.5.2

Ch. 373 Florida Statute, Water Resources 602.3

Ch. 381 Florida Statute, Food Products 317.1

Ch. 500 Florida Statute, Lodging and Food Service Establishments 317.1

Ch. 509 Florida Statute, Public Lodging and Food Service Establishments 317.1

<b>Date Submitted</b>	7/10/2012	<b>Section</b>	R403.9	<b>Proponent</b>	Ann Stanton
<b>Chapter</b>	4	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation		Approved as Submitted by Energy TAC		
<b>Commission Action</b>	Pending Review				

**Comments**

<b>General Comments</b>	No	<b>Alternate Language</b>	Yes
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**Related Modifications****Summary of Modification**

Move swimming pool criteria from 2010 code forward into the 2013 code.

**Rationale**

To comply with s. 553.73(7)(a) Florida Statutes, the proposed modification will supplement the most current version of the International Energy Conservation Code (IECC) base code with Florida specific requirements in order to maintain the efficiencies of the Florida Energy Efficiency Code for Building Construction adopted and amended pursuant to s. 553.901, FS, and in accordance with the Commission's approved code change process.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Proposed language is in the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Proposed language is in the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Proposed language is in the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. Proposed language is in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. Proposed language is in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No. Proposed language is in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

No. Proposed language is in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

5045-A1

**Proponent** Jennifer Hatfield      **Submitted** 12/14/2012      **Attachments** Yes

**Rationale**

The alternate language moves the swimming pool criteria from 2010 code forward into the 2013 code, but does not repeat the pump and motor requirements found in APSP-15, nor does it specify requirements found in APSP-14. To do so is duplicative and could cause inconsistencies between how requirements are stated within the standard versus the code.

**Fiscal Impact Statement**

**Impact to local entity relative to enforcement of code**

Eliminates redundancy and possible concerns with misinterpretation of what is required within the referenced standards.

**Impact to building and property owners relative to cost of compliance with code**

None

**Impact to industry relative to the cost of compliance with code**

Eliminates possible misinterpretation.

**Requirements**

**Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Provides for State mandated energy savings.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

No

**Does not degrade the effectiveness of the code**

No

**Is the proposed code modification part of a prior code version?**

YES

**The provisions contained in the proposed amendment are addressed in the applicable international code?**

NO

**The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?**

OTHER

**Explanation of Choice**

Proposed language was in the 2010 FBC per the requirements of the FL legislature. It was processed in accordance with an approved plan from the Florida Building Commission for the purpose of maintaining Florida efficiencies.

**The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?**

NO

EN5045-G1

**Proponent** Ken Cureton      **Submitted** 9/21/2012      **Attachments** No

**Comment:**

The proposal provides for swimming pool criteria as per 553.909 FS.

**R403.9 Swimming pools, and inground permanently installed spas, and portable spas (Mandatory).** The energy requirements for residential pools and inground spas shall be as specified in Sections R403.9.1 through R403.9.4 and ANSI/APSP-15. The energy requirements for portable spas shall be in accordance with Section R403.9.5 and ANSI/APSP-14. Pools and inground permanently installed spas shall comply with Sections R403.9.1 through R403.9.3.

**R403.9.1 Pool and spa heaters.** All pool heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside the heater to allow shutting off the heater without adjusting the thermostat setting. [Replace IECC R403.9.1 in its entirety]

**R403.9.1.1 Gas and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013 when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

**R403.9.1.2 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with ARI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance.

**R403.9.2 Time switches.** Time switches or other control method that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on all heaters and pumps. Heaters, pumps and motors that have built in timers shall be deemed in compliance with this requirement

**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

**R403.9.3 Covers.** Heated swimming pools and inground permanently installed spas shall be equipped provided with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss. -

**Exception:** Outdoor pools deriving over 70 percent of the energy for heating from site-recovered energy, such as a heat pump or solar energy source computed over an operating season.

**R403.9.4 Residential pool pumps and pump motors.** Pool filtration pump motors shall meet the following requirements:

1. Pool pump motors shall not be split-phase, shaded-pole or capacitor start-induction run types.
2. Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. The low speed shall have a rotation rate of no more than ½ of the motor's maximum rotation rate.
3. Pool pumps motor controls shall have the capability of operating the pool pump at a minimum of two speeds. The default circulation speed shall be the residential filtration speed, with a higher speed override capability for a temporary period not to exceed one normal cycle or 24 hours, whichever is less.

Exception: Solar pool heating systems shall be permitted to run at higher speeds during periods of usable solar heat gain.

R403.9.5 Portable spa standby power. Portable electric spa standby power shall not be greater than  $5(V^{2/3})$  watts where V = the total volume, in gallons, when spas are measured in accordance with the spa industry test protocol provided in ANSI/APSP-14.



**R403.9 Swimming pools, and inground permanently installed spas, and portable spas (Mandatory).** The energy requirements for residential pools and inground spas shall be as specified in Sections R403.9.1 through R403.9.3 and in accordance with ANSI/APSP-15. The energy requirements for portable spas shall be in accordance with ANSI/APSP-14. Pools and inground permanently installed spas shall comply with Sections R403.9.1 through R403.9.3.

**R403.9.1 Pool and spa heaters.** All pool heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside the heater to allow shutting off the heater without adjusting the thermostat setting. [Replace IECC R403.9.1 in its entirety]

**R403.9.1.1 Gas and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013 when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

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**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

**R403.9.3 Covers.** Heated swimming pools and inground permanently installed spas shall be equipped provided with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

**Exception:** Outdoor pools deriving over 70 percent of the energy for heating from site-recovered energy, such as a heat pump or solar energy source computed over an operating season.

<b>Date Submitted</b>	7/20/2012	<b>Section</b>	CHAPTER 45 – REFERENCED	<b>Proponent</b>	Ken Cureton
<b>Chapter</b>	45	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments****General Comments**

Yes

**Alternate Language**

No

**Related Modifications**

Proposed Modifications that required the re-numbering of existing chapters in order to allow for the inclusion of new chapters

**Summary of Modification**

Modify CHAPTER 45

**Rationale**

To comply with s. 553.73(7)(a) Florida Statutes, the proposed modification will supplement the most current version of the International Existing Building Code (IEBC) base code with Florida specific requirements in accordance with the Commission's approved code change process for the update to the 2013 Florida Building Code. The proposed modification is necessary in order to support the addition of the chapter relating to Swimming Pool requirements to the Code.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

It does not. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

It does not. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

The proposed code change was submitted in accordance with the Commission's update process for the 2013 FBC in order to support the addition of the chapter relating to Swimming Pool requirements to the Code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

SW5444-G2

Proponent	Ken Cureton	Submitted	12/11/2012	Attachments	No
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**Comment:**

Mod 5444 received NAR vote. Staff requests that the TAC support the original Mod. The proposed Mod is related to Mod 5443 and provides for implementation of F.S. sections 515.25, 515.27 and 553.73(2).

1st Comment Period History

SW5444-G1

Proponent	Ken Cureton	Submitted	9/21/2012	Attachments	No
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**Comment:**

The proposal provides for implementation of sections 553.73(2), 515.25 and 515.27 FS

Modify **CHAPTER 45** as follows:

**APSP**

**The Association of Pool and Spa Professionals**

2111 Eisenhower Avenue

Alexandria, VA 22314

Standard reference number	Title	Referenced in code section number
ANSI/APSP 7—06	<u>American National</u> Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins	<del>AG106.1</del> <u>R4201.6.1, R4201.6.3, R4201.6.6</u>
ANSI/NSPI 3—99	<u>American National</u> Standard for Permanently Installed Residential Spas	<del>AG104.1</del> <u>R4201.6.1</u>
ANSI/NSPI 4— <del>2007</del> 99	<u>American National</u> Standard for Aboveground/ On ground Residential Swimming Pools	<del>AG103.2</del> <u>R4201.6.1</u>
ANSI/ NSPI 5- <del>2003</del> 03	<u>American National</u> Standard for Residential In ground Swimming Pools	<del>AG103.1</del> <u>R4201.6.1</u>
ANSI/NSPI 6—99	<u>American National</u> Standard for Portable Spas <u>R4201.6.1</u>	<del>AG104.2</del>

<b>Date Submitted</b>	7/20/2012	<b>Section</b>	CHAPTER 45 - SWIMMING POOLS	<b>Proponent</b>	Ken Cureton
<b>Chapter</b>	45	<b>Affects HVHZ</b>	No	<b>Attachments</b>	No
<b>TAC Recommendation</b>	No Affirmative Recommendation with a Second				
<b>Commission Action</b>	Pending Review				

**Comments****General Comments**

Yes

**Alternate Language**

No

**Related Modifications**

None

**Summary of Modification**

Add CHAPTER 45 - SWIMMING POOLS , SECTIONS R4501.1 through R4501.23 \*\*Note - This Chapter is being added which replaces the existing Chapter 45 and modifies subsequent Chapter numbers\*\*

**Rationale**

To comply with s. 553.73(7)(a) Florida Statutes, the proposed modification will supplement the most current version of the International Existing Building Code (IEBC) base code with Florida specific requirements in accordance with the Commission's approved code change process for the update to the 2013 Florida Building Code. The proposed modification is necessary in order to carry forward the Commission's policy and Working Group initiatives with regard to implementation of F.S. section 515.

**Fiscal Impact Statement****Impact to local entity relative to enforcement of code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Impact to building and property owners relative to cost of compliance with code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Impact to industry relative to the cost of compliance with code**

None. Proposed language is currently adopted by the 2010 Florida Building Code.

**Requirements****Has a reasonable and substantial connection with the health, safety, and welfare of the general public**

Yes. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**

Yes. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**

It does not. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

**Does not degrade the effectiveness of the code**

It does not. The Proposed language for this Modification is currently included in the 2010 Florida Building Code.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

**Explanation of Choice**

The proposed code change was submitted in accordance with the Commission's update process for the 2013 FBC in order to carry forward the Commission's policy and Working Group initiatives with regard to implementation of F.S. section 515.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

SW5443-G2

<b>Proponent</b>	Ken Cureton	<b>Submitted</b>	12/11/2012	<b>Attachments</b>	No
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**Comment:**

Mod 5443 received NAR vote. Staff requests that the TAC support the original Mod. The proposed Mod provides for implementation of F.S. sections 515.25, 515.27 and 553.73(2).

1st Comment Period History

SW5443-G1

<b>Proponent</b>	Ken Cureton	<b>Submitted</b>	9/21/2012	<b>Attachments</b>	No
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**Comment:**

The proposal provides for implementation of sections 553.73(2), 515.25 and 515.27 FS

Add CHAPTER 45 - SWIMMING POOLS , SECTIONS R4501.1 through R4501.23 as follows:

**CHAPTER 45**  
**SWIMMING POOLS**

**SECTION R4501**  
**PRIVATE SWIMMING POOLS**

**R4501.1 Definitions, general.**

**R4501.1.1 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.

**R4501.1.2 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 Third New International Dictionary of the English Language Unabridged*.

**R4501.2 Definitions.**

**ABOVEGROUND/ONGROUND 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 the 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.

**DIATOMITE (DIATOMACEOUS EARTH).** A type of filter aid.



**DIATOMITE TYPE FILTER.** A filter designed to be used with filter aid.

**DIRECT ACCESS FROM THE HOME.** Means 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 per square feet.

**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.

**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.

**MESH SAFETY BARRIER.** A combination of materials, including fabric, posts, and other hardware to form a barrier around a swimming pool.

**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 reerected 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 per square feet.

**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.** Means situated on the premises of a detached one-family 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 water-tight 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.** Means any person under the age of six years.

**R4501.3 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*.

#### **R4501.4 Approvals.**

**R4501.4.1 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.

**R4501.4.2 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.

**R4501.4.2.1. Flood hazard areas.** Pools installed in flood hazard areas established in Section R322 shall comply with Section R322.2.4 (A Zones) or R322.3.3.1 in coastal high-hazard areas (V Zones).

**R4501.4.3 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.

**R4501.5 Alternate materials and methods of construction.**

**R4501.5.1 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.

**R4501.5.2 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.

**R4501.6 Engineering design.**

**R4501.6.1 Conformance standard.** Design, construction and workmanship shall be in conformity with the requirements of ANSI/NSPI 3; ANSI/NSPI 4; ANSI/NSPA 5; ANSI/NSPI 6; and ANSI/APSP 7.

**R4501.6.2 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.

**R4501.6.3 Water velocity.** Pool piping shall be designed so the water velocity will not exceed 10 feet per second (3048 mm/s) for pressure piping and 8 feet per second (2438 mm/s) for suction piping, except that the water velocity shall not exceed 8 feet per second (2438 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.

**R4501.6.4 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.

**R4501.6.5 Piping installation.** All piping materials shall be installed in strict accordance with the manufacturer's installation standards.

**Exception:** Primer and glue on exposed aboveground piping not required to be colored.

**R4501.6.6 Entrapment protection.** Entrapment protection for suction outlets shall be installed in accordance with requirements of ANSI/APSP 7.

#### **R4501.7 Pumps.**

**R4501.7.1 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.

**R4501.7.2 Installation.** Pumps shall be installed in accordance with manufacturer recommendations.

**R4501.7.3 Capacity.** Pumps shall have design capacity at the following heads:

- 1. Pressure Diatomaceous Earth-At least 60 feet (18 288 mm).**
- 2. Vacuum Diatomaceous Earth-20-inch (508 mm) vacuum on the suction side and 40-foot (12 192 mm) total head.**
- 3. Rapid Sand-At least 45 feet (13 716 mm).**
- 4. High Rate Sand-At least 60-feet (18 288 mm).**

**R4501.7.4 Materials.** Pump impellers, shafts, wear rings and other working parts shall be of corrosion-resistant materials.

**R4501.8 Valves.**

**R4501.8.1 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 diameters 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.

**R4501.8.2 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.

**R4501.8.3 Check valves.** Where check valves are installed they shall be of the swing, spring or vertical check patterns.

**R4501.8.4 Combination valves.** Combination valves shall be installed per manufacturer's installation instructions.

**R4501.9 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.

**R4501.10 Waste water disposal.**

**R4501.10.1 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.



**R4501.10.2 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.

**R4501.10.3 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.

**R4501.11 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.

#### **R4501.12 Tests.**

**R4501.12.1 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 pounds per square inch (psi) (241 kPa) for 15 minutes.

**Exception:** Circulating pumps need not be tested as required in this section.

**R4501.12.2 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.

#### **R4501.13 Drain piping.**

**R4501.13.1 Slope to discharge.** Drain piping serving gravity overflow gutter drains and deck drains shall be installed to provide continuous grade to point of discharge.

**R4501.13.2 Joints and connections.** Joints and connections shall be made as required by the *Florida Building Code, Plumbing*.

#### **R4501.14 Water heating equipment.**

**R4501.14.1 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.

**R4501.14.2 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.

**R4501.14.3 Pit drainage.** When the heater is installed in a pit, the pit shall be provided with approved drainage facilities.

**R4501.14.4 Connections.** All water heating equipment shall be installed with flanges or union connection adjacent to the heater.

**R4501.14.5 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.

**R4501.15 Gas piping.** Gas piping shall comply with the *Florida Building Code, Fuel Gas*.

**R4501.16 Electrical.** Electrical wiring and equipment shall comply with Chapter 27 of the *Florida Building Code*.

**R4501.17 Residential swimming barrier requirement.** Residential swimming pools shall comply with Sections R4501.17.1 through R4501.17.3.

**Exception:** A swimming pool with an approved safety pool cover complying with ASTM F 1346.

**R4502.17.1 Outdoor swimming pools.** Outdoor swimming pools shall be provided with a barrier complying with R4501.17.1.1 through R4501.17.1.14.

**R4501.17.1.1** 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).

**R4501.17.1.2** 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.

**R4501.17.1.3** Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

**R4501.17.1.4** 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 13/4 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 13/4 inches (44 mm) in width.

**R4501.17.1.5** 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.

**R4501.17.1.6** Maximum mesh size for chain link fences shall be a 21/4 inch square (57 mm) unless the fence is provided with slats fastened at the top or bottom which reduce the openings to no more than 13/4 inches (44 mm).

**R4501.17.1.7** 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).

**R4501.17.1.8** Access gates, when provided, shall be self-closing and shall comply with the requirements of Sections R4501.17.1.1 through R4501.17.1.7 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 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

**R4501.17.1.9** 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). Any deactivation switch shall be located at least 54 inches (1372 mm) above the threshold of the access. 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.

**R4501.17.1.10** Where an aboveground 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 R4501.17.1.1 through R4501.17.1.9 and Sections R4501.17.1.12 through R4501.17.1.14. 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.

**R4501.17.1.11** Standard screen enclosures which meet the requirements of Section R4501.17 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.

**R4501.17.1.12** 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.

**R4501.17.1.13** 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.

**R4501.17.1.14** 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.

**R4501.17.1.14.1 Adjacent waterways.** Permanent natural or permanent man-made features such as bulkheads, 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.

**R4501.17.1.15** A mesh safety barrier meeting the requirements of Section R4501.17 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 at a 36-inch (914 mm) height above grade. Vertical posts of the child mesh 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 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 1/2-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 (11 613 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 child mesh safety barrier shall not be more than 1 inch (25 mm) above the deck or installed surface (grade).

**R4501.17.2 Indoor swimming pools.** All walls surrounding indoor swimming pools shall comply with Section R4501.17.1.9.

**R4501.17.3 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.

**R4501.18 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/swimouts in the deep end. Where manufactured diving equipment is to be used, benches or swimouts 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, swim-out or ladder may be used at all additional shallow ends in lieu of an additional set of steps.

**R4501.19 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.

**R4501.20 Filters.** Components shall have sufficient capacity to provide a complete turnover of pool water in 12 hours or less.

**R4501.20.1 Sand filters.**

**R4501.20.1.1 Approved types.** Rapid sand filters (flow up to 5 gpm per square foot) shall be constructed in accordance with approved standards. Where high rate sand filters (flow in excess of 5 gpm per square foot) 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 or rapid sand filters or 15 gpm per square foot or high rate sand filters.

**R4501.20.1.2 Instructions.** Every filter system shall be provided with written operating instructions.

**R4501.20.1.3 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.

**R4501.20.2 Diatomite type filters.**

**R4501.20.2.1 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 of effective filter area.

**R4501.20.2.2 Filter aid.** Provision shall be made to introduce filter aid into the filter in such a way as to evenly precoat the filter septum.

**R4501.21 Pool fittings.**

**R4501.21.1 Approved type.** Pool fittings shall be of an approved type and design as to be appropriate for the specific application.

**R4501.21.2 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<sup>2</sup>) of surface area or fraction thereof, and shall be designed for a flow rate of at least 25 gallons per minute (gpm) (1.6 L/s) per skimmer.

**R4501.21.3 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.



**R4501.21.4 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).

**R4501.21.5 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<sup>2</sup>) 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).

**R4501.22 Equipment foundations and enclosures.** All pool motors and equipment shall be installed in compliance with the manufacturers recommendations. All heating and electrical equipment, unless approved for outdoor installation, shall be adequately protected against the weather or installed within a building.

**R4501.23 Accessibility and clearances.** Equipment shall be so installed as to provide ready accessibility for cleaning, operating, maintenance and servicing.