

Proposed Code Modifications

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

WITH COMMENTS

TAC: Swimming Pool

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

Total Mods for report: 18

Sub Code: Building

SW7070

1

Date Submitted	1/1/2016	Section	454.1.10.1	Proponent	Jennifer Hatfield
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	Approved as Modified				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language** Yes

Related Modifications

Summary of Modification

Reinstates language from the 2010 Code that was not included in the 5th edition. This is needed to ensure certain safety aspects are addressed when resurfacing a public swimming pool.

Rationale

This language was removed from the 5th edition of the Code because it was thought to be duplicative to what already existed in the DOH 64E-9 public pool rule. However, that rule is being finalized without the resurfacing language due to the interpretation of 2012 legislation that removed the DOH's authority over construction of public pools. This modification reinstates that language back into the Code to ensure some authority governs the safety requirements that need to be addressed when resurfacing a public swimming 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

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business 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, ensures safety features are addressed when resurfacing a public swimming pool.

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

Yes by reinstating language that was removed.

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 the effectiveness.

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

Alternate A1

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 Submit 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 non cross-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 10 inches (254 mm) for pools and 12 inches (305 mm) for spas, and the intermediate risers shall be made uniform.

454.1.10.1.7 Step treads that protrude from the pool wall shall be removed and replaced with a cross-braced ladder or reconstructed to meet the requirements of Sections 454.1.2.5.1 or 454.1.2.5.2.

(SW7070-A1)

Alternate Language

2nd Comment Period

7070-A3	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale	This alternate language proposal is only needed if the term "modification" is removed via alternate language submitted for SW7058. It makes the same additions as the original proposal, adding in items that must be addressed when resurfacing a public pool, but also then makes changes to the opening paragraph to eliminate the term modification that is no longer needed.				
	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				
	Impact to Small Business 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, ensures consistency of terms and makes sure certain aspects are addressed when resurfacing.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Yes by ensuring consistency of terms and ensuring items are addressed when resurfacing a public pool.				
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

1st Comment Period History

7070-A1	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	Yes
	Rationale	Making slight edits to separate riser height for pools and spas, remove the word recessed, and add another section reference addressing ladders.				
	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				
	Impact to Small Business 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 provides for safety requirements to be met when resurfacing a public pool.				
	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 it improves it by reinstating language that was unintentionally left out of the 5th edition.					
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

454.1.10.1 Modifications- Repairs or Alterations of Pool Structure and Equipment. 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 repairs or alterations.

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 454.1.2.3.2 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 non cross-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 10 inches (254 mm) for pools and 12 inches (305 mm) for spas, and the intermediate risers shall be made uniform.

454.1.10.1.7 Step treads that protrude from the pool wall shall be removed and replaced with a cross-braced ladder or reconstructed to meet the requirements of Sections 454.1.2.5.1 or 454.1.2.5.2.

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 non cross-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 10 inches (254 mm) for pools and 12 inches (305 mm) for spas, and the intermediate risers shall be made uniform.

454.1.10.1.7 Step treads that protrude from the pool wall shall be removed and replaced with a cross-braced ladder or reconstructed to meet the requirements of Sections 454.1.2.5.1 or 454.1.2.5.2.

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 non cross-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 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.

TAC: Swimming Pool

Total Mods for **Swimming Pool** in **No Affirmative Recommendation with a Second**: 17

Total Mods for report: 18

Sub Code: Building

SW6498

2

Date Submitted	11/22/2015	Section	110.9	Proponent	Mo Madani
Chapter	1	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

6491, 6492, 6493, 6494, 6496

Summary of Modification

The proposed code change requires as part of the close out inspection ensuring that the existing swimming pool bonding system is complete and terminated properly.

Rationale

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools. Also, see uploaded files.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Further enforcement/inspections would be necessary by the enforcement agencies to implement this provision.

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

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to industry relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to small business relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Requirements

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

The proposed code change has the potential of reducing electrocution in swimming pools

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change does not discriminate against materials or products.

Does not degrade the effectiveness of the code

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

Alternate A3

Move the proposed modification from "110.9" to "110.3 Required Inspections, Electrical" and add the following:

4. Existing Swimming Pools. To be made after all repairs or alterations are complete, all required electrical equipment, GFCI protection, and equipotential bonding are in place.

(E6498-A3)

2nd Comment Period

6498-A3	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes	
	Rationale						
	The additional language would clarify that the purpose of this inspection is to determine these things are in place for what was actually altered or repaired and not beyond. Example, installing a new pump or heater would not require a pool built before the equipotential bonding grid was required to be installed, which would require pulling up the deck. Also may help address issues such as the 30-inch clearance in front of the electrical equipment because some older pools may not have the ability to comply with this "newer" requirement.						
	Fiscal Impact Statement						
	Impact to local entity relative to enforcement of code						
	May add an additional inspection to be added to permits.						
	Impact to building and property owners relative to cost of compliance with code						
	Increase in cost do to additional inspection and cost to comply.						
	Impact to industry relative to the cost of compliance with code						
	Increase in cost do to additional inspection and cost to comply.						
Impact to Small Business relative to the cost of compliance with code							
The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.							
Requirements							
Has a reasonable and substantial connection with the health, safety, and welfare of the general public							
Yes, increases safety on existing pools.							
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							

1st Comment Period History

SW6498-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment: Neutral					

1st Comment Period History

SW6498-G2	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
	Comment: On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:					
1. In this proposal there is no specific text to review, so this proposal cannot be implemented or even properly addressed. There are no criteria as to nature of the inspection and/or tests, protocols, pass/fail criteria, enforcement and qualification strategies that are essential for effective implementation. The Committee needs to be aware that implementation of such a program can result in potentially significant costs for existing pools if demolition has to be done to allow the inspector access to pool and deck steel and other covered and inaccessible objects required to be inspected.						
2. This proposal, if properly implemented, actually has the real potential of reducing risks. Pool shock incidents are associated with improper, poor defective, damaged or nonexistent bonding.						
3. New Jersey has a bonding test program for non-residential pools. Effective implementation of such a program cannot be accomplished by a simple code proposal; a complete and comprehensive program must be developed.						

Move the proposed modification from "110.9" to "110.3 Required Inspections, Electrical" and add the following:

4. Existing Swimming Pools. To be made after all repairs or alterations are complete, all required electrical equipment, GFCI protection, and equipotential bonding are in place.

Section 110 – Inspections

Section 110.9 Add to read as follows:

Section 110.9 Existing Swimming Pools – Electrical

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015 MEETING SUMMARY REPORT

WEDNESDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding swimming pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs voted unanimously to recommend the Commission approve the consensus package of recommendations from the TACs. The TACs' specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring

existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

PROJECT OVERVIEW

The 2015 Florida Legislature identified the need to evaluate the electrical aspects of swimming pool safety focusing on minimizing electrocution risks linked to swimming pools. In response, the Florida Building Commission approved a research project (technical enrichment) for a *Swimming Pool Electrocution Prevention Study*. In order to implement the project the Commission convened a process to develop recommendations for pool safety focused on the prevention of electrocution in swimming pools. The Commission determined that the project would be evaluated and recommendations developed by convening concurrent meetings of the Commission's Swimming Pool Technical Advisory Committee and Electrical Technical Advisory Committee (TAC). The objective of the project is to evaluate key topical issues, and as appropriate develop code amendment proposals designed to minimize electrocution risks linked to swimming pools.

In response to the Commission's direction the Swimming Pool TAC and Electrical TAC agreed that the initial Phase I scope of the project is to determine whether to recommend a proposed code amendment that would require low voltage lighting in residential swimming pools for new construction. Once the Swimming Pool TAC and the Electrical TAC conclude their evaluation of low voltage lighting they will evaluate additional project relevant topics in Phase II of the project: specifically bonding, grounding, retrofitting of existing pools, and education.

AGENDA ITEM OUTCOMES

OPENING AND MEETING ATTENDANCE

The meeting was opened at 10:00 AM once a quorum was established for the Swimming Pool and Electrical TACs respectively, and the following members participated:

Swimming Pool TAC: James Batts (chair), Jordan Clarkson, Bill Dumbaugh, Kevin Flanagan, John O'Conner, Mark Pabst, Gordon Shepardson, Bob Vincent, and John Wahler. (9 of 11)

Absent Members:

Tom Allen, and Corky Williams.

Electrical TAC: Kevin Flanagan (chair), Neal Burdick, Ken Castronovo, Leonard Devine, Jr. (*Alternate: Nelson Montgomery*), Shane Gerwig, David Rice (*Alternate: Steve Mitchell*), Joe Territo, Clarence Tibbs, and Dwight Wilkes. (9 of 11)

Absent Members:

Oriol Haage, and Roy Van Wyk.

DBPR Staff Present

Norman Bellamy, Chris Burgwald, Jim Hammers, April Hammonds, Mo Madani, and Jim Richmond.

Commissioners Present

Fred Schilling, Jim Schock, and Jeff Stone.

Meeting Facilitation and Reporting

The TAC Chairs meeting was facilitated by Jeff Blair from the FCRC Consensus center at Florida State University. Information at: <http://consensus.fsu.edu/>



CONSENSUS CENTER

Background and Supporting Documents

The agenda and relevant background and supporting documents are linked to each agenda item. The Agenda URLs for the October 14, 2015 TAC meetings are as follows:

http://www.floridabuilding.org/fbc/commission/FBC_1015/Swimming_Pool_TAC/Swimming_Pool_TAC_Agenda_101415.htm

http://www.floridabuilding.org/fbc/commission/FBC_1015/Electrical_TAC/Electrical_Agenda_TAC_101415.htm

AGENDA REVIEW

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the agenda for the October 24, 2015 meeting as posted/presented.

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the agenda for the October 14, 2015 meeting as posted/presented.

Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

The complete Agenda is included as “Attachment 1” of this report.

(See Attachment 1—Agenda)

APPROVAL OF SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

APPROVAL SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

**IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS
Requirement for Low Voltage Lighting in Residential Pools for New Construction**

At the September 28, 2015 meeting the Swimming Pool TAC and the Electrical TAC voted to approve in concept a code amendment proposal requiring low voltage lighting in residential pools for new construction, with the understanding that relevant safety data and other documentation would be evaluated prior to a final vote on any recommendation submitted to the Florida Building Commission.

At the October 14, 2015 meeting the TACs were asked to offer options regarding possible requirement for low voltage lighting in residential pools for new construction. In addition, the public was invited to comment on the options and/or suggest additional options prior to the TACs ranking them for acceptability. Jeff explained that members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a TAC member. Members should be prepared to offer specific refinements to address their reservations.

Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked a series of options regarding low voltage lighting in residential pools for new construction.

The complete Options Acceptability Ranking Results are included as "*Attachment 2*" of this report.

(See Attachment 2—Ranking Results)

DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN

Identification of Issues and Options, and Acceptability Ranking of Options in Turn

Jeff explained that the *TACs* would address each of the four key issues in turn by topic, and that members would be invited to propose and comment on options before the *TAC* members ranked them. In addition, the public was invited to comment on the options and/or suggest additional options prior to the *TACs* ranking them for acceptability. The Phase II topics are Bonding, Grounding, Retrofitting of Existing Swimming Pools, and Education of Contractors and Consumers. Jeff explained that *TAC* members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a *TAC* member. Members should be prepared to offer specific refinements to address their reservations. Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked the proposed options for acceptability. All of the options proposed are included in the ranking results. Following are the option(s) ranked that achieved a consensus level of support ($\geq 75\%$ in favor):

Grounding

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission charge staff to work with the *TAC* chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers,

brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

The complete Options Acceptability Ranking Results are included as "Attachment 2" of this report.

(See Attachment 2—Ranking Results)

TAC ACTIONS

Following the opportunity provided for questions and answers, public comment and discussion, the TACs took the following actions:

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendations.

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendation.

NEXT STEPS

Following are the next steps for the Swimming Pool Electrical Safety Project:

- The Commission will evaluate the TACs' (Swimming Pool TAC and Electrical TAC) consensus package of recommendations at the October 15, 2015 meeting.
- The Commission will take the lead with ensuring Code amendments are proposed consistent with any recommendations approved by the Commission regarding swimming pool electrical safety requirements.

ADJOURNMENT

After a determination that a quorum was still present the Swimming Pool TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

After a determination that a quorum was still present the Electrical TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

**ATTACHMENT 1
OCTOBER 14, 2015 MEETING AGENDAS**

**FLORIDA BUILDING COMMISSION
SWIMMING POOL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE ELECTRICAL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**FLORIDA BUILDING COMMISSION
ELECTRICAL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE SWIMMING POOL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
12:00 PM		LUNCH
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
3:00 PM		BREAK
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
~5:00 PM	J.)	ADJOURN

**ATTACHMENT 2
OPTIONS ACCEPTABILITY RANKING RESULTS**

I. PHASE I RECOMMENDATIONS

LOW VOLTAGE LIGHTING IN RESIDENTIAL SWIMMING POOLS FOR NEW CONSTRUCTION

Low Voltage October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements).				
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Electrical TAC</i> (5-4) 56%	4	1	1	3
Option B: Maintain NEC requirements for new residential pools				
<i>Swimming Pool TAC</i> (7-2) 78%	6	1	1	1
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Revised Ranking Electrical TAC</i> (5-4) 56%	4	1	3	1
Option C: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements) for energy conservation purposes.				
<i>Swimming Pool TAC</i> (7-2) 78%	5	2	1	1
<i>Swimming Pool TAC</i> (4-5) 44%	2	2	2	3
<i>Revised Ranking Electrical TAC</i> (6-3) 67%	2	4	0	3
<i>Revised Ranking Electrical TAC</i> (5-4) 56%	3	2	1	3
Option D: Require LED pool lights with plastic niches or without niches in new construction.				
<i>Swimming Pool TAC</i> (3-6) 33%	2	1	3	3
<i>Electrical TAC</i> (2-7) 22%	1	1	4	3

<i>Option E: All residential pools shall meet the requirements of code and shall be require a monitoring device to detect stray currents in the water.</i>				
<i>Swimming Pool TAC (2-7) 22%</i>	0	2	5	2
<i>Electrical TAC (3-6) 33%</i>	1	2	6	0

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).</i>				
<i>Swimming Pool TAC (9-0) 100%</i>	4	5	0	0
<i>Electrical TAC (9-0) 100%</i>	5	4	0	0

3. RETROFITTING OF EXISTING POOLS

Retrofitting <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.</i>				
<i>Swimming Pool TAC (5-3) 63%</i>	2	3	3	0
<i>Electrical TAC (6-2) 75%</i>	4	2	2	0

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<p><i>Option A:</i> Initiate a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.</p>				
Swimming Pool TAC (9-0) 100%	9	0	0	0
Electrical TAC (9-0) 100%	8	0	0	0

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015
RECOMMENDATIONS TO THE FLORIDA BUILDING COMMISSION

MONDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

TAC ACTIONS

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 2 consensus recommendations from the TAC (grounding and education).

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 3 consensus recommendations from the TAC (grounding, education, and existing swimming pools).

Alternate Language

1st Comment Period History

01/13/2016 - 02/25/2016

6498-A3

Proponent Bryan Holland **Submitted** 2/22/2016 **Attachments** Yes

Rationale

I believe this clarifies the intent of the proposed modification to ensure the electrical safety requirements are installed or reconnected when an existing swimming pool is repaired or altered.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

The proposed modification may require an additional inspection to be added to permits for swimming pool repair and alterations.

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

The proposed modification could increase the cost of compliance with the code while providing an additional level of safety following repairs and alterations to swimming pools.

Impact to industry relative to the cost of compliance with code

The proposed modification could increase the cost of compliance with the code while providing an additional level of safety following repairs and alterations to swimming pools.

Requirements

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

Yes. The proposed modification increases the health, safety, and welfare of the general public.

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

Yes. The proposed modification strengthens and improves the code.

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

No.

Does not degrade the effectiveness of the code

No.

Date Submitted	11/22/2015	Section	454.10.4	Proponent	Mo Madani
Chapter	4	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

6491, 6492, 6493, 6494

Summary of Modification

The proposed code change requires GFCI protection be provided for replacement of pool pump motors, if not already in place.

Rationale

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools. Also, see uploaded files.

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

Further enforcement/inspections would be necessary by the enforcement agencies to implement this provision.

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

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to industry relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to small business relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change does not discriminate against materials or products.

Does not degrade the effectiveness of the code

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

2nd Comment Period

6496-A1	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale					
	(1) Language clarified for pumps to maintain consistency with other NEC provisions. (2) Language changed to “underwater luminaires” from “pool lights” to maintain consistency with other NEC provisions. Regarding underwater luminaires (pool lights), the NEC requires GFCI protection only if the luminaires or other equipment operates over the LVCL and, based on the TAC comments, it appears that is also the intent of these changes. The language was revised to clarify this and eliminate possible confusion. GFCIs do not, and cannot, protect low voltage lights and equipment served through transformers and power supplies because they cannot sense ground faults on the low voltage side of the circuit.					
	Fiscal Impact Statement					
	Impact to local entity relative to enforcement of code					
	If permit and inspection are required, will be an additional workload. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to building and property owners relative to cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to industry relative to the cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
Impact to Small Business relative to the cost of compliance with code						
The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.						
Requirements						
Has a reasonable and substantial connection with the health, safety, and welfare of the general public						
Yes as it reiterates current safety requirements.						
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction						
Reiterates current safety requirements.						
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						

1st Comment Period History

SW6496-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment: NEUTRAL					

1st Comment Period History

SW6496-G2	Proponent	Bryan Holland	Submitted	2/22/2016	Attachments	No
	Comment: I generally support this proposed modification. Reminding users of the code that GFCI protection is required when swimming pool pump motors or underwater luminaires are repaired or replaced will enhance the electrical safety of existing swimming pools.					

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6496-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. No enforcement measures are identified.
2. A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health departments and was of debatable success due to non-uniform electrical training of the health inspectors. An electrical permit and inspection by knowledgeable, properly trained personnel are necessary for viable enforcement.
3. There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, resulting in, at best, no improvement in safety and, at worst, introduction of significant safety hazards. In some cases, the retrofit will require modification of the electrical system.
4. If such a program is to be implemented a uniform, effective enforcement procedure must be established. Otherwise, this will quite possibly increase unlicensed activity due to the additional costs that homeowners will otherwise incur.

Section 454.1.10.4 Swimming Pool - Electrical

454.1.10.4.1 GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors connected to 120-volt and 240-volt single phase branch circuits, a ground-fault circuit-interrupter shall be provided, if one is not already in place.
2. Where alteration work includes replacement of 120-volt pool lights underwater luminaires, a ground-fault circuit-interrupter shall be provided, if one is not already in place, for all underwater luminaires operating at voltages greater than the Low Voltage Contact Limit.

Section 454.1.10.4 Swimming Pool - Electrical

454.1.10.4.1 GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors, a ground-fault circuit-interrupter shall be provided, if one is not already in place.
2. Where alteration work includes replacement of 120-volt pool lights, a ground-fault circuit-interrupter shall be provided, if one is not already in place.

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015 MEETING SUMMARY REPORT

WEDNESDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding swimming pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs voted unanimously to recommend the Commission approve the consensus package of recommendations from the TACs. The TACs' specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring

existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

PROJECT OVERVIEW

The 2015 Florida Legislature identified the need to evaluate the electrical aspects of swimming pool safety focusing on minimizing electrocution risks linked to swimming pools. In response, the Florida Building Commission approved a research project (technical enrichment) for a *Swimming Pool Electrocution Prevention Study*. In order to implement the project the Commission convened a process to develop recommendations for pool safety focused on the prevention of electrocution in swimming pools. The Commission determined that the project would be evaluated and recommendations developed by convening concurrent meetings of the Commission's Swimming Pool Technical Advisory Committee and Electrical Technical Advisory Committee (TAC). The objective of the project is to evaluate key topical issues, and as appropriate develop code amendment proposals designed to minimize electrocution risks linked to swimming pools.

In response to the Commission's direction the Swimming Pool TAC and Electrical TAC agreed that the initial Phase I scope of the project is to determine whether to recommend a proposed code amendment that would require low voltage lighting in residential swimming pools for new construction. Once the Swimming Pool TAC and the Electrical TAC conclude their evaluation of low voltage lighting they will evaluate additional project relevant topics in Phase II of the project: specifically bonding, grounding, retrofitting of existing pools, and education.

AGENDA ITEM OUTCOMES

OPENING AND MEETING ATTENDANCE

The meeting was opened at 10:00 AM once a quorum was established for the Swimming Pool and Electrical TACs respectively, and the following members participated:

Swimming Pool TAC: James Batts (chair), Jordan Clarkson, Bill Dumbaugh, Kevin Flanagan, John O'Conner, Mark Pabst, Gordon Shepardson, Bob Vincent, and John Wahler. (9 of 11)

Absent Members:

Tom Allen, and Corky Williams.

Electrical TAC: Kevin Flanagan (chair), Neal Burdick, Ken Castronovo, Leonard Devine, Jr. (*Alternate: Nelson Montgomery*), Shane Gerwig, David Rice (*Alternate: Steve Mitchell*), Joe Territo, Clarence Tibbs, and Dwight Wilkes. (9 of 11)

Absent Members:

Oriol Haage, and Roy Van Wyk.

DBPR Staff Present

Norman Bellamy, Chris Burgwald, Jim Hammers, April Hammonds, Mo Madani, and Jim Richmond.

Commissioners Present

Fred Schilling, Jim Schock, and Jeff Stone.

Meeting Facilitation and Reporting

The TAC Chairs meeting was facilitated by Jeff Blair from the FCRC Consensus center at Florida State University. Information at: <http://consensus.fsu.edu/>



CONSENSUS CENTER

Background and Supporting Documents

The agenda and relevant background and supporting documents are linked to each agenda item. The Agenda URLs for the October 14, 2015 TAC meetings are as follows:

http://www.floridabuilding.org/fbc/commission/FBC_1015/Swimming_Pool_TAC/Swimming_Pool_TAC_Agenda_101415.htm

http://www.floridabuilding.org/fbc/commission/FBC_1015/Electrical_TAC/Electrical_Agenda_TAC_101415.htm

AGENDA REVIEW

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the agenda for the October 24, 2015 meeting as posted/presented.

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the agenda for the October 14, 2015 meeting as posted/presented.

Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

The complete Agenda is included as “Attachment 1” of this report.

(See Attachment 1—Agenda)

APPROVAL OF SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

APPROVAL SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

**IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS
Requirement for Low Voltage Lighting in Residential Pools for New Construction**

At the September 28, 2015 meeting the Swimming Pool TAC and the Electrical TAC voted to approve in concept a code amendment proposal requiring low voltage lighting in residential pools for new construction, with the understanding that relevant safety data and other documentation would be evaluated prior to a final vote on any recommendation submitted to the Florida Building Commission.

At the October 14, 2015 meeting the TACs were asked to offer options regarding possible requirement for low voltage lighting in residential pools for new construction. In addition, the public was invited to comment on the options and/or suggest additional options prior to the TACs ranking them for acceptability. Jeff explained that members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a TAC member. Members should be prepared to offer specific refinements to address their reservations.

POOL ELECTRICAL SAFETY PROJECT REPORT 4

Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked a series of options regarding low voltage lighting in residential pools for new construction.

The complete Options Acceptability Ranking Results are included as "*Attachment 2*" of this report.

(See *Attachment 2—Ranking Results*)

DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN

Identification of Issues and Options, and Acceptability Ranking of Options in Turn

Jeff explained that the *TACs* would address each of the four key issues in turn by topic, and that members would be invited to propose and comment on options before the *TAC* members ranked them. In addition, the public was invited to comment on the options and/or suggest additional options prior to the *TACs* ranking them for acceptability. The Phase II topics are Bonding, Grounding, Retrofitting of Existing Swimming Pools, and Education of Contractors and Consumers. Jeff explained that *TAC* members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a *TAC* member. Members should be prepared to offer specific refinements to address their reservations. Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked the proposed options for acceptability. All of the options proposed are included in the ranking results. Following are the option(s) ranked that achieved a consensus level of support ($\geq 75\%$ in favor):

Grounding

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission charge staff to work with the *TAC* chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers,

brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

The complete Options Acceptability Ranking Results are included as "Attachment 2" of this report.

(See Attachment 2—Ranking Results)

TAC ACTIONS

Following the opportunity provided for questions and answers, public comment and discussion, the TACs took the following actions:

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendations.

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendation.

NEXT STEPS

Following are the next steps for the Swimming Pool Electrical Safety Project:

- The Commission will evaluate the TACs' (Swimming Pool TAC and Electrical TAC) consensus package of recommendations at the October 15, 2015 meeting.
- The Commission will take the lead with ensuring Code amendments are proposed consistent with any recommendations approved by the Commission regarding swimming pool electrical safety requirements.

ADJOURNMENT

After a determination that a quorum was still present the Swimming Pool TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

After a determination that a quorum was still present the Electrical TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

**ATTACHMENT 1
OCTOBER 14, 2015 MEETING AGENDAS**

**FLORIDA BUILDING COMMISSION
SWIMMING POOL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE ELECTRICAL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**FLORIDA BUILDING COMMISSION
ELECTRICAL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE SWIMMING POOL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**ATTACHMENT 2
OPTIONS ACCEPTABILITY RANKING RESULTS**

I. PHASE I RECOMMENDATIONS

LOW VOLTAGE LIGHTING IN RESIDENTIAL SWIMMING POOLS FOR NEW CONSTRUCTION

Low Voltage <i>October 14, 2015</i>	4= <i>acceptable</i>	3= <i>minor reservations</i>	2= <i>major reservations</i>	1= <i>not acceptable</i>
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements).				
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Electrical TAC</i> (5-4) 56%	4	1	1	3
Option B: Maintain NEC requirements for new residential pools				
<i>Swimming Pool TAC</i> (7-2) 78%	6	1	1	1
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
Revised Ranking <i>Electrical TAC</i> (5-4) 56%	4	1	3	1
Option C: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements) for energy conservation purposes.				
<i>Swimming Pool TAC</i> (7-2) 78%	5	2	1	1
<i>Swimming Pool TAC</i> (4-5) 44%	2	2	2	3
Revised Ranking <i>Electrical TAC</i> (6-3) 67%	2	4	0	3
Revised Ranking <i>Electrical TAC</i> (5-4) 56%	3	2	1	3
Option D: Require LED pool lights with plastic niches or without niches in new construction.				
<i>Swimming Pool TAC</i> (3-6) 33%	2	1	3	3
<i>Electrical TAC</i> (2-7) 22%	1	1	4	3

<i>Option E: All residential pools shall meet the requirements of code and shall be require a monitoring device to detect stray currents in the water.</i>				
<i>Swimming Pool TAC (2-7) 22%</i>	0	2	5	2
<i>Electrical TAC (3-6) 33%</i>	1	2	6	0

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).</i>				
<i>Swimming Pool TAC (9-0) 100%</i>	4	5	0	0
<i>Electrical TAC (9-0) 100%</i>	5	4	0	0

3. RETROFITTING OF EXISTING POOLS

Retrofitting <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.</i>				
<i>Swimming Pool TAC (5-3) 63%</i>	2	3	3	0
<i>Electrical TAC (6-2) 75%</i>	4	2	2	0

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<p><i>Option A:</i> Initiate a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.</p>				
Swimming Pool TAC (9-0) 100%	9	0	0	0
Electrical TAC (9-0) 100%	8	0	0	0

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015
RECOMMENDATIONS TO THE FLORIDA BUILDING COMMISSION

MONDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

TAC ACTIONS

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 2 consensus recommendations from the TAC (grounding and education).

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 3 consensus recommendations from the TAC (grounding, education, and existing swimming pools).

Date Submitted	12/1/2015	Section	454.1.2.3.1	Proponent	Centera John
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language** Yes

Related Modifications

Public Swimming Pools and Bathing Places section 454

Summary of Modification

454.1.2.3.1 Depths and Markings - Define location of depth marker tiles for pool with recessed gutters as on the back wall of the recessed gutter

Rationale

Building department field inspectors and county health department inspectors have varying interpretations and requirements as to the location of depth marker tiles for pools with a recessed gutter. Some require the tile makers to be on the back wall of the recessed gutter, others, particularly if the pool has a precast coping, require the tile be installed on the underside of the coping. Defining the location of the depth marker tiles as suggested will provide clarity re the code interpretation for pools with recessed gutters as well as installation uniformity.

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

No cost impact

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

No cost impact

Impact to industry relative to the cost of compliance with code

No cost impact

Impact to small business relative to the cost of compliance with code

No cost impact

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

Yes. Uniformity of depth marker locations will improve bather safety by making information more clearly visible for pools with recessed gutter systems.

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

Equivalent. It is just a clarification of an existing code.

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

Correct. Does not discriminate...

Does not degrade the effectiveness of the code

Correct. Does not degrade...

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

2nd Comment Period

6509-A1	Proponent	Centera John	Submitted	6/20/2016	Attachments	Yes
	Rationale	For pools with old precast stone copings or angled pool curbs, this proposed change provides an allowance for a location of the depth marker tiles. These locations are currently being required by CHD's in various counties. This language just clarifies that these are allowable locations when these types of copings/curbs are present.				
	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				
	Impact to Small Business relative to the cost of compliance with code	No coast impact				
	Requirements					
	Has a reasonable and substantial connection with the health, safety, and welfare of the general public	Yes. Provides additional allowable locations for depth tile markings, and improves visual ability for pool patrons to see the markings.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	no				
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities	no					
Does not degrade the effectiveness of the code	No. Improves code.					
Is the proposed code modification part of a prior code version?	No					

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. **When a coping stone with curved or angled underside is provided, the depth markings may be installed on the curved or angled coping underside, and outside or top of the pool curb.**

454.1.2.3.1 (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 **or recessed** gutter designs are utilized, depth markers shall be located **within the tile line** on the back of the gutter wall.

Date Submitted	12/1/2015	Section	454	Proponent	Centera John
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

6510

Summary of Modification

454.1.2.4 Clarify what is meant by the words "a darker color" when referring to allowable pool surface colors.

Rationale

454.1.2.4 Color – Comment: The first paragraph of 454.1.2.4 relates to the pool surface color. The second paragraph (labeled "Exception") is confusing in that it could be construed as saying that the pool surface may be dark in color.

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

No impact

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

No impact

Impact to industry relative to the cost of compliance with code

No impact

Impact to small business relative to the cost of compliance with code

No impact

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

Clarifies allowable pool surface colors which is in the best interest of public safety for pool bathers. If the wrong color is used (i.e. a dark color, as the code now states), then it could affect the ability to see a pool bather in distress underwater.

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

Yes. Clarifies the code language to prevent accidental wrong color installation of pool or spa surface materials.

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

No, does not discriminate...

Does not degrade the effectiveness of the code

No, does degrade...

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

2nd Comment Period

6511-A1	Proponent	Centera John	Submitted	6/20/2016	Attachments	Yes
	Rationale	As Bob Vincent/FDOH explained in his comments to the original code proposal, this change corrects a glitch when the language from FAC 64E-9 was carried over to the FBC 5th Edition. The language clarifies what the original intention of the 64E-9 verbage.				
	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				
	Impact to Small Business relative to the cost of compliance with code	No impact				
	Requirements					
	Has a reasonable and substantial connection with the health, safety, and welfare of the general public	Yes. Clarifies what could be construed from the current language, to allow a dark surface in a pool, that would result in an unsafe condition for a bather in distress in a public pool.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Yes. Clarifies the original intention of FAC 64E-9 that was carried over to the FBC 5th Edition incorrectly.				
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities	no					
Does not degrade the effectiveness of the code	No. Improves code effectiveness.					
Is the proposed code modification part of a prior code version?	No					

1st Comment Period History

SW6511-G1	Proponent	bob vincent	Submitted	2/25/2016	Attachments	No
	Comment:	I think this may be a glitch; it is inconsistent with the original meaning, and I missed it on review. The proposal still doesn't make it clear that the dark color is only allowed for tile, and additional costly mistakes could be made thinking it is exception to the floor and wall color or white. Here is the 2009 64E-9, FAC, source language this exception was born out of: 64E-9.006(1)(a) Floors and walls shall be white or light pastel in color and shall have the characteristic of reflecting rather than absorbing light. A minimum 4 inch tile line, each tile a minimum size of one inch on all sides, shall be installed at the water line, but shall not exceed 12 inches in height if a dark color is used. Gutter type pools may substitute 2-inch tile, each a minimum size of one inch on all sides, along the pool wall edge of the gutter lip....				

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. A minimum 4 inch tile line, each tile a minimum size of one inch on all sides, shall be installed at the water line, but shall not exceed 12 inches in height if a dark color is used. Gutter type pools may substitute 2-inch tile, each a minimum size of one inch on all sides, along the pool wall edge of the gutter lip.

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.

454.1.2.4 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 **tile** 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.

Date Submitted 12/1/2015	Section 454	Proponent Centera John
Chapter 4	Affects HVHZ No	Attachments No
TAC Recommendation No Affirmative Recommendation with a Second		
Commission Action Pending Review		

Comments

General Comments Yes	Alternate Language No
-----------------------------	------------------------------

Related Modifications

Summary of Modification

454.1.6.5.3.1.3 Open-type (rollout) gutters on pools should have skid-resistant tile on leading edge, for safety.

Rationale

Open-type (rollout) gutters are required to have a tile on the gutter lip (leading edge) of the gutter. However, this tile is only required to be slip-resistant in the areas directly above the pool steps, as this part of the gutter is now considered a step area. While the tile used on the edges of underwater benches, steps, and rollout gutters directly above the steps (as described above) require the use of a slip-resistant tile, the rest of the open-type gutter edges may utilize a glazed tile. Considering that in actual use, pool bathers commonly step on the open-type gutter, it would make sense that the gutter lip (edge) of the entire open-type gutter should be required to use a slip-resistant tile, to make it safer. Also, this same slip-resistant tile requirement should be stated if a tile is used on the horizontal surface of the open-type gutter.

Fiscal Impact Statement

- Impact to local entity relative to enforcement of code**
No impact
- Impact to building and property owners relative to cost of compliance with code**
No impact
- Impact to industry relative to the cost of compliance with code**
No impact
- Impact to small business relative to the cost of compliance with code**
No impact

Requirements

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**
Will make pools with open-type (rollout) gutters safer by making the gutter, commonly used to stand on by bathers, safer by requiring all tiles used on the flat areas and leading edge be skid-resistant.
- 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 discriminate...
- Does not degrade the effectiveness of the code**
No, does degrade...

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

2nd Comment Period

Proponent Centera John	Submitted 6/20/2016	Attachments Yes
-------------------------------	----------------------------	------------------------

Comment:
see attach file for additional references to slip-resistant requirements in FBC

SW6512-G1

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. All tile used on the flat, horizontal part, or the leading edge of an open-type gutter, must be slip-resistant.

PROPOSED CODE CHANGE # SW 6512

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. **All tile used on the flat, horizontal part, or the leading edge of an open-type gutter, must be slip-resistant.**

ARGUMENT / RATIONALE: THE EXISTING FBC CODE HAS SEVERAL REFERNCES AS SHOWN BELOW THAT INDICATE ANY AREAS THAT ARE STEPPED U-ON SHOULD BE SKID-RESISTANT. THIS SAME CRITERIA SHOULD BE USED FOR ROLLOUT GUTTER SURFACES.

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 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.

454.1.2.5 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.**

454.1.2.5.3 Stairs. Stairs shall have a minimum tread width of 10 inches (254 mm) and a maximum width of 48 inches (1219 mm) for a minimum tread length of 24 inches (610 mm) and a maximum riser height of 10 inches (254 mm). Treads and risers between the top and bottom treads shall be uniform to within $\frac{1}{2}$ inch (12.7 mm) in width and height. The riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front $\frac{3}{4}$ to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (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 $\frac{3}{4}$ -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 (457 mm to 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

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 5 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, 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

454.1.3.1 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.

Date Submitted 12/1/2015	Section 454	Proponent Centera John
Chapter 4	Affects HVHZ No	Attachments No
TAC Recommendation No Affirmative Recommendation with a Second		
Commission Action Pending Review		

Comments

General Comments Yes	Alternate Language No
-----------------------------	------------------------------

Related Modifications

Summary of Modification

454.1.2.5.3 Stairs - Remove the 48" restriction for the top step.

Rationale

The notion of the a wide first step being dangerous has no merit as those pools having ledges previously approved have not been cited for any known accidents resulting from their presence. Note the following hotels with ledges that are very popular and safe...
 THE DIPLOMAT HOTEL, HOLLYWOOD FLORIDA
 THE LOEWS HOTEL SOUTH BEACH
 THE DELANO HOTEL SOUTH BEACH

Fiscal Impact Statement

- Impact to local entity relative to enforcement of code**
No impact to cost relative to enforcement of code.
- Impact to building and property owners relative to cost of compliance with code**
No cost impact to building and proeprty owners relative to cost of comoliance with.
- Impact to industry relative to the cost of compliance with code**
No cost impact to industry relative to the cost of complianec with code.
- Impact to small business relative to the cost of compliance with code**
No cost impact to small business relative to the compliance with code.

Requirements

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**
This change poses no detriment or change to the health, safety, or welfare of the general public.
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**
Improves the code by allowing greater design flexibility for improved enjoyment by the patron bather of a wider stop step area.
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**
No, does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
- Does not degrade the effectiveness of the code**
No, does not degrade the effectiveness of the code

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

2nd Comment Period

Proponent Centera John	Submitted 6/20/2016	Attachments No
-------------------------------	----------------------------	-----------------------

SW6514-G3

Comment:
This code language proposal is being removed for further consideration, as it duplicates a pending proposed code change (SW6584) submitted by another proponent.

1st Comment Period History

Proponent bob vincent	Submitted 2/25/2016	Attachments No
------------------------------	----------------------------	-----------------------

SW6514-G1

Comment:
The hotels with a wet tanning deck listed in the Mod received code variances; and no others have been granted. Provisos included: attendant to assure no furniture in the water, plugging their umbrella holes, and multiple inlets in the shelf. We will provide additional information to the FBC prior to the TAC. The reasons for not allowing a step more than 4 feet wide is to prevent safety obstructions in unattended pools, to ascertain adequate recirculation of treated/filtered water in this shallow area since chlorine is depleted rapidly here with the intense sun, other water quality issues. The proposal SW 6584 is similar, and yet the Texas water lounges appear to be simply Florida pool benches, with a different allowed depth.

1st Comment Period History

Proponent	Centera John	Submitted	2/25/2016	Attachments	No
------------------	--------------	------------------	-----------	--------------------	----

SW6514-G2

Comment:

I see no water quality issues that cannot be overcome in shallow water areas that aren't already addressed in Zero Entry pools where the average depth will be very similar to wider first steps.

I don't see any safety issues (obstructions) with wider first steps as it is common practice now for bathers to sit on steps regardless of the width.

I am also not aware of any recorded accidents related to any of the subject pools outlined in the Mod. These pools are embraced by all who use them.

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) Stairs shall have minimum tread width of 10 (254 mm) inches and maximum tread width of 48 inches (1219 mm), except that the top step, if used as a flat ledge, be allowed to extend outward into the pool as long as other applicable step requirements of this code are met, for a minimum tread length of 24 inches (610 mm) and a maximum riser height of 10 inches (254 mm). Treads and risers between the top and bottom treads shall be uniform to within $\frac{1}{2}$ inch (12.7 mm) in width and height. The riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front $\frac{3}{4}$ to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (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 $\frac{3}{4}$ -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.

Date Submitted	12/7/2015	Section	454	Proponent	Bryan Holland
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

Yes. See Modification #6529 and #6530.

Summary of Modification

This modification adds electrical safety requirements to new swimming pools in response to the Commission's "Swimming Pool Electrical Safety Project" approved recommendations.

Rationale

This modification satisfies the electrical safety recommendation for new public & private (commercial) swimming pools as outlined in the Commission's "Swimming Pool Electrical Safety Project". The new language adds requirements for GFCI protection for outlets supplying electrical equipment at new public & private (commercial) swimming pools.

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

This proposed modification will have no impact on the local entity relative to enforcement of the code. GFCI protection of certain outlets is already required at new commercial swimming pools.

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

This proposed modification will increase the cost of compliance with the code to building and property owners.

Impact to industry relative to the cost of compliance with code

This proposed modification will have no impact on the cost of compliance with the code to industry.

Impact to small business relative to the cost of compliance with code

This proposed modification may increase the cost of compliance with the code to small business.

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

This proposed modification will increase the health, safety, and welfare of the general public by expanding the swimming pool outlets required to be GFCI protected at new commercial pools.

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

This proposed modification strengthens the code and improves the electrical safety of new commercial pools.

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

This proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

This proposed modification does not degrade the effectiveness of the 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?

YES

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

6531-A1	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale					

Both the 2014 & 2017 NEC eliminate the 15 and 20 Ampere restriction regarding pool pumps and now require GFCI protection for personnel on all 120 V and 240 V single phase pool pump motors, regardless of branch circuit current rating, to reduce hazards. Additionally, other proposals addressing pumps require GFCI installation regardless of branch circuit current rating (consistent with requirements in the NEC for new installations). Making the change here brings all sections into consistency. Regarding luminaires and other equipment except pool pump motors, the NEC requires GFCI protection only if the luminaires or other equipment operates over the LVCL and, based on the TAC comments at the 5/24/16 meeting, it appears that is also the intent of these changes. The language was revised to clarify this and eliminate possible confusion. GFCIs do not, and cannot, protect low voltage lights and equipment served through transformers and power supplies because they cannot sense ground faults on the low voltage side of the circuit.

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

Impact to Small Business relative to the cost of compliance with code

This proposed modification may increase the cost of compliance with the code to small business.

Requirements

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

Yes, provides consistency with the NEC, providing the latest in safety.

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

Yes, by ensuring language follows newer editions of the NEC.

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

Does not discriminate, etc.

Does not degrade the effectiveness of the code

Does not.

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

1st Comment Period History

SW6531-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment: I SUPPORT					

1st Comment Period History

SW6531-G2	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
	Comment: Support					

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6531-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. This proposal is generally consistent with the NEC. In terms of reference regarding prohibition of lights operating at voltages exceeding the LVCL, the NEC Code Panel has continually rejected such proposals. For example, in the 2017 NEC code cycle, NEC Code Panel CMP-17 (jurisdiction over 680) issued a panel statement rejecting Public Input No. 761-NFPA 70-2014 [Section No. 680.23(A)(4)] which proposed to allow only underwater luminaires over 18 Volts ac: "The code already has provisions and protective requirements that provide safe methods when properly installed and maintained, that allow luminaires above the 18 volt requirement desired here."
2. The voltage needs to be changed to "exceeding the low voltage contact limit" to maintain consistency with the NEC.

454.1.4.1 Electrical equipment and wiring. Electrical equipment wiring and installation, including the bonding and grounding of pool components shall conform comply with Chapter 27 of the Florida Building Code, Building. Outlets supplying pool pump motors connected to single-phase 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, and outlets supplying other electrical equipment and underwater luminaires operating at voltages greater than the Low Voltage Contact Limit, connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

454.2.16 Electrical. Electrical equipment wiring and installation, including the bonding and grounding of pool components equipment shall comply with Chapter 27 of the Florida Building Code, Building. Outlets supplying pool pump motors connected to single-phase 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, and outlets supplying other electrical equipment and underwater luminaires operating at voltages greater than the Low Voltage Contact Limit, connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

454.1.4.1 Electrical equipment and wiring. Electrical equipment wiring and installation, including the bonding and grounding of pool components shall conform with Chapter 27 of the Florida Building Code, Building. Outlets supplying pool equipment and underwater luminaires connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

454.2.16 Electrical. Electrical wiring and equipment shall comply with Chapter 27 of the Florida Building Code, Building. Outlets supplying pool equipment and underwater luminaires connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

Date Submitted	12/17/2015	Section	454	Proponent	Michael Weinbaum
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications**Summary of Modification**

Allows installation of water lounges or sunshelves into commercial pools, per requirements already successfully implemented in Texas.

Rationale

Many resort owners and the landscape architects they hire desire to install pools with water lounges for their customers. These lounges can be made safe with a few rules. The rules submitted here are found in the Texas administrative code, re-written to match the style of the Florida Building Code. These rules have worked for Texas for about 15 years

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
negligible

Impact to building and property owners relative to cost of compliance with code
No cost imposed on owners of existing properties, new possibilities for new properties.

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

Impact to small business relative to the cost of compliance with code
negligible

Requirements

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

Yes. A water lounge, if not properly marked, could hurt swimmers who run into the edge. Rather than ban all water lounges like the current code, calling for proper markings and predictable depth levels will allow bathers to enjoy water lounges but not add any new danger to 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

Alternate Language

2nd Comment Period

6584-A3

Proponent Michael Weinbaum Submitted 6/21/2016 Attachments Yes

Rationale

We wish to provide property owners and architects/pool designers with the flexibility they enjoy in other states to create this type of play and seating area while maintaining the high level of specific safety features typical of the Florida Building Code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

There will be a learning curve the first time a sun shelf is proposed, but no ongoing cost.

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

There are no additional costs imposed for owners who do not wish to install a sun shelf.

Impact to industry relative to the cost of compliance with code

This change does not require any novel equipment or finishes

Impact to Small Business relative to the cost of compliance with code

negligible

Requirements

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

A high level of specificity is given regarding signage, depth markers, and handrail placement for pools that will have this feature. All of these things help patrons stay safe while enjoying a sun shelf.

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

Yes, without this modification a sun shelf is simply banned in Florida.

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

This modification duplicates existing language in the code allowing various types of pool finishes including vinyl liners.

Does not degrade the effectiveness of the code

While this modification does allow a feature that was previously banned, it does so only under very narrow and specific mitigations.

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

Alternate Language

2nd Comment Period

6584-A2

Proponent Michael Weinbaum Submitted 6/20/2016 Attachments Yes

Rationale

This alternate language adds more specific language regarding how to mark the sun shelf area, whether or not it should be considered an access point to the pool, and what the water filtration rate in the sun shelf area must be.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This language is complex, however, it brings in existing code provisions that the local entity should already be familiar with wherever possible. Either way, the first time a local entity was tasked with reviewing plans that include a sun shelf, there was going to be a learning curve.

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

No new requirements are imposed on new or modified pools that are not intended to have a sun shelf, so any new code compliance costs may be avoided completely if the owner chooses not to build a sun shelf.

Impact to industry relative to the cost of compliance with code

No changes to equipment requirements at all.

Impact to Small Business relative to the cost of compliance with code

negligible

Requirements

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

This modification is rigorous in specifying depths and markings that are thought to ensure maximum user safety around the sun shelf area.

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

This modification allows property owners and developers to add a feature to their pools which is already being used in many pools in other states, while ensuring high water quality and guest safety in ways that are fit the structure of the Florida Building Code.

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

This modification builds in part on a previous modification to how bench markings are described. Ultimately, the contrasting markings may be of many different materials so long as they are permanent and slip resistant.

Does not degrade the effectiveness of the code

Conflicts between these new provisions and old provisions have been ferreted out, and in one case this meant a change to a seemingly unrelated provision, 454.1.2.2.3.

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6584-G1

Comment:

The Florida Swimming Pool Association opposes this proposed modification because having an obstruction in the pool is a safety issue. Further algae can grow on these types of lounges, causing someone to slip. In addition, there is no definition for what would constitute a water lounge.

"Sun Shelf" means an area of a pool that adjoins the pool wall with a water depth less than 12 inches, and is used for seating and play.

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. ~~m~~Multiple floor levels in pools are prohibited, however, an area meeting all of the requirements of a sun shelf shall not be considered a violation of this requirement.

454.1.2.3.5 Rules and regulations signage.

8. If the pool includes a sun shelf, "WARNING: DROP OFF AT SUN SHELF EDGE IS x FEET DEEP" in 4-inch (102 mm) letters.

9. If the pool includes a sun shelf, "DO NOT PLACE FURNITURE IN POOL."

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. Where stairs are used as an access point between a sun shelf and pool area, a handrail shall be provided. The hand rail shall be anchored into the bottom step and the sun shelf floor.

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 5 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, 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. The bench shall not protrude into the diving bowl.
3. A sun shelf may be installed in pool areas with no more than 4 feet (1219 mm) of water depth , or less. A sun shelf must have a dark contrasting slip resistant tile marking at the edge of the shelf and the pool wall extending 4 inches (102 mm) from the horizontal shelf edge surface. Additionally, a 2 inch (51 mm) contrasting tile line is required on the vertical pool wall at the edge of the shelf. Vinyl liner, stainless steel and fiberglass pools may use other material for the sun shelf edge marking as detailed in Section 454.1.2.3.1, Item 7, provided the material is permanently secured, dark in color, nonfading and slip resistant. A sun shelf shall not protrude into the 15-foot (4572 mm) clearance requirement of Section 454.1.2.6. A sun shelf shall not protrude into the diving bowl. A sun shelves must additionally comply with 454.1.2.8.

454.1.2.8 Sun shelves

454.1.2.8.1 Sun shelf Dimensional Requirements

Sun shelf areas must be a minimum of 20 inches (508 mm) wide and provide a minimum of 10 square feet (0.93 square meters) of horizontal surface adjoining on the edge of the pool over a distance of not less than 3 feet (914 mm). The sun shelf floor shall be horizontal or shall have uniform slope from a zero depth entry, and its maximum depth shall be between 8 inches (203 mm) to 12 inches (254 mm) below the water surface.

454.1.2.8.2 Depth Markers at sun shelves

Where a sun shelf is installed, wet deck-located depth and no-diving markers shall be placed every 20 feet (6096 mm) or less. If the vertical distance between the coping or wet deck and the shelf floor adjacent to the wall is 12 inches (305 mm) or less, these markers shall indicate the water depth of the sun shelf. Where vertical distance between the coping or wet deck and the shelf floor adjacent to the wall is more than 12 inches (305 mm), "No-Entry" markers as described in 454.1.9.6.4 shall be provided in the deck. Depth markers of the adjacent pool depth at the sun shelf edge, and no-dive markers shall be placed on the sun shelf floor, every 10 feet (3048 mm) or less, along a line no more than 1 foot (305 mm) back from the edge of the sun shelf above the deeper pool. All markers shall comply with Items 2, 6, and 7 of 454.1.2.3.1., except the distance between markers described in this section shall be followed.

454.1.2.8.3 Access to sun shelf

For the purposes of 454.1.2.5, a sun shelf area shall be considered an entrance to or exit from the pool. If the vertical distance between the coping and the shelf floor adjacent to the wall is more than 10 in (254 mm), stairs up to the deck or coping shall be provided which shall comply with 454.1.2.5.3 and 454.1.2.5.5, or a zero depth entry area, complying with 454.1.9.6, may be provided instead of stairs.

454.1.2.8.4 Sun Shelf Turnover Rate

Additional inlets shall be provided in the sun shelf area. The numbers and location shall be such as to ensure the volume of water in the shelf is filtered and chemically treated once every 60 minutes (1 hour) or less.

"Sun Shelf" means an area of a pool that adjoins the pool wall with a water depth less than 12 inches, and is used for seating and play.

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;~~ however, an area meeting all of the requirements of a sun shelf shall not be considered a violation of this requirement.

454.1.2.3.5 Rules and regulations signage.

8. If the pool includes a sun shelf, "WARNING: DROP OFF AT SUN SHELF EDGE IS FT DEEP"

9. If the pool includes a sun shelf, "DO NOT PLACE FURNITURE IN SUN SHELF."

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 stairs are provided connecting a sun shelf to a deeper area, the handrail shall be anchored in the bottom step and the sun shelf. 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.

454.1.2.6 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 5 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, 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. The bench shall not protrude into the diving bowl.
3. Sun Shelves may be installed in areas 4 ft (1219 mm) deep, or less. Sun shelves must have a dark contrasting tile marking on the edge between the shelf and the deeper pool extending 4 in (102 mm) on the horizontal and vertical surface. Additionally, a single 2 in (51 mm) contrasting tile line is required on the pool wall at the edge of the shelf. 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, provided the material is permanently secured, dark in color, nonfading and slip resistant. Sun shelves shall not protrude into the 15-foot (4572 mm) clearance requirement of Section 454.1.2.6. The sun shelf shall not protrude into the diving bowl. Sun shelves must additionally comply with 454.1.2.8.

454.1.2.8 Sun shelves

454.1.2.8.1 Sun shelf Dimensional Requirements

Sun shelf areas must be a minimum of 20 inches (508 mm) wide and provide a minimum of 10 square feet (0.93 square meters) of horizontal surface adjoining on the edge of the pool over a distance of not less than 3 feet (914 mm). The sun shelf area may be either horizontal or have uniform slope, and its maximum depth may be as little as 8 inches (203 mm) to as much as 12 inches (254 mm) below the water surface.

454.1.2.8.2 Depth Markers at sun shelves

Where a sun shelf is installed, deck-located markers shall be placed every 20 feet (6096 mm) or less. If the vertical distance between the coping and the shelf floor adjacent to the wall is 12 in (305 mm) or less, these markers shall indicate the water depth of the sun shelf with the words "AT EDGE". However, if the vertical distance between the coping and the shelf floor adjacent to the wall is more than 12in (305 mm), "No-Entry" markers as described in 454.1.9.6.4 shall be provided instead of depth markers in the deck.

An additional set of depth markers shall be placed on the sun shelf floor, every 10 feet (3048 mm) or less, along a line which is 1 foot (305 mm) back from the edge of the sun shelf above the deeper pool.

Both sets of markers shall comply with Items 2, 6, and 7 of 454.1.2.3.1.

454.1.2.8.3 Access to sun shelf

For the purposes of 454.1.2.5 or 454.1.8.4, a sun shelf area shall not be considered an entrance to or exit from the pool unless the vertical distance between the coping and the shelf floor adjacent to the wall is 10 in (254 mm) or less. In case the change in height is greater, and an entrance is called for in the area, stairs up to the deck or coping may be provided which shall comply with 454.1.2.5.3 and 454.1.2.5.5. Alternatively, a zero depth entry area, complying with 454.1.9.6, may be provided leading from the deck to the sun shelf.

454.1.2.8.4 Sun Shelf Turnover Rate

Additional inlets shall be provided in the sun shelf area. The numbers and location shall be such as to ensure the volume of water in the shelf is filtered and chemically treated once every 60 minutes (1 hour) or less.

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. ...
2. ...

3. Water Lounges may be installed in areas less than 4 ft (1219 mm) deep. Lounge areas must be a minimum of 20 inches wide and provide a minimum of 10 square feet of horizontal surface adjoining on the edge of the pool over a distance of not less than 3 feet. The lounge area must be horizontal and at a depth of 2 inches to 10 inches below the water surface. The lounge area 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 lounge edge marking as detailed in Section 454.1.2.3.1, Item 7, provided the material is permanently secured, dark in color, nonfading and slip resistant. Lounges shall not protrude into the 15-foot (4572 mm) clearance requirement of Section 454.1.2.6, nor shall they protrude into a diving bowl.

Date Submitted 12/31/2015	Section 454.1.9.8.6.8	Proponent Centera John
Chapter 4	Affects HVHZ No	Attachments No
TAC Recommendation	No Affirmative Recommendation with a Second	
Commission Action	Pending Review	

Comments

General Comments	Yes	Alternate Language	No
-------------------------	-----	---------------------------	----

Related Modifications

Summary of Modification

Eliminate requirement for duplicative water disinfection system for interactive water features (IWF's).

Rationale

The currently required duplicative chemical water treatment disinfection systems are unnecessary, as the two systems are fighting each other, creating incorrect readings on the ORP/pH controllers, resulting in improper water chemistry that could lead to potential bather safety issues.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.

Impact to building and property owners relative to cost of compliance with code
reduces cost to IWF owners for unnecessary, duplicative water chemistry disinfection system

Impact to industry relative to the cost of compliance with code
Pool contractors; costs will be reduced by removing this secondary disinfection requirement on IWF's.

Impact to small business relative to the cost of compliance with code
Manufacturers of disinfection systems will sell a few less systems.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Improves bather safety by eliminating potential cause of improperly disinfected water for IWF's (Interactive Water Features).

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves code by removing unnecessary requirement for secondary disinfection system that has potential to create improper water disinfection.

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

Does not degrade the effectiveness of the code
Does not degrade effectiveness of code.

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

1st Comment Period History

6987-A1	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	Yes	
	Rationale						
	The original proposal will adversely affect SW7074 in that it will triple the size requirement for the UV unit. There is no revealed criteria that justifies this modification. It also reduces the amount of chemical contact time before the water passes through the UV chamber. The alternative language proposed allows for more chemical contact time by increasing the size of the collector tank. Chloramines are removed when passing through a UV chamber if the UV is properly sized for the flow rate. If the UV system is oversized for the flow rate then free chlorine is removed as it passes through the chamber. This justifies the need for more chemical contact time in the tank before the water passes through the UV chamber. Increasing the filter rate may limit the potential kill power of chlorine while upsizing the tank will give the chlorine more kill time.						
	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						
Impact to Small Business relative to the cost of compliance with code							
Manufacturers of disinfection systems will sell a few less systems.							
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? No							

2nd Comment Period

SW6987-G1	Proponent	Centera John	Submitted	6/8/2016	Attachments	No
	Comment:					
Proposed modification # 6987 is being removed for further consideration by Proponent (John Centera) as of 6-8-16.						

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. If said system operates continuously and is capable of filtering the total volume of water in the collector tank in 30 minutes, the disinfection system is capable of providing 12 mg/l of disinfectant to this higher flow rate and the collector tank is sized to retain a minimum volume of 5 minutes of the flow of all feature pumps, then the chemical treatment system described in 454.1.9.8.6.1 is not required.

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. If said system operates continuously and is capable of filtering the total volume of water in the collector tank in 10 minutes (or less) and the disinfection system is capable of providing 12 mg/L of disinfectant to this higher flow rate, then the chemical treatment system described in 454.1.9.8.6.1 is not required.

Date Submitted 12/31/2015	Section 454.1.3.1.6	Proponent Centera John
Chapter 4	Affects HVHZ No	Attachments No
TAC Recommendation No Affirmative Recommendation with a Second		
Commission Action Pending Review		

Comments

General Comments No **Alternate Language** Yes

Related Modifications

Summary of Modification

454.1.3.1.6 Decks and Walkways - Remove language in the code that says 'feet', and leave pool perimeter obstruction allowance at the maximum 10%.

Rationale

The "or 10 feet" should be eliminated or increased to a reasonable distance (20'). 10' is far too little of a distance. A 20'x40' skimmer pool would merit a 12' obstruction (10% of 120' perimeter), and we are designing pools 4 to 6 times bigger than that. 10% is a fair amount to block at one time. Restricting it to 10' for a 400' perimeter pool, is only allowing 2.5% of the perimeter to be blocked at a time.

Fiscal Impact Statement

- Impact to local entity relative to enforcement of code**
No impact
- Impact to building and property owners relative to cost of compliance with code**
No impact
- Impact to industry relative to the cost of compliance with code**
No impact
- Impact to small business relative to the cost of compliance with code**
No impact

Requirements

- Has a reasonable and substantial connection with the health, safety, and welfare of the general public**
The proposed modification has no impact on the health, safety, or welfare of the general public.
- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction**
Allows greater design flexibility for larger pools without any detriment to bather patron safety. Would make pool areas more enjoyable for bather use.
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities**
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities (553.73(9) (a)4,F.S.)
- Does not degrade the effectiveness of the code**
Does not degrade the effectiveness of the code.

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

2nd Comment Period

7016-A5	Proponent	Centera John	Submitted	6/20/2016	Attachments	Yes
	Rationale	The initial proposed code change was modified to allow for greater access to pool patrons in distress from either side of the obstruction with the standard 16' straight pole and life hook that is required at all 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				
	Impact to Small Business relative to the cost of compliance with code	No impact				
	Requirements					
	Has a reasonable and substantial connection with the health, safety, and welfare of the general public	Yes. Initial proposed code language has been modified to provide greater access for a bather in distress near the proposed obstruction area(s).				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Yes. Allows for more reasonable design criteria for public pools, especially larger pools.				
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					

1st Comment Period History

SW7016-G1	Proponent	bob vincent	Submitted	2/25/2016	Attachments	No
	Comment:	This is same as SW6513, and very similar to SW7068. Eliminating the ten foot criteria is excessive, since that leaves the obstructed area at 10% only. The SW6513 writer states pools of perimeter of 720' are designed now, which is a 72' approvable obstruction. This is hardly guardable at a lifeguarded pool, and impossible for a lay person to rescue at an unguarded pool. Life hooks are only 16' long for reaching the pool bottom from the nearest deck point. Some reasonable maximum distance (perhaps 16') needs to remain in the code with the percentage, or life-safety mitigations need to be written into the code.				

454.1.3.1.6 Twenty percent of the deck along the pool perimeter may be obstructed as long as any one obstruction does not exceed ten percent **of the pool perimeter or ten feet (3048 mm), or twenty feet (6096 mm)**, whichever is less, in any one area **where water depth is five feet or less**. 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).

454.1.3.1.6 Twenty percent of the deck along the pool perimeter may be obstructed as long as any one obstruction does not exceed ten percent **of the pool perimeter** or ten feet (3048 mm), ~~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).

Date Submitted	1/1/2016	Section	454.1.1	Proponent	Jennifer Hatfield
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications**Summary of Modification**

Amends definitions and adds a new definition.

Rationale

An interactive water feature is a public swimming pool regulated by the department of health for water quality and safety features; this proposal simply clarifies that it is a type of public swimming pool. The proposal also removes decking from the definition of modification and defines a vanishing edge pool, which is currently not defined in the code.

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

Impact to small business 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, it makes clarifications necessary for the welfare of the public.

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

Yes by clarifying that a IWF is a public pool and adding a definition that currently does not exist.

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

It does not discriminate.

Does not degrade the effectiveness of the code

It does not degrade the effectiveness of the code.

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

Alternate Language

2nd Comment Period

7058-A3	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale	An interactive water feature is a public swimming pool regulated by the department of health for water quality and safety features; this proposal simply clarifies that it is a type of public pool. The proposal also removes the term modification because it is not necessary; the definitions already found within the Code for alteration and repair would appear to sufficiently describe work being done on an existing public 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	None				
	Impact to industry relative to the cost of compliance with code	None				
	Impact to Small Business 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, it makes clarifications necessary for the welfare of the public by ensuring an IWF is considered a public pool.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Yes by clarifying that a IWF is a public pool and removing a term no longer needed.				
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

7058-A2	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale	An interactive water feature is a public pool regulated by the department of health for water quality and safety features; this proposal clarifies that it is a type of public swimming pool. The proposal also removes decking from the definition of modification.				
	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				
	Impact to Small Business 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, it makes clarifications necessary for the welfare of the public by ensuring an IWF is defined as a public pool.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Yes by clarifying that an IWF is a public pool and removing an item that is not actually a modification.				
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

7058-A1

Proponent Jennifer Hatfield Submitted 6/21/2016 Attachments Yes

Rationale

An interactive water feature is a public swimming pool regulated by the department of health for water quality and safety features; this proposal simply clarifies that it is a type of public swimming 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

None

Impact to industry relative to the cost of compliance with code

None

Impact to Small Business 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, it makes clarifications necessary for the welfare of the public by ensuring an IWF is considered a public pool.

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

Yes by clarifying that a IWF is a public pool it strengthens the code.

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

1st Comment Period History

SW7058-G1

Proponent bob vincent Submitted 2/25/2016 Attachments No

Comment:

I disagree that decking should be struck; in most cases, this is a modification. This is applicable to the wet deck only, and has consequences on slip resistance, injury potential, and water quality if the wet deck is not properly sloped to drain. The proposed vanishing edge pool currently has code term for the gutter system: deck level perimeter overflow system.

Renumber Definitions as 454.1.2 (currently sits under 454.1.1 Flood Hazard areas) and amend as follows:

"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. The collector tank and water filtration features required make this structure a type of public swimming pool.

"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.~~

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, interactive water feature 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.

Renumber Definitions as 454.1.2 (currently sits under 454.1.1 Flood Hazard areas) and amend as follows:

"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. The collector tank and water filtration features required make this structure a type of public swimming pool.

"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.

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, interactive water feature 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.

Renumber Definitions as 454.1.2 (currently sits under 454.1.1 Flood Hazard areas) and amend as follows:

"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. The collector tank and water filtration features required make this structure a type of public swimming pool.

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, interactive water feature 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.

Renumber Definitions as 454.1.2 (currently sits under 454.1.1 Flood Hazard areas) and amend as follows:

"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. The collector tank and water filtration features required make this structure a type of public swimming pool.

"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.

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, interactive water feature 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.

"Vanishing Edge Pool" means a water-feature detail in which water flows over the edge of at least one of the pool walls and is collected in a catch basin. Also called "negative edge pool" and "infinity pool."

Date Submitted	1/1/2016	Section	454.1.9.6.3	Proponent	Jennifer Hatfield
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language** Yes

Related Modifications**Summary of Modification**

Better defines color value of allowable pool surface colors.

Rationale

The existing code language is somewhat arbitrary and subjective. Pool surface manufacturers today have a plethora of surface colors available and a quantified color value is needed to provide installers direction for proper installation.

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

Impact to small business 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. Lighter pool surface colors make a pool or spa safer so as not hinder visibility of a bather in distress.

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

Yes. This quantifies an acceptable color value for pool and spa surfaces, lessening the possibility of an installer applying an improper surface color.

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 the effectiveness of the code.

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

2nd Comment Period

7073-A1	Proponent	Centera John	Submitted	6/21/2016	Attachments	Yes
	Rationale	<p>“The Lightness (CIE L value) represents the whiteness of a finish surface when compared on a grey scale, where 0 = black and 100 = white. The Luminous Reflectance Value (CIE Y value) represents the brightness and contrast of a finish surface as a perceived visual response of the human eye. While neither value is a true representation due to metamerism, knowing both values allows additional insight into the anticipated aesthetic characteristics of a finish when placed in a water-submersion environment.”</p>				
	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	Reduces potential negative financial impact by clarifying allowable surface colors by providing a standard and testing method to prevent installation and cost replacement of improper pool surfaces installed in public pools and spas.				
	Impact to Small Business 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. Color requirements intend to limit pool surface colors to allow for visibility of pool bathers in distress, and subsequent rescue efforts.				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	Same pool and spa interior finish products, just defining allowable color values.				
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities	No.					
Does not degrade the effectiveness of the code	No, this proposed code change improves code.					
Is the proposed code modification part of a prior code version?	No					

1st Comment Period History

SW7073-G1	Proponent	bob vincent	Submitted	2/25/2016	Attachments	No
	Comment:	<p>Munsell color of the base marcite probably will not work as we have recently discovered from discussions initiated by the FSPA with one manufacturer of these products. They have provided info on a better standard that should be explored to make this an objective measurable science-based standard, more like tile slip resistance is. The proposal should be changed to light reflectance as another large state uses. More info in being gathered now, and should be ready for the TAC to review.</p>				

1st Comment Period History

SW7073-G2	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
	Comment:	<p>The FL Swimming Pool Association, along with the United Pool & Spa Association, has been investigating this proposal further after information was provided that although well intentioned, the current proposal is flawed as many different Munsell color charts exist. The Associations have been working with manufacturers to determine alternative language that will accomplish the original intent of the proposal. Final alternative language will be presented at the April 4 meeting, but DRAFT language that had yet to be solidified by all parties by the written comment deadline is as follows:</p> <p>“The interior finish coating floors and walls shall be comprised of a non-pigmented white cementitious binder component together with a sand/aggregate component. The finish coating shall have a dry Lightness level (CIE L value) of 80.0 or greater and a wet Luminous Reflectance Value (CIE Y value) of 50.0 or greater, as determined by test results provided by the manufacturer, utilizing testing methodology from American Standard ASTM D 4086, ASTM E 1477, ASTM E 1347 and British Standard BS 8493:2008+A1:2010.”</p>				

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. The interior finish coating floors and walls shall be comprised of a non-pigmented white cementitious binder component together with a sand/aggregate component. The finish coating shall have a dry Lightness level (CIE L value) of 80.0 or greater and a wet Luminous Reflectance Value (CIE Y value) of 50.0 or greater, as determined by test results provided by the manufacturer, utilizing testing methodology from American Standard ASTM D 4086, ASTM E 1477, ASTM E 1347. Pools constructed of fiberglass, thermoplastic, or stainless steel shall be subject to the same interior finish color requirements.

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.

454.1.2.4 Color. Pool floors and walls shall be white or light pastel in color with a neutral Munsell Color Value of 8.0 or higher 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.

Date Submitted 1/1/2016
Chapter 4

Section 454.1.9.8.6.3
Affects HVHZ No

Proponent Jennifer Hatfield
Attachments Yes

TAC Recommendation No Affirmative Recommendation with a Second
Commission Action Pending Review

Comments

General Comments No

Alternate Language Yes

Related Modifications

Summary of Modification

Allows for UV systems to be installed on the filter return lines as an alternate to the feature return line placement.

Rationale

Allows for UV systems to be installed on the filter return lines as an alternate to the feature return line placement.

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

Could decrease the cost of the recirculation system.

Impact to industry relative to the cost of compliance with code

None

Impact to small business 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 affects the recirculation system of an interactive water feature using a UV system.

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

Yes, it reduces the need for maintenance and makes a more efficient system.

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 the effectiveness of the code.

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

2nd Comment Period

7074-A1	Proponent	bob vincent	Submitted	6/21/2016	Attachments	Yes	
	Rationale						
	<p>There is another IWF code proposal #6987, that attempts to simplify confusing legacy language. I suggest we rewrite this above section entirely to assure that full treatment will occur with either one of the suggested UV treatments for direct path treatment or recycling treatment. Also attached is supporting information with the waterborne disease outbreak/cases counts for Florida pools, and an email from our Epidemiology section describing the rationale for change. Here is an excerpt: Health Burden • The number of reported cases and cost of cryptosporidiosis in the United States continue to be substantial. Approximately 748,000 cryptosporidiosis cases occur annually. Each year, hospitalizations resulting from cryptosporidiosis cost an estimated \$45.8 million; additionally, each ambulatory care visit for cryptosporidiosis costs \$267–\$757, depending on the patient's type of health-care insurance coverage. (http://origin.glb.cdc.gov/Mmwr/preview/mmwrhtml/ss6105a1.htm) • Reported cryptosporidiosis cases and outbreaks likely underestimate the actual cryptosporidiosis burden in the United States. Infection with enteric pathogens is highly underreported because (1) not all infected persons are symptomatic, (2) those who are symptomatic do not always seek medical care (Scallan et al., 2006 and Voetsch et al., 2004), (3) health-care providers infrequently include laboratory diagnostics in their evaluation of non-bloody diarrheal diseases (Scallan et al., 2006), (4) a majority of laboratories do not test for Cryptosporidium unless it is specifically requested (Jones et al., 2004), (5) case reports are not always completed for positive laboratory results (Mead et al., 1999), and (6) reports are not always forwarded to public health officials (Mead et al., 1999). (doi:10.1016/j.exppara.2009.09.020) • See attachment</p>						
	Fiscal Impact Statement						
	Impact to local entity relative to enforcement of code						
	Should be simpler.						
	Impact to building and property owners relative to cost of compliance with code						
	Balanced with cost of patrons disease outbreak, it is less.						
	Impact to industry relative to the cost of compliance with code						
	Simpler to design, assemble and operate, thus should cost less.						
Impact to Small Business 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 of patrons is better outcome for this change.							
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction							
Absolutely improves the design criteria and the better outcome.							
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities							
Does not.							
Does not degrade the effectiveness of the code							
Does not.							
Is the proposed code modification part of a prior code version? No							

1st Comment Period History

SW7074-G1	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	Yes
	Comment:					
<p>Additional information has been provided for consideration by FSPA and UPSA member Al Mendoza on this proposal. Specifically, in regards to the changes proposed to section 454.1.9.8.6.3, Mr. Mendoza does not agree with the amendment as proposed. The main reason he believes we should not treat only the tank water in a filtration loop is that science has shown that you cannot be assured that all of the water in the tank during operational hours and even during non operational hours is being filtered on a timely manner, no less before it goes to the feature pump and out to the patrons. We are often pulling water back out of the tank that has not gone through filtration. We also know that are dead spots of unfiltered/treated water through the CFD modeling testing that was completed by various manufacturers. It is his opinion that allowing this would be a great disservice to the patrons and safety in our industry. The initial proposal and this additional information will be discussed within the industry associations, with the goal to bring additional information with an industry position to the April 4 meeting. Additional information provided by Mr. Mendoza is also attached.</p>						

454.1.9.8.6.1 Strike all, and Add:

All (100%) of the water from the collector tank must be first filtered, treated with disinfectant and pH adjustment chemicals, and then final treatment provided by an NSF Standard 50 certified UV disinfection unit with a minimum 40 mJ/cm² dose before any of this treated water is piped to the water features.

-

454.1.9.8.6.2 Strike all, and Add:

In the design above and the alternative below: excess water not required by the water features shall be returned to the collector tank; the recirculation system shall be sized to treat the contained volume of water based upon a 30 minute turnover with a chlorine feeder/generator capable of producing a dosage of at least 12ppm; and 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.

-

454.1.9.8.6.3 Strike all, and Add:

In lieu of 454.1.9.8.6.1, the recirculation system must be designed to continuously return 100% of the water to the collector tank after all (100%) of the water is first filtered, treated with disinfectant and pH adjustment chemicals, and the final treatment provided by a validated UV disinfectant unit described in 454.1.6.5.16.6 before any of this treated water is piped to the water features.

-

454.1.9.8.6.8 Delete this code section as unnecessary

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 collector tank through the filter system spray feature(s) must also be treated with an Ultraviolet (UV) light disinfection unit 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 interactive water spray features pump(s) and flow will be immediately stopped.

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 jurisdictional building 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/lt2/pdfs/guide_lt2_uvguidance.pdf.
4. UV equipment shall constantly produce a validated dosage of at least 40 mJ/cm² (milliJoules per square centimeter) at the end of lamp life.
5. The UV equipment shall not be located in a side stream flow and shall be located to treat all water returning to the pool or water features collector tank.

Additional information from: Alvaro G. Mendoza, Commercial Energy Specialists

UV destroying chlorine: Proper design and installation eliminates this issue. Most validated UV units allow programmable ramp down of UV intensity during off peak time, so excessive Chlorine consumption has not been an issue. Also when an activator is used, the UV system should be installed in a bleed loop back tot he tank (standby mode) and then activated to proper disinfection level when the feature pump turns back on. This is very commonplace, easy to add, and quite inexpensive. Flow switches should not be used when sensors/activators are used because of the delayed restart with a typical validated UV lamp. The bleed loop design has been in use successfully for more than 10 years.

Per UV wiper systems: UV wiper systems require maintenance, and are part of the annual preventative maintenance (PM) requirements required by UV manufacturers. They have historically not been problematic unless the PM process has been neglected for more than a year.

Per the Crypto on the pad and wash-down:

1. Crypto is shed in the feces of infected humans and animals. People become infected by ingesting the organism. Crypto can be spread person-to-person or animal-person contact and by drinking contaminated water. Infected individuals can shed the organism in their stool for several weeks after they recover from the illness. Because cryptosporidiosis is transmitted by the fecal-oral route, the greatest potential to transmit the organism comes from infected people who have diarrhea, people with poor personal hygiene, and diapered children.
2. Therefore, contact on the pad unless they ingest it is not likely. The primary reason for using UV on splash pads is because the interactive water features create sprays of water that children ingest.
3. If full flow UV is used, even Crypto present in the tank will be inactivated in a single pass as long as the flow rate is within the EPA validation guidelines. A side-stream system could not make that claim.

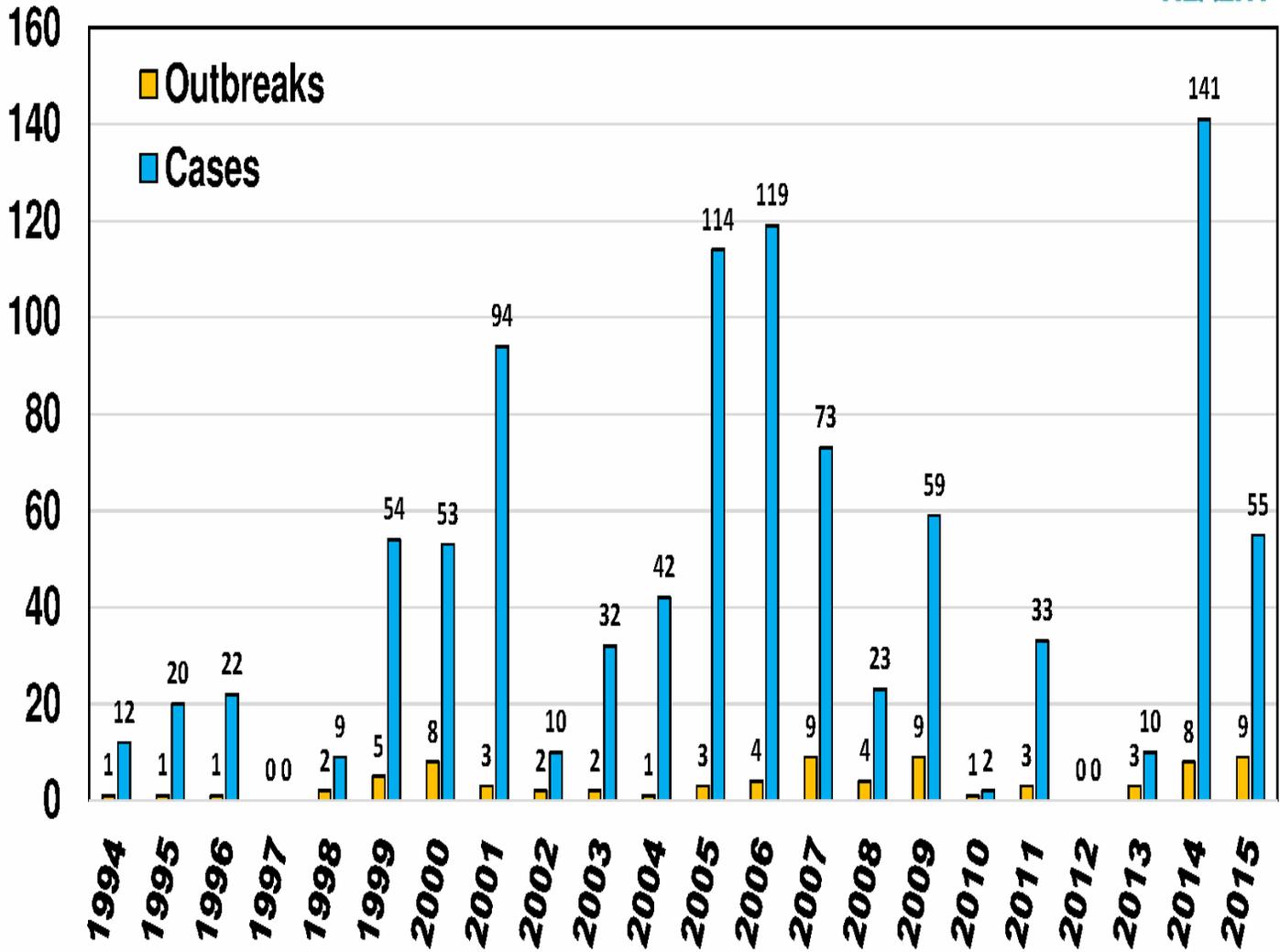
Per cost of side stream versus full flow and safety:

1. It is clear that full flow validated UV provides 99.9% single pass inactivation of crypto up to the validated flow rate. A side stream system will not.
2. There are only a finite amount of validated units on the market, each with a

well defined flow rate.

3. While a side stream system might be slightly less money, few to none currently exist in the 50-75 GPM range so a contractor would be using virtually the same size unit on a side stream or full stream on smaller pads <200 GPM.
4. If units were to be developed for a lower flow rate, they would still be required to fulfill other requirements, like real time intensity monitoring, etc. and capital cost savings are yet to be established.
5. If a contractor wants a cheap alternative to UV protection against Crypto, they can always provide full flow filtration as allowed by the code.

Reported Recreational Waterborne Outbreaks (n=79) and Cases (n=977), Florida 1994-2015



“Below is additional information on the health burden and UV disinfection at public swimming pools from CDC and peer-reviewed journals. Hope you find some of the information useful.

Health Burden

- The number of reported cases and cost of cryptosporidiosis in the United States continue to be substantial. Approximately 748,000 cryptosporidiosis cases occur annually. Each year, hospitalizations resulting from cryptosporidiosis cost an estimated \$45.8 million; additionally, each ambulatory care visit for cryptosporidiosis costs \$267–\$757, depending on the patient's type of health-care insurance coverage. (<http://origin.glb.cdc.gov/Mmwr/preview/mmwrhtml/ss6105a1.htm>)
- Reported cryptosporidiosis cases and outbreaks likely underestimate the actual cryptosporidiosis burden in the United States. Infection with enteric pathogens is highly underreported because (1) not all infected persons are symptomatic, (2) those who are symptomatic do not always seek medical care (Scallan et al., 2006 and Voetsch et al., 2004), (3) health-care providers infrequently include laboratory diagnostics in their evaluation of non-bloody diarrheal diseases (Scallan et al., 2006), (4) a majority of laboratories do not test for *Cryptosporidium* unless it is specifically requested (Jones et al., 2004), (5) case reports are not always completed for positive laboratory results (Mead et al., 1999), and (6) reports are not always forwarded to public health officials (Mead et al., 1999). (doi:10.1016/j.exppara.2009.09.020)

Ultraviolet Irradiation

- Prevention and control measures include (1) practicing good hygiene (e.g., not swimming when ill with diarrhea and washing hands appropriately); (2) avoiding contaminated water (e.g., not swallowing recreational water), using secondary or supplementary treatment systems (e.g., ultraviolet irradiation or ozonation) to inactivate *Cryptosporidium* in treated recreational water venues, and treating and filtering drinking water to inactivate or remove the parasite sufficiently; (3) exercising caution when traveling; and (4) avoiding fecal exposure during sexual activity (Box). (<http://origin.glb.cdc.gov/Mmwr/preview/mmwrhtml/ss6105a1.htm>)
- The increasing number of reports of treated recreational water--associated outbreaks of cryptosporidiosis and their potential to evolve into communitywide outbreaks also call for prevention measures beyond conventional chlorination and filtration. Ultraviolet and ozone disinfection systems can effectively inactivate *Cryptosporidium* and are available for use at treated recreational water venues. Remedial biocidal treatment (i.e., hyperchlorination: 20 mg/L free chlorine for 12.75 hours or the equivalent at water pH ≤ 7.5 and temperature at $\geq 77^{\circ}\text{F}$ [25°C] in the absence of stabilized chlorine or 40 mg/L free chlorine for approximately 30 hours at water pH 6.5 and temperature at $\geq 77^{\circ}\text{F}$ [25°C] in the presence of stabilized chlorine) is another potential risk-reduction option. Increased circulation flow rates and occupancy-dependent water replacement might also help reduce risk. (http://origin.glb.cdc.gov/mmwr/preview/mmwrhtml/ss6012a1.htm?s_cid=ss6012a1w)
- The traditional paradigm of two barriers (disinfection and filtration) to pathogen transmission in treated recreational water needs to shift to include in-line (i.e., usually installed after filtration and before disinfection) secondary or supplemental treatment

(e.g., ultraviolet treatment or ozonation). Ultraviolet and ozone treatment not only will increase the level of protection against chlorine-tolerant *Cryptosporidium* but also will break down chloramines. Because these systems depend on circulation, they alone will not eliminate outbreaks; a commitment to monitoring and maintaining water quality and educating the public (e.g., including healthy swimming messages in posters in bathrooms, on the back of ticket stubs, and in contracts for group events) also is critical. (http://origin.glb.cdc.gov/mmwr/preview/mmwrhtml/ss6012a1.htm?s_cid=ss6012a1w)

Additional Info

- One could reason that toddler pools (such as Interactive Water Features) would present the highest infection risk to a bather because of the frequency of use by diaper-aged children, who are more likely to be shedding *Cryptosporidium* oocysts (due to higher incidence in this age group) and not yet toilet-trained. However, this risk assessment illustrates that risk of infection can be just as significant in natural water venues or lane pools if they are contaminated (Fig. 1). (DOI: 10.1111/j.1539-6924.2009.01321.x) “

David Dekevich, MPH

Florida Integrated Food Safety Center of Excellence Liaison
Bureau of Epidemiology
Division of Disease Control and Health Protection
Florida Department of Health
1217 North Pearl Street
Jacksonville, FL 32202

Florida Playstructures and Water Features Inc.

Consultants -- Sales -- Installation
 Commercial/Residential – Playstructures & Accessories
Designing adventures Building with green technology
 Certified General Contractor CGC1520229
 Commercial Pool & Spa License CPC1457810
 Electrical License EC13002736
 NPCAI Certified Playground Installer 2015-1236
 CPSI 31529-618

1808 James Redman Parkway #178
 Plant City, FL 33563

813-704-4395 Office
 813-754-9703 Fax



www.floridaplaystructures.com

info@floridaplaystructures.com

December 11, 2015

Interactive Water Feature UV treatment

A perspective of potential change regarding this subject as it pertains to the Florida Building Code section 454.

The current code requirements for the inclusion of Ultra-Violet light purification as mandated by the Florida Health Department on Interactive Water Feature systems needs to be revisited. The code requires, simply stated, that a splash pad must either utilize a certified UV system that shall be placed on the feature pump discharge line(s) before water is returned to the feature nozzles or the recirculation system may utilize 100% filtration on the feature water immediately before returning to the features.

Since this language was initially introduced in the original 64E.9 DOH code years ago we, as an industry, have had time to consider the benefits and problems it allowed. Here are a few points that I believe need to be considered for modification:

- 1) Ultra-violet light has the potential to destroy Chlorine. Even though subsequent Chlorine is injected into the return line after the UV chamber, water treated with chlorine is pumped through the UV light when the feature pump is on. If the UV is oversized for the application there is an even greater potential for destruction of Chlorine in the water. There is currently no language in the code that remedies this issue.
- 2) Since the code requires that if UV is used on an IWF it must be installed on and sized for the flow requirement of the feature discharge line. Feature pumps do not generally operate constantly during the day. They operate based on a touch sensor or activator that turns the pump on for several minutes and then off until reactivated. This eliminates the flow of water through the UV light chamber which may cause maintenance issues. Some medium intensity units use flow switches that turn the UV unit off

and require a cool down period before restarting. UV units that incorporate lens wipers are particularly prone to maintenance problems.

- 3) Cryptosporidium Protozoa is the primary reason that UV is used in these applications. Crypto has the potential to enter the Splash Pad through human or animal fecal matter on the pad. While this Protozoa is on the pad patrons are still susceptible to contact. UV has no effect on the protozoa unless it passes through the light chamber in the recirculation system. Water that passes through the UV chamber and then comes in contact with Crypto on the pad has no effect on it. While the feature pump is off Crypto is able to reproduce. Rain will wash the protozoa down the drain and into the collection tank which is filtered, but not passed through the UV unit during the systems off hours since the UV is only on the feature pump line.
- 4) Since the options are either UV on the feature discharge line or 100% filtration, most contractors will opt for the latter due to the extreme costs of UV units. Even though UV is a superior option for sterilizing Crypto than filter removal, extreme costs tend to limit the budgets of many applications around the State.

In summary I would like to propose an alternate option to be implemented into the Florida code for Interactive Water Features which allows for UV systems to be installed on the filter return lines as an alternate to the feature return line placement. Here are the benefits:

- 1) Double loop recirculation systems incorporate a smaller pump that is sized to turn the contents of retained water in the collector tank in 30 minutes or less. This alone would allow for a much smaller, yet just as effective alternative UV unit to help reduce the cost of the recirculation system.
- 2) The filter pump is required to operate 24 hours a day at a constant flow rate. This factor reduces the potential for UV units to consume halogens (chlorine) from the water when feature flow rates are reduced due to VFD or sequencing valve produced flow reductions.
- 3) Since the filter recirculation system is in operation after park hours the UV unit will continue to sterilize Crypto that has been collected in the tank as well as any additional that is washed into the tank during rainy conditions. The total volume of water in the tank will be processed through the UV light chamber a minimum of once every 30 minutes or more. This provides more potential for sterilization of Crypto prior to park opening each morning. (approximately 24 additional turnovers based on 9:00PM closing and 9:00AM opening)
- 4) All water will be filtered immediately prior to passing through the UV light cell. This reduces the need for maintenance and removes larger debris that may restrict the effectiveness of the light.

I would propose the language under section 454.1.9.8.6.3 be amended to read as follows:

“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% returned to the collector tank by manifold piping. If this alternative is chosen, all water returned to the collector tank through the filter system must also be treated with an Ultraviolet (UV) light disinfection unit to accomplish protozoan destruction in accordance with sound engineering and the requirements at paragraph 454.1.6.5.16.6. The UV disinfection unit shall be electrically interconnected such that whenever it

fails to produce the required UV dosage, the splash pad (IWF) feature pump(s) and flow will be immediately stopped.”

In conjunction with the previous language under section 454.1.9.8.6.3, I would also propose the language under section 454.1.6.5.16.6 be amended to read as follows:

“The UV equipment shall not be located in a side stream flow and shall be located to treat all filtered water returning to the pool or water feature collector tank.”

Thank you for this consideration.

Respectfully,

Carl Shoffstall
FLORIDA PLAYSTRUCTURES & WATER FEATURES INC
Commercial Pool and Spa Contractor CPC1457810
Certified General Contractor CGC1520229
Electrical Contractor EC13002753
NPCAI Certified Playground Installer #2011-1108
CPSI 20460-0715
813-967-2687 cell

Sub Code: Existing Building

SW6529

15

Date Submitted	12/7/2015	Section	302.6	Proponent	Bryan Holland
Chapter	3	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language** Yes

Related Modifications

Yes. See Modification #6530 and #6531.

Summary of Modification

This modification adds electrical safety requirements to existing swimming pools in response to the Commission's "Swimming Pool Electrical Safety Project" approved recommendations.

Rationale

This modification satisfies the electrical safety recommendation for existing swimming pools as outlined in the Commission's "Swimming Pool Electrical Safety Project". The new language adds requirements for GFCI protection and equipotential bonding at existing swimming pools undergoing repair, replacement, alterations, or relocation.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposed modification will increase the number of permits and inspections required for repairs and alterations of existing swimming pools.

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

This proposed modification will increase the cost of repair and alteration of existing swimming pools by mandating the installation of GFCI devices and requirements for equipotential bonding.

Impact to industry relative to the cost of compliance with code

This proposed modification will not have a negative impact on industry.

Impact to small business relative to the cost of compliance with code

This proposed modification will increase the cost of repair and alteration of existing swimming pools by mandating the installation of GFCI devices and requirements for equipotential bonding.

Requirements

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

This proposed modification will increase the health, safety, and welfare of the general public by mandating the installation of GFCI devices and requirements for equipotential bonding at existing swimming pools.

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

This proposed modification strengthens the current code and improves the electrical safety of existing swimming pools.

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

This proposed modification does not discriminate against materials, products, methods, or system of construction.

Does not degrade the effectiveness of the code

This proposed modification does not degrade the effectiveness of the code.

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

2nd Comment Period

6529-A1	Proponent	Bryan Holland	Submitted	6/9/2016	Attachments	Yes
	Rationale	<p>This alternative language continues to satisfy the electrical safety recommendations for existing swimming pools outlined in the Commission's Swimming Pool Electrical Safety Project. This modification will also harmonize the existing building code with the modification to the building and residential code through MOD #6530 and #6531 which have been recommended for approval by the Electrical TAC. Approval of this one MOD eliminates the need for MOD #6496, #6493, and #6494.</p>				
	Fiscal Impact Statement					
	Impact to local entity relative to enforcement of code	<p>This proposed modification will increase the number of permits and inspections required for repairs and alterations of existing swimming pools.</p>				
	Impact to building and property owners relative to cost of compliance with code	<p>This proposed modification will increase the cost of repair and alteration of existing swimming pools by mandating the installation of GFCI devices and adding requirements for equipotential bonding.</p>				
	Impact to industry relative to the cost of compliance with code	<p>This proposed modification will not have a negative impact on industry.</p>				
	Impact to Small Business relative to the cost of compliance with code	<p>This proposed modification will increase the cost of repair and alteration of existing swimming pools by mandating the installation of GFCI devices and requirements for equipotential bonding.</p>				
	Requirements					
	Has a reasonable and substantial connection with the health, safety, and welfare of the general public	<p>This proposed modification will increase the health, safety, and welfare of the general public by mandating the installation of GFCI devices and by adding requirements for equipotential bonding at existing swimming pools.</p>				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	<p>This proposed modification strengthens the current code and improves the electrical safety of existing swimming pools.</p>				
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities	<p>This proposed modification does not discriminate against materials, products, methods, or system of construction.</p>					
Does not degrade the effectiveness of the code	<p>This proposed modification does not degrade the effectiveness of the code.</p>					
Is the proposed code modification part of a prior code version?	No					

1st Comment Period History

SW6529-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment:	I SUPPORT				

1st Comment Period History

SW6529-G2	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
	Comment:	Support				

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6529-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. The proposal is vague and does not clarify if relamping is a criterion for retrofit.
2. The NEC does not allow underwater lights greater than 150V, so the 240V reference is inapplicable.
3. This proposal can accomplish what it appears to intend (as to the details) by simply requiring the lamp installation to comply with the NEC edition adopted at the time of the alteration. The detailed text requirements are unnecessary and redundant.
4. The proposal correctly recognizes that low voltage lights are not protected by GFCIs, and therefore GFCI protection for personnel is not required for low voltage lights.

302.6 Swimming Pools. The provisions of Sections 302.6.1 and 302.6.2 apply to all alterations, repairs, additions, and relocation of equipment at existing swimming pools regardless of compliance method.

302.6.1 Ground-Fault Circuit-Interrupter Protection for Personnel. Outlets supplying repaired, replaced, altered, or relocated pool pump motors connected to single-phase, 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, and outlets supplying all other repaired, replaced, altered, or relocated electrical equipment and underwater luminaires operating at voltages greater than the low voltage contact limit, connected to single-phase, 120-volt through 240-volt branch circuits, rated 15- and 20-amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

302.6.2 Equipotential Bonding. Any of the parts specified in 680.26(B)(1) through (B)(7) of the NFPA 70, *National Electrical Code* that are repaired, replaced, altered, or installed new at an existing swimming pool shall be bonded together using solid copper conductors, insulated, covered, or bare, not smaller than 8 AWG or with rigid metal conduit of brass or other identified corrosion-resistant metal. Connections to bonded parts shall be made in accordance with 250.8 of the NFPA 70, *National Electrical Code*. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Where none of the bonded parts is in direct connection with the pool water, the pool water shall be in direct contact with an approved corrosion-resistant conductive surface that exposes not less than 5800 mm² (9 in.²) of surface area to the pool water at all times. The conductive surface shall be located where it is not exposed to physical damage or dislodgement during usual pool activities, and it shall be bonded in accordance with 680.26(B) of the NFPA 70, *National Electrical Code*.

302.6 Swimming Pools. Outlets supplying repaired, replaced, altered, or relocated pool equipment and underwater luminaires connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel. Any of the parts specified in 680.26(B)(1) through (B)(7) of the NFPA 70, *National Electrical Code* that are repaired, replaced, altered, or installed new at an existing swimming pool shall be bonded together using solid copper conductors, insulated, covered, or bare, not smaller than 8 AWG or with rigid metal conduit of brass or other identified corrosion-resistant metal. Connections to bonded parts shall be made in accordance with 250.8 of the NFPA 70, *National Electrical Code*. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Where none of the bonded parts is in direct connection with the pool water, the pool water shall be in direct contact with an approved corrosion-resistant conductive surface that exposes not less than 5800 mm² (9 in²) of surface area to the pool water at all times. The conductive surface shall be located where it is not exposed to physical damage or dislodgement during usual pool activities, and it shall be bonded in accordance with 680.26(B) of the NFPA 70, *National Electrical Code*.

Date Submitted	11/22/2015	Section	413	Proponent	Mo Madani
Chapter	4	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

6491

6492

Summary of Modification

The proposed code change requires GFCI protection be provided for replacement of pool pump motors, if not already in place.

Rationale

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools by requiring GFCI protection.

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

Further enforcement/inspections would be necessary by the enforcement agencies to implement this provision.

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

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to industry relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to small business relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Requirements

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change does not discriminate against materials or products.

Does not degrade the effectiveness of the code

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

2nd Comment Period

6493-A1	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale					
	(1) Language clarified for pumps to maintain consistency with other provisions. (2) Language changed to "underwater luminaires" from "pool lights" to maintain consistency with other provisions. Regarding underwater luminaires (pool lights), the NEC requires GFCI protection only if the luminaires or other equipment operates over the LVCL and, based on the TAC comments at the 5/24/16 meeting, it appears that is also the intent of these changes. The language was revised to clarify this and eliminate possible confusion. GFCIs do not, and cannot, protect low voltage lights and equipment served through transformers and power supplies because they cannot sense ground faults on the low voltage side of the circuit.					
	Fiscal Impact Statement					
	Impact to local entity relative to enforcement of code					
	If permit and inspection are required, will be an additional workload. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to building and property owners relative to cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to industry relative to the cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
Impact to Small Business relative to the cost of compliance with code						
The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.						
Requirements						
Has a reasonable and substantial connection with the health, safety, and welfare of the general public						
Yes as it reiterates current safety requirements.						
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction						
It reiterates current safety requirements.						
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						

1st Comment Period History

SW6493-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment: NEUTRAL					

1st Comment Period History

SW6493-G2	Proponent	Bryan Holland	Submitted	2/22/2016	Attachments	No
	Comment: While I generally support the concept of this proposed modification, I believe this action is best addressed by modification #6529.					

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6493-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. No enforcement measures are identified.
2. A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health departments and was of debatable success due to non-uniform electrical training of the health inspectors. An electrical permit and inspection by knowledgeable, properly trained personnel are necessary for viable enforcement.
3. There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, resulting in, at best, no improvement in safety and, at worst, introduction of significant safety hazards. In some cases, the retrofit will require modification of the electrical system.
4. If such a program is to be implemented a uniform, effective enforcement procedure must be established. Otherwise, this will quite possibly increase unlicensed activity due to the additional costs that homeowners will otherwise incur.

Section 413 Add to read as follows:

Section 413 Swimming Pool - Electrical

413.1 GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors *connected to 120-volt and 240-volt single phase branch circuits*, a ground-fault circuit-interrupter shall be provided, if one is not already in place.

2. Where alteration work includes replacement of 120-volt *pool lights underwater luminaires*, a ground-fault circuit-interrupter shall be provided, if one is not already in place, *for all underwater luminaires operating at voltages greater than the Low Voltage Contact Limit*.

Section 413 Add to read as follows:

Section 413 Swimming Pool - Electrical

413.1GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors, a ground-fault circuit-interrupter shall be provided, if one is not already in place.
2. Where alteration work includes replacement of 120-volt pool lights, a ground-fault circuit-interrupter shall be provided, if one is not already in place.

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015 MEETING SUMMARY REPORT

WEDNESDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding swimming pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs voted unanimously to recommend the Commission approve the consensus package of recommendations from the TACs. The TACs' specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring

existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

PROJECT OVERVIEW

The 2015 Florida Legislature identified the need to evaluate the electrical aspects of swimming pool safety focusing on minimizing electrocution risks linked to swimming pools. In response, the Florida Building Commission approved a research project (technical enrichment) for a *Swimming Pool Electrocution Prevention Study*. In order to implement the project the Commission convened a process to develop recommendations for pool safety focused on the prevention of electrocution in swimming pools. The Commission determined that the project would be evaluated and recommendations developed by convening concurrent meetings of the Commission's Swimming Pool Technical Advisory Committee and Electrical Technical Advisory Committee (TAC). The objective of the project is to evaluate key topical issues, and as appropriate develop code amendment proposals designed to minimize electrocution risks linked to swimming pools.

In response to the Commission's direction the Swimming Pool TAC and Electrical TAC agreed that the initial Phase I scope of the project is to determine whether to recommend a proposed code amendment that would require low voltage lighting in residential swimming pools for new construction. Once the Swimming Pool TAC and the Electrical TAC conclude their evaluation of low voltage lighting they will evaluate additional project relevant topics in Phase II of the project: specifically bonding, grounding, retrofitting of existing pools, and education.

AGENDA ITEM OUTCOMES

OPENING AND MEETING ATTENDANCE

The meeting was opened at 10:00 AM once a quorum was established for the Swimming Pool and Electrical TACs respectively, and the following members participated:

Swimming Pool TAC: James Batts (chair), Jordan Clarkson, Bill Dumbaugh, Kevin Flanagan, John O'Conner, Mark Pabst, Gordon Shepardson, Bob Vincent, and John Wahler. (9 of 11)

Absent Members:

Tom Allen, and Corky Williams.

Electrical TAC: Kevin Flanagan (chair), Neal Burdick, Ken Castronovo, Leonard Devine, Jr. (*Alternate: Nelson Montgomery*), Shane Gerwig, David Rice (*Alternate: Steve Mitchell*), Joe Territo, Clarence Tibbs, and Dwight Wilkes. (9 of 11)

Absent Members:

Oriol Haage, and Roy Van Wyk.

DBPR Staff Present

Norman Bellamy, Chris Burgwald, Jim Hammers, April Hammonds, Mo Madani, and Jim Richmond.

Commissioners Present

Fred Schilling, Jim Schock, and Jeff Stone.

Meeting Facilitation and Reporting

The TAC Chairs meeting was facilitated by Jeff Blair from the FCRC Consensus center at Florida State University. Information at: <http://consensus.fsu.edu/>



CONSENSUS CENTER

Background and Supporting Documents

The agenda and relevant background and supporting documents are linked to each agenda item. The Agenda URLs for the October 14, 2015 TAC meetings are as follows:

http://www.floridabuilding.org/fbc/commission/FBC_1015/Swimming_Pool_TAC/Swimming_Pool_TAC_Agenda_101415.htm

http://www.floridabuilding.org/fbc/commission/FBC_1015/Electrical_TAC/Electrical_Agenda_TAC_101415.htm

AGENDA REVIEW

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the agenda for the October 24, 2015 meeting as posted/presented.

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the agenda for the October 14, 2015 meeting as posted/presented.

Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

The complete Agenda is included as “Attachment 1” of this report.

(See Attachment 1—Agenda)

APPROVAL OF SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

APPROVAL SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction

At the September 28, 2015 meeting the Swimming Pool TAC and the Electrical TAC voted to approve in concept a code amendment proposal requiring low voltage lighting in residential pools for new construction, with the understanding that relevant safety data and other documentation would be evaluated prior to a final vote on any recommendation submitted to the Florida Building Commission.

At the October 14, 2015 meeting the TACs were asked to offer options regarding possible requirement for low voltage lighting in residential pools for new construction. In addition, the public was invited to comment on the options and/or suggest additional options prior to the TACs ranking them for acceptability. Jeff explained that members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a TAC member. Members should be prepared to offer specific refinements to address their reservations.

Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked a series of options regarding low voltage lighting in residential pools for new construction.

The complete Options Acceptability Ranking Results are included as "*Attachment 2*" of this report.

(See Attachment 2—Ranking Results)

DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN

Identification of Issues and Options, and Acceptability Ranking of Options in Turn

Jeff explained that the *TACs* would address each of the four key issues in turn by topic, and that members would be invited to propose and comment on options before the *TAC* members ranked them. In addition, the public was invited to comment on the options and/or suggest additional options prior to the *TACs* ranking them for acceptability. The Phase II topics are Bonding, Grounding, Retrofitting of Existing Swimming Pools, and Education of Contractors and Consumers. Jeff explained that *TAC* members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a *TAC* member. Members should be prepared to offer specific refinements to address their reservations. Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked the proposed options for acceptability. All of the options proposed are included in the ranking results. Following are the option(s) ranked that achieved a consensus level of support ($\geq 75\%$ in favor):

Grounding

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission charge staff to work with the *TAC* chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers,

brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

The complete Options Acceptability Ranking Results are included as "Attachment 2" of this report.

(See Attachment 2—Ranking Results)

TAC ACTIONS

Following the opportunity provided for questions and answers, public comment and discussion, the TACs took the following actions:

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendations.

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendation.

NEXT STEPS

Following are the next steps for the Swimming Pool Electrical Safety Project:

- The Commission will evaluate the TACs' (Swimming Pool TAC and Electrical TAC) consensus package of recommendations at the October 15, 2015 meeting.
- The Commission will take the lead with ensuring Code amendments are proposed consistent with any recommendations approved by the Commission regarding swimming pool electrical safety requirements.

ADJOURNMENT

After a determination that a quorum was still present the Swimming Pool TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

After a determination that a quorum was still present the Electrical TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

**ATTACHMENT 1
OCTOBER 14, 2015 MEETING AGENDAS**

**FLORIDA BUILDING COMMISSION
SWIMMING POOL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE ELECTRICAL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**FLORIDA BUILDING COMMISSION
ELECTRICAL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE SWIMMING POOL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**ATTACHMENT 2
OPTIONS ACCEPTABILITY RANKING RESULTS**

I. PHASE I RECOMMENDATIONS

LOW VOLTAGE LIGHTING IN RESIDENTIAL SWIMMING POOLS FOR NEW CONSTRUCTION

Low Voltage <i>October 14, 2015</i>	4= <i>acceptable</i>	3= <i>minor reservations</i>	2= <i>major reservations</i>	1= <i>not acceptable</i>
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements).				
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Electrical TAC</i> (5-4) 56%	4	1	1	3
Option B: Maintain NEC requirements for new residential pools				
<i>Swimming Pool TAC</i> (7-2) 78%	6	1	1	1
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
Revised Ranking <i>Electrical TAC</i> (5-4) 56%	4	1	3	1
Option C: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements) for energy conservation purposes.				
<i>Swimming Pool TAC</i> (7-2) 78%	5	2	1	1
<i>Swimming Pool TAC</i> (4-5) 44%	2	2	2	3
Revised Ranking <i>Electrical TAC</i> (6-3) 67%	2	4	0	3
Revised Ranking <i>Electrical TAC</i> (5-4) 56%	3	2	1	3
Option D: Require LED pool lights with plastic niches or without niches in new construction.				
<i>Swimming Pool TAC</i> (3-6) 33%	2	1	3	3
<i>Electrical TAC</i> (2-7) 22%	1	1	4	3

<i>Option E: All residential pools shall meet the requirements of code and shall be require a monitoring device to detect stray currents in the water.</i>				
<i>Swimming Pool TAC (2-7) 22%</i>	0	2	5	2
<i>Electrical TAC (3-6) 33%</i>	1	2	6	0

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).</i>				
<i>Swimming Pool TAC (9-0) 100%</i>	4	5	0	0
<i>Electrical TAC (9-0) 100%</i>	5	4	0	0

3. RETROFITTING OF EXISTING POOLS

Retrofitting <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<i>Option A: Require existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.</i>				
<i>Swimming Pool TAC (5-3) 63%</i>	2	3	3	0
<i>Electrical TAC (6-2) 75%</i>	4	2	2	0

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<p><i>Option A:</i> Initiate a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.</p>				
Swimming Pool TAC (9-0) 100%	9	0	0	0
Electrical TAC (9-0) 100%	8	0	0	0

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015
RECOMMENDATIONS TO THE FLORIDA BUILDING COMMISSION

MONDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

TAC ACTIONS

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 2 consensus recommendations from the TAC (grounding and education).

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 3 consensus recommendations from the TAC (grounding, education, and existing swimming pools).

Date Submitted	11/22/2015	Section	709	Proponent	Mo Madani
Chapter	7	Affects HVHZ	No	Attachments	Yes
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments	No	Alternate Language	Yes
-------------------------	----	---------------------------	-----

Related Modifications

6491, 6492, 6493

Summary of Modification

The proposed code change requires GFCI protection be provided for replacement of pool pump motors, if not already in place.

Rationale

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools. Also, see uploaded files.

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

Further enforcement/inspections would be necessary by the enforcement agencies to implement this provision.

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

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to industry relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

Impact to small business relative to the cost of compliance with code

The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

The proposed code change does not discriminate against materials or products.

Does not degrade the effectiveness of the code

The proposed code change improves the code by providing provisions for reducing electrocution in swimming pools.

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

2nd Comment Period

6494-A1	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale					
	(1) Language clarified for pumps to maintain consistency with other provisions. (2) Language changed to “underwater luminaires” from “pool lights” to maintain consistency with other provisions. Regarding underwater luminaires (pool lights), the NEC requires GFCI protection only if the luminaires or other equipment operates over the LVCL and, based on the TAC comments, it appears that is also the intent of these changes. The language was revised to clarify this and eliminate possible confusion. GFCIs do not, and cannot, protect low voltage lights and equipment served through transformers and power supplies because they cannot sense ground faults on the low voltage side of the circuit.					
	Fiscal Impact Statement					
	Impact to local entity relative to enforcement of code					
	If permit and inspection are required, will be an additional workload. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to building and property owners relative to cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
	Impact to industry relative to the cost of compliance with code					
	Increase in cost if permit and inspection required. But these GFCI requirements are already found in NEC and via UL 1081 for pumps and therefore should be followed regardless.					
Impact to Small Business relative to the cost of compliance with code						
The proposed code change has the potential of adding cost to construction and at the same time reducing electrocution in swimming pools.						
Requirements						
Has a reasonable and substantial connection with the health, safety, and welfare of the general public						
Yes as it reiterates current safety requirements.						
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction						
It reiterates current safety requirements.						
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						

1st Comment Period History

SW6494-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment: NEUTRAL					

1st Comment Period History

SW6494-G2	Proponent	Bryan Holland	Submitted	2/22/2016	Attachments	No
	Comment: While I generally support the concept of this proposed modification, I believe this action is best addressed by modification #6529.					

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6494-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. No enforcement measures are identified.
2. A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health departments and was of debatable success due to non-uniform electrical training of the health inspectors. An electrical permit and inspection by knowledgeable, properly trained personnel are necessary for viable enforcement.
3. There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, resulting in, at best, no improvement in safety and, at worst, introduction of significant safety hazards. In some cases, the retrofit will require modification of the electrical system.
4. If such a program is to be implemented a uniform, effective enforcement procedure must be established. Otherwise, this will quite possibly increase unlicensed activity due to the additional costs that homeowners will otherwise incur.

Section 709 Add to read as follows:

Section 709 Swimming Pool - Electrical

709.1 GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors connected to 120-volt and 240-volt single phase branch circuits, a ground-fault circuit-interrupter shall be provided, if one is not already in place.
2. Where alteration work includes replacement of 120-volt pool lights underwater luminaires, a ground-fault circuit-interrupter shall be provided, if one is not already in place, for all underwater luminaires operating at voltages greater than the Low Voltage Contact Limit.

Section 709 Add to read as follows:

Section 709 Swimming Pool - Electrical

709.1GFCI Protection. Ground-fault Circuit-interrupter shall be provided as follows:

1. Where alteration work includes replacement of pool pump motors, a ground-fault circuit-interrupter shall be provided, if one is not already in place.
2. Where alteration work includes replacement of 120-volt pool lights, a ground-fault circuit-interrupter shall be provided, if one is not already in place.

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015 MEETING SUMMARY REPORT

WEDNESDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding swimming pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs voted unanimously to recommend the Commission approve the consensus package of recommendations from the TACs. The TACs' specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring

existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

PROJECT OVERVIEW

The 2015 Florida Legislature identified the need to evaluate the electrical aspects of swimming pool safety focusing on minimizing electrocution risks linked to swimming pools. In response, the Florida Building Commission approved a research project (technical enrichment) for a *Swimming Pool Electrocution Prevention Study*. In order to implement the project the Commission convened a process to develop recommendations for pool safety focused on the prevention of electrocution in swimming pools. The Commission determined that the project would be evaluated and recommendations developed by convening concurrent meetings of the Commission's Swimming Pool Technical Advisory Committee and Electrical Technical Advisory Committee (TAC). The objective of the project is to evaluate key topical issues, and as appropriate develop code amendment proposals designed to minimize electrocution risks linked to swimming pools.

In response to the Commission's direction the Swimming Pool TAC and Electrical TAC agreed that the initial Phase I scope of the project is to determine whether to recommend a proposed code amendment that would require low voltage lighting in residential swimming pools for new construction. Once the Swimming Pool TAC and the Electrical TAC conclude their evaluation of low voltage lighting they will evaluate additional project relevant topics in Phase II of the project: specifically bonding, grounding, retrofitting of existing pools, and education.

AGENDA ITEM OUTCOMES

OPENING AND MEETING ATTENDANCE

The meeting was opened at 10:00 AM once a quorum was established for the Swimming Pool and Electrical TACs respectively, and the following members participated:

Swimming Pool TAC: James Batts (chair), Jordan Clarkson, Bill Dumbaugh, Kevin Flanagan, John O'Conner, Mark Pabst, Gordon Shepardson, Bob Vincent, and John Wahler. (9 of 11)

Absent Members:

Tom Allen, and Corky Williams.

Electrical TAC: Kevin Flanagan (chair), Neal Burdick, Ken Castronovo, Leonard Devine, Jr. (*Alternate: Nelson Montgomery*), Shane Gerwig, David Rice (*Alternate: Steve Mitchell*), Joe Territo, Clarence Tibbs, and Dwight Wilkes. (9 of 11)

Absent Members:

Oriol Haage, and Roy Van Wyk.

DBPR Staff Present

Norman Bellamy, Chris Burgwald, Jim Hammers, April Hammonds, Mo Madani, and Jim Richmond.

Commissioners Present

Fred Schilling, Jim Schock, and Jeff Stone.

Meeting Facilitation and Reporting

The TAC Chairs meeting was facilitated by Jeff Blair from the FCRC Consensus center at Florida State University. Information at: <http://consensus.fsu.edu/>



CONSENSUS CENTER

Background and Supporting Documents

The agenda and relevant background and supporting documents are linked to each agenda item. The Agenda URLs for the October 14, 2015 TAC meetings are as follows:

http://www.floridabuilding.org/fbc/commission/FBC_1015/Swimming_Pool_TAC/Swimming_Pool_TAC_Agenda_101415.htm

http://www.floridabuilding.org/fbc/commission/FBC_1015/Electrical_TAC/Electrical_Agenda_TAC_101415.htm

AGENDA REVIEW

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the agenda for the October 24, 2015 meeting as posted/presented.

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the agenda for the October 14, 2015 meeting as posted/presented.

Following are the key agenda items approved for consideration:

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

The complete Agenda is included as “Attachment 1” of this report.

(See Attachment 1—Agenda)

APPROVAL OF SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

APPROVAL SEPTEMBER 28, 2015 MEETING SUMMARY REPORT

The Electrical TAC voted unanimously, 9 - 0 in favor, to approve the Meeting Summary Report for the September 28, 2015 meeting as posted/presented.

**IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS
Requirement for Low Voltage Lighting in Residential Pools for New Construction**

At the September 28, 2015 meeting the Swimming Pool TAC and the Electrical TAC voted to approve in concept a code amendment proposal requiring low voltage lighting in residential pools for new construction, with the understanding that relevant safety data and other documentation would be evaluated prior to a final vote on any recommendation submitted to the Florida Building Commission.

At the October 14, 2015 meeting the TACs were asked to offer options regarding possible requirement for low voltage lighting in residential pools for new construction. In addition, the public was invited to comment on the options and/or suggest additional options prior to the TACs ranking them for acceptability. Jeff explained that members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a TAC member. Members should be prepared to offer specific refinements to address their reservations.

Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked a series of options regarding low voltage lighting in residential pools for new construction.

The complete Options Acceptability Ranking Results are included as "*Attachment 2*" of this report.

(See *Attachment 2—Ranking Results*)

DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN

Identification of Issues and Options, and Acceptability Ranking of Options in Turn

Jeff explained that the *TACs* would address each of the four key issues in turn by topic, and that members would be invited to propose and comment on options before the *TAC* members ranked them. In addition, the public was invited to comment on the options and/or suggest additional options prior to the *TACs* ranking them for acceptability. The Phase II topics are Bonding, Grounding, Retrofitting of Existing Swimming Pools, and Education of Contractors and Consumers. Jeff explained that *TAC* members would be asked to rank each proposed option in turn utilizing a four-point acceptability ranking scale where 4 = acceptable, 3 = minor reservations, 2 = major reservations, and 1 = unacceptable. Following discussion and refinement of options, members may be asked to do additional rankings of proposed options if requested by a *TAC* member. Members should be prepared to offer specific refinements to address their reservations. Once ranked, options with a 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus recommendations. The *TACs'* consensus recommendations will be submitted to the Commission for consideration.

Following the opportunity provided for questions and answers, public comment, and discussion, the *TACs* ranked the proposed options for acceptability. All of the options proposed are included in the ranking results. Following are the option(s) ranked that achieved a consensus level of support ($\geq 75\%$ in favor):

Grounding

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission charge staff to work with the *TAC* chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical *TAC* and the Swimming Pool *TAC* voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers,

brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

Note: The Swimming Pool TAC vote 5-3 (63%) in favor of the option.

The complete Options Acceptability Ranking Results are included as "Attachment 2" of this report.

(See Attachment 2—Ranking Results)

TAC ACTIONS

Following the opportunity provided for questions and answers, public comment and discussion, the TACs took the following actions:

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendations.

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the TACs' package of consensus recommendation.

NEXT STEPS

Following are the next steps for the Swimming Pool Electrical Safety Project:

- The Commission will evaluate the TACs' (Swimming Pool TAC and Electrical TAC) consensus package of recommendations at the October 15, 2015 meeting.
- The Commission will take the lead with ensuring Code amendments are proposed consistent with any recommendations approved by the Commission regarding swimming pool electrical safety requirements.

ADJOURNMENT

After a determination that a quorum was still present the Swimming Pool TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

After a determination that a quorum was still present the Electrical TAC voted unanimously, 8 – 0 in favor, to adjourn the meeting at 3:30 PM on Wednesday, October 14, 2015.

**ATTACHMENT 1
OCTOBER 14, 2015 MEETING AGENDAS**

**FLORIDA BUILDING COMMISSION
SWIMMING POOL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE ELECTRICAL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES

- To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
- To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
- To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
- To Adopt Consensus Recommendations for Submittal to the Commission
- To Consider Public Comment
- ✓ To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015

All Agenda Times—including Adjournment—are Approximate and Subject to Change

10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
<i>12:00 PM</i>		<i>LUNCH</i>
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
<i>3:00 PM</i>		<i>BREAK</i>
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
<i>~5:00 PM</i>	J.)	<i>ADJOURN</i>

**FLORIDA BUILDING COMMISSION
ELECTRICAL TECHNICAL ADVISORY COMMITTEE (TAC)
CONCURRENTLY WITH THE SWIMMING POOL TAC
OCTOBER 14, 2015—MEETING II
PLAZA HISTORIC BEACH RESORT AND SPA
600 NORTH ATLANTIC BOULEVARD—DAYTONA BEACH, FLORIDA 33706**

MEETING OBJECTIVES	
➤	To Approve Regular Procedural Topics (Agenda and Meeting Summary Report)
➤	To Discuss and Approve Phase I Recommendations (Low Voltage Lighting in Residential Pools for New Construction)
➤	To Discuss Phase II Topics (Bonding, Grounding, Retrofitting of Existing Pools, and Education)
➤	To Adopt Consensus Recommendations for Submittal to the Commission
➤	To Consider Public Comment
✓	To Identify Needed Next Steps: Information, Assignments, and Agenda Items for Next Meeting

<i>MEETING AGENDA—WEDNESDAY, OCTOBER 14, 2015</i>		
<i>All Agenda Times—including Adjournment—are Approximate and Subject to Change</i>		
10:00 AM	A.)	WELCOME AND INTRODUCTIONS
	B.)	AGENDA REVIEW AND APPROVAL (October 14, 2015)
	C.)	REVIEW AND APPROVAL OF FACILITATOR’S SUMMARY REPORT (September 28, 2015)
	D.)	IDENTIFICATION, DISCUSSION, AND ACCEPTABILITY RANKING OF PHASE I OPTIONS Requirement for Low Voltage Lighting in Residential Pools for New Construction <ul style="list-style-type: none"> • Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
12:00 PM		LUNCH
1:00 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN Identification of Issues and Options, and Acceptability Ranking of Options in Turn <ul style="list-style-type: none"> • Bonding • Grounding • Retrofitting of Existing Swimming Pools • Education of Contractors and Consumers
3:00 PM		BREAK
3:15 PM	F.	DISCUSSION AND EVALUATION OF PHASE II TOPICS IN TURN CONTINUED
	G.)	ADOPTION OF ANY PHASE II CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE COMMISSION
	H.)	GENERAL PUBLIC COMMENT
	I.)	NEXT STEPS: AGENDA ITEMS, NEEDED INFORMATION, ASSIGNMENTS, DATE AND LOCATION IF NEEDED
~5:00 PM	J.)	ADJOURN

**ATTACHMENT 2
OPTIONS ACCEPTABILITY RANKING RESULTS**

I. PHASE I RECOMMENDATIONS

LOW VOLTAGE LIGHTING IN RESIDENTIAL SWIMMING POOLS FOR NEW CONSTRUCTION

Low Voltage October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements).				
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Electrical TAC</i> (5-4) 56%	4	1	1	3
Option B: Maintain NEC requirements for new residential pools				
<i>Swimming Pool TAC</i> (7-2) 78%	6	1	1	1
<i>Swimming Pool TAC</i> (6-3) 67%	5	1	1	2
<i>Revised Ranking Electrical TAC</i> (5-4) 56%	4	1	3	1
Option C: Require low voltage lighting in residential pools for new construction (Miami-Dade requirements) for energy conservation purposes.				
<i>Swimming Pool TAC</i> (7-2) 78%	5	2	1	1
<i>Swimming Pool TAC</i> (4-5) 44%	2	2	2	3
<i>Revised Ranking Electrical TAC</i> (6-3) 67%	2	4	0	3
<i>Revised Ranking Electrical TAC</i> (5-4) 56%	3	2	1	3
Option D: Require LED pool lights with plastic niches or without niches in new construction.				
<i>Swimming Pool TAC</i> (3-6) 33%	2	1	3	3
<i>Electrical TAC</i> (2-7) 22%	1	1	4	3

Option E: All residential pools shall meet the requirements of code and shall be require a monitoring device to detect stray currents in the water.				
<i>Swimming Pool TAC</i> (2-7) 22%	0	2	5	2
<i>Electrical TAC</i> (3-6) 33%	1	2	6	0

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
Option A: Require that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).				
<i>Swimming Pool TAC</i> (9-0) 100%	4	5	0	0
<i>Electrical TAC</i> (9-0) 100%	5	4	0	0

3. RETROFITTING OF EXISTING POOLS

Retrofitting <i>October 14, 2015</i>	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
Option A: Require existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.				
<i>Swimming Pool TAC</i> (5-3) 63%	2	3	3	0
<i>Electrical TAC</i> (6-2) 75%	4	2	2	0

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education October 14, 2015	4=acceptable	3= minor reservations	2=major reservations	1= not acceptable
<p><i>Option A:</i> Initiate a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.</p>				
Swimming Pool TAC (9-0) 100%	9	0	0	0
Electrical TAC (9-0) 100%	8	0	0	0

FLORIDA BUILDING COMMISSION
SWIMMING POOL ELECTRICAL SAFETY PROJECT
CONCURRENT MEETING OF THE SWIMMING POOL TAC AND ELECTRICAL TAC
OCTOBER 14, 2015
RECOMMENDATIONS TO THE FLORIDA BUILDING COMMISSION

MONDAY, OCTOBER 14, 2015

MEETING SUMMARY AND OVERVIEW

On Wednesday, October 14, 2015 the Swimming Pool TAC and Electrical TAC met concurrently in Daytona Beach to develop recommendations regarding pool safety issues focused on the prevention of electrocution in swimming pools. At the initial scoping meeting held on September 28, 2015 the TACs agreed that the project scope was to focus on evaluation of whether to recommend a code amendment requiring low voltage lighting in residential pools for new construction (Phase I). In addition, it was agreed that additional electrical pool safety relevant topical issues including bonding, grounding, retrofitting of existing pools, and education would be considered as a second phase of the project (Phase II). At the October 14, 2015 meeting the TACs proposed and acceptability ranked options for low voltage lighting in residential pools for new construction. In addition, the TACs evaluated proposed options to address the other key topical issues, and ultimately developed a consensus package of recommendations for consideration by the Florida Building Commission. The TACs specific recommendations are as follow:

Grounding

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission charge staff to work with the TAC chairs and in consultation with stakeholders to formulate a code amendment requiring that all electrical circuits feeding equipment that could potentially energize a pool have GFCI protection for new residential and commercial swimming pools (the goal is to fill in any gaps in the current Code).

Education

The Electrical TAC and the Swimming Pool TAC voted unanimously to recommend that the Commission support a comprehensive educational effort to ensure there is a consistent message to enhance pool electrical safety issues for existing and new pools by working with existing resources including educational providers and associations. The effort should include defining the problems, identifying solutions and communicating a consistent message to stakeholders (contractors, consumers, home inspectors, pool maintenance providers, etc.) through training courses, flyers, brochures, websites, etc. Key issues for education messaging include lighting, bonding, grounding, GFCI, maintenance of existing pools, and monitoring devices to detect stray currents in the pool water, etc.

Existing Swimming Pools

The Electrical TAC voted 6-2 in favor (75%), to recommend the Commission charge staff to work with the TAC chair and in consultation with stakeholders to formulate a code amendment requiring existing commercial and residential swimming pools to have GFCI protection for replacement pool pump motors, if not already in place; to provide GFCI protection for the replacement of 120 volt pool lights when they are replaced; and, as part of the close out inspection ensuring that the existing bonding system is complete and terminated properly.

TAC ACTIONS

MOTION—The Swimming Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 2 consensus recommendations from the TAC (grounding and education).

MOTION—The Electrical Pool TAC voted unanimously, 8 - 0 in favor, to recommend the Commission approve the 3 consensus recommendations from the TAC (grounding, education, and existing swimming pools).

SW6530

18

Date Submitted	12/7/2015	Section	4501.16	Proponent	Bryan Holland
Chapter	45	Affects HVHZ	No	Attachments	No
TAC Recommendation	No Affirmative Recommendation with a Second				
Commission Action	Pending Review				

Comments

General Comments No

Alternate Language Yes

Related Modifications

Yes. See Modification #6529 and #6531.

Summary of Modification

This modification adds electrical safety requirements to new swimming pools in response to the Commission's "Swimming Pool Electrical Safety Project" approved recommendations.

Rationale

This modification satisfies the electrical safety recommendation for new private (residential) swimming pools as outlined in the Commission's "Swimming Pool Electrical Safety Project". The new language adds requirements for GFCI protection for outlets supplying electrical equipment at new private (residential) swimming pools.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposed modification will have a minimal impact on the local entity relative to code enforcement. GFCI protection is already required for certain swimming pool equipment. This modification expands GFCI protection to all pool equipment branch-circuit outlets.

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

This proposed modification will increase the cost of compliance with the code to building and property owners.

Impact to industry relative to the cost of compliance with code

This proposed modification will have a minimal cost of compliance with the code to industry.

Impact to small business relative to the cost of compliance with code

This proposed modification could have an increase of cost of compliance to small business owners.

Requirements

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

This proposed modification will increase the health, safety, and welfare of the general public by expanding GFCI protection to other circuits supplying swimming pool equipment.

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

This proposed modification strengthens the code and improves the electrical safety at new swimming pools.

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

This proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

This proposed modification does not degrade the effectiveness of the 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?

YES

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

6530-A1	Proponent	Jennifer Hatfield	Submitted	6/21/2016	Attachments	Yes
	Rationale	<p>The 2014 & 2017 NEC eliminates the 15 and 20 Ampere restriction regarding pool pumps and now requires GFCI protection for personnel on all 120 V and 240 V single phase pool pump motors, regardless of branch circuit current rating, to reduce hazards. Additionally, other proposals addressing pumps require GFCI installation regardless of branch circuit current rating (consistent with requirements in the NEC for new installations). Making the change here brings all sections into consistency with the latest editions. Regarding luminaires and other equipment except pool pump motors, the NEC requires GFCI protection only if the luminaires or other equipment operates over the LVCL and, based on the TAC comments, it appears that is also the intent of these changes. The language was revised to clarify this and eliminate possible confusion. GFCIs do not, and cannot, protect low voltage lights and equipment served through transformers and power supplies because they cannot sense ground faults on the low voltage side of the circuit.</p>				
	Fiscal Impact Statement					
	Impact to local entity relative to enforcement of code	<p>None because FL will be going to either the 2014 or 2017 NEC regardless and this proposal makes the language consistent with these editions.</p>				
	Impact to building and property owners relative to cost of compliance with code	<p>None because FL will be going to either the 2014 or 2017 NEC regardless and this proposal makes the language consistent with these editions.</p>				
	Impact to industry relative to the cost of compliance with code	<p>None because FL will be going to either the 2014 or 2017 NEC regardless and this proposal makes the language consistent with these editions.</p>				
	Impact to Small Business relative to the cost of compliance with code	<p>This proposed modification could have an increase of cost of compliance to small business owners.</p>				
	Requirements					
	Has a reasonable and substantial connection with the health, safety, and welfare of the general public	<p>Yes ensures consistency with the latest safety requirements found in the NEC.</p>				
	Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction	<p>Yes, by providing the latest safety requirements found within the NEC.</p>				
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities	<p>No it does not.</p>					
Does not degrade the effectiveness of the code	<p>No it does not.</p>					
Is the proposed code modification part of a prior code version?	<p>No</p>					

1st Comment Period History

SW6530-G1	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
	Comment:	SUPPORT				

1st Comment Period History

SW6530-G2	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
	Comment:	Support				

1st Comment Period History

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
------------------	-------------------	------------------	-----------	--------------------	----

SW6530-G3

Comment:

On behalf of the Association of Pool & Spa Professionals' Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

1. This proposal is generally consistent with the NEC. In terms of reference regarding prohibition of lights operating at voltages exceeding the LVCL, the NEC Code Panel has continually rejected such proposals. For example, in the 2017 NEC code cycle, NEC Code Panel CMP-17 (jurisdiction over 680) issued a panel statement rejecting Public Input No. 761-NFPA 70-2014 [Section No. 680.23(A)(4)] which proposed to allow only underwater luminaires over 18 Volts ac: "The code already has provisions and protective requirements that provide safe methods when properly installed and maintained, that allow luminaires above the 18 volt requirement desired here."
2. The voltage needs to be changed to "exceeding the low voltage contact limit" to maintain consistency with the NEC.

R4501.16 Electrical. Electrical equipment wiring and installation, including the bonding and grounding of pool components equipment shall comply with Chapter 27 of the *Florida Building Code, Building*. Outlets supplying pool pump motors connected to single-phase 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, and outlets supplying other electrical equipment and underwater luminaires operating at voltages greater than the Low Voltage Contact Limit, connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.

R4501.16 Electrical. Electrical wiring and equipment shall comply with the *Florida Building Code*. Outlets supplying pool equipment and underwater luminaires connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.