

ElectricalProposed Code Modifications

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

TAC: Electrical

Sub Code: Building

Total Mods for Electrical: 12

E6498					1
Date Submitted	11/22/2015	Section 110.9		Proponent M	o Madani
Chapter	1	Affects HVHZ	No	Attachments	Yes
TAC Recommenda Commission Actic	ationPending ReviewonPending Review				
Related Modifica	tions				
6491, 6492,	, 6493, 6494, 6496				
Summary of Mod	lification				
The propos complete a	sed code change requires as nd terminated properly.	part of the close out	inspection ensuring	that the existing swimming	pool bonding system is
Rationale					
The propos	sed code change provides for	provisions necessar	ry to prevent electroo	ution in swimming pools. A	Also, see upleaded files.
Fiscal Impact Sta	atement				
Impact to I Furth	ocal entity relative to enforce er enforcement/inspections w	ement of code vould be necessary b	by the enforcement a	gencies to implement this p	prevision.
The p swim Impact to in The p swim	proposed code change has the ming pools. ndustry relative to the cost of proposed code change has the ming pools.	e potential of adding of compliance with o e potential of adding	g cost to construction code g cost to construction	and at the same time redu and at the same time redu	cing electrocution in
Requirements					
Has a reas The բ	onable and substantial conn proposed code change has th	ection with the heal e potential of reduci	Ith, safety, and welfa	re of the general public wimming pools	
Strengthen The r	ns or improves the code, and proposed code change impro-	provides equivaler	nt or better products	, methods, or systems of or educing electrocution in sw	construction rimming pools.
Does not d The ן	liscriminate against material proposed code change does i	s, products, method not discriminate agai	Is, or systems of co	nstruction of demonstrated lucts.	d capabilities
Does not d The	legrade the effectiveness of proposed code change impro	the code ves the code by prov	viding provisions for	reducing electrocution in sv	vimming pools.
the proposed coc	le modification part of a prio	r code version? No)	5	01
Alternate Lan	guage				
1st Comme	nt Period History	<u>0</u>	1/13/2016 - 02/25/	2016	
Proponent	Brvan Holland	Submitted 2/22	2/2016	Attachments Yes	

6498-A3

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.

<u>1st</u>	<u>Comment</u>	Period History		01/13/2016 - 02/2	<u>5/2016</u>	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6498-G1	Comment: Neutral					
<u>1st</u>	<u>Comment</u>	Period History		01/13/2016 - 02/2	<u>5/2016</u>	
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No

Comment:

622

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On behalf of the Association of Pool & amp; Spa Professionals & #39; 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.

Section 110 – Inspections

Section 110.9 Add to read as follows:

Section 110.9 Existing Swimming Pools – Electrical

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E6498 -A3 Text Modification

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

<u>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.</u>

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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

POOL SAFETY PROJECT REPORT

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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

E6498 Text Modification

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/SwimPool_TAC/Swimming_Pool_TA

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 od 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)						
	D.)	D.) IDENTIFICATION, DISCUSSION, AND ACCEPTABILITT RAIMING OF THASE T					
	Requirement for Low Voltage Lighting in Residential Pools for New Construction						
	 Identification, Discussion and Acceptability Ranking of Options In Turn 						
	E.) ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE						
		COMMISSION					
12:00 PM	LUN	СН					
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					
		Bonding					
		Grounding					
		Retrofitting of Existing Swimming Pools					
		Education of Contractors and Consumers					
3:00 PM	BRE.	AK					
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					

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

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		All Agenda Times—Including Adjournment—Are Approximate and Subject to Change					
10:00 AM	A.)	WELCOME AND INTRODUCTIONS					
	B .)	B.) AGENDA REVIEW AND APPROVAL (October 14, 2015)					
	C.)	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					
		 Identification, Discussion and Acceptability Ranking of Options In Turn 					
	E.) ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE						
		COMMISSION					
12:00 PM	LUN	ICH					
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					
		Bonding					
		Grounding					
		Retrofitting of Existing Swimming Pools					
		Education of Contractors and Consumers					
3:00 PM	BRE.	AK					
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	4=acceptable	3= minor	2=major	1 = not acceptable			
October 14, 2015		reservations	reservations				
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade							
requirements).							
Swimming Pool TAC	5	1	1	2			
(6-3) 67%							
Electrical TAC	4	1	1	3			
(5-4) 56%							
Option B: Maintain N	IEC requireme	nts for new resident	ial pools				
Swimming Pool TAC	6	1	1	1			
(7-2) 78%							
Swimming Pool TAC	5	1	1	2			
(6-3) 67%							
Revised Ranking	4	1	3	1			
Electrical TAC							
(5-4) 56%							
Option C: Require lo	w voltage lighti	ng in residential poo	ols for new construc	tion (Miami-Dade			
requirements) for ene	rgy conservation	on purposes.					
Swimming Pool TAC	5	2	1	1			
(7-2) 78%							
Swimming Pool TAC	2	2	2	3			
(4-5) 44%							
Revised Ranking	2	4	0	3			
Electrical TAC							
(6-3) 67%							
Revised Ranking	3	2	1	3			
Electrical TAC							
(5-4) 56%							
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.			
Swimming Pool TAC	2	1	3	3			
(3-6) 33%							
Electrical TAC	1	1	4	3			
(2-7) 22%							

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E6498 Text Modification

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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.								
Swimming Pool TAC	0	2	5	2				
(2-7) 22%								
Electrical TAC	1	2	6	0				
(3-6) 33%	(3-6) 33%							

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

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

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable			
October 14, 2015		reservations	reservations				
Option A: Require existing commercial and residential swimming pools to have GFCI							
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI			
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the			
close out inspecti	on ensuring that	the existing bondi	ing system is com	plete and terminated			
properly.	_			-			
Swimming Pool TAC	2	3	3	0			
(5-3) 63%							
Electrical TAC	4	2	2	0			
(6-2) 75%							

Electrical

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	
Option A: Initiate	a comprehensive e	educational effort to	o ensure there is a c	onsistent message
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing
resources including	g educational prov	iders and association	ons. The effort show	uld include defining
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge to stakeholders
(contractors, consu	imers, home inspe	ctors, pool mainter	nance providers, etc	c.) through training
courses, flyers, bro	chures, websites, e	etc. Key issues for e	education messagin	g include lighting,
bonding, groundin	g, GFCI, mainten	ance of existing po	ols, and monitoring	devices to detect
stray currents in th	e pool water, etc.			
Swimming Pool TAC	9	0	0	0
(9-0) 100%				
Electrical TAC	8	0	0	0
(9-0) 100%				

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

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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).

POOL SAFETY PROJECT RECOMMENDATIONS 2

E6452

E0452					2
Date Submitted	11/6/2015	Section 454.1.4.2.3	Proponent	Bryan Holland	
Chapter	4	Affects HVHZ No	Attachments	No	
TAC Recommend	ation Pending Review				
Commission Acti	on Pending Review				
Related Modifica	ations				

N/A

Summary of Modification

This modification restores the electrical requirements for underwater luminaires to the national standard by removing redundant and unnecessary language.

Rationale

The requirements of the National Electrical Code, as written, provide practical safeguarding of persons and property from hazards arising from the use of electricity. There is no evidence the current requirement in Section 454.1.4.2.3 of the FBC-B that limits underwater lighting to 15V & amp; 300W constitutes a safer and less hazardous installation. As currently written, other equally safe and effective means of providing underwater illumination at swimming pools are prohibited with no substantiation. This modification will restore the electrical requirements for underwater luminaires to the national standard.

This includes 680.23(A)(1), (3), and (8) of the 2014 NEC. These sections ensure that only listed and GFCI protected products are used for the installation of pool lighting systems above the 15V threshold. It is virtually impossible to be shocked or electrocuted by any underwater lighting product when properly installed and maintained.

This modification harmonizes the requirements for underwater luminaires for public and private commercial swimming pools with private residential swimming pools. Current product standards and installation requirements make the stricken language in the modification unnecessary.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification will reduce the burden on the local AHJ to enforce the unnecessary state modification to the national standard. This will help reduce conflicts between installers and the AHJ during permitting, plan review, and inspection.

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

This modification could potentially reduce the cost of compliance to building and property owners by providing them more options when selecting the type and rating of the underwater luminaires to be installed.

Impact to industry relative to the cost of compliance with code

This modification would not increase or decrease the cost of compliance to the industry.

Requirements

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

This modification removes an unnecessary prohibition in the code while maintaining the minimum requirements to ensure health, safety, and welfare of the general public.

- Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction This modification restores the code to the national standard which provides equivalent products and methods for illuminating swimming pools.
- Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities This modification removes the requirements that discriminate against safe and effective products, methods and systems which have demonstrated equivalent safety.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

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

<u>1st</u>	Commen	t Period History		01/13/2016 - 02/2	<u>5/2016</u>	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6452-G1	Comment: I SUPPORT					

<u>1st</u>	Comment	Period History		01/13/2016 - 02/25	/2016	
	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
6452-G2	Comment: Support					
ш 1st	Comment	Period History		01/13/2016 - 02/25	/2016	
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
	Comment:					

On behalf of the Association of Pool & amp; Spa Professionals ' Technical Committee, which includes E.P. Hamilton III, E6452-G3

Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

Luminaires need to comply with the adopted edition of the NEC. 1.

In this aspect this proposal can accomplish what it appears to intend (as to the details) by simply requiring the luminaires 2. and installation comply with the NEC edition adopted at the time of the alteration. The detailed text requirements are unnecessary and redundant.

454.1.4.2.3 Underwater lighting. <u>Underwater luminaires shall comply with Chapter 27 of the Florida Building Code,</u> <u>Building.</u> Underwater lighting shall utilize transformers and low-voltage circuits with each underwater light being grounded. The maximum voltage for each light shall be 15 volts and the maximum incandescent lamp size shall be 300 watts. The location of the underwater lights <u>luminaires</u> shall be such that the underwater illumination is as uniform as possible. and shall not be less than 18 inches (457 mm) below the normal operating water level determined by the center-line of the skimmer or top lip of the gutter. All underwater lights which depend upon submersion for safe operation shall have protection from overheating when not submerged. Underwater lighting requirements can be waived when the overhead lighting provides at least 15 footcandles (150 lux) of illumination at the pool water surface and pool wet deck surface. Alternative lighting systems which use 15 volts or less, or use no electricity in the pool or on the pool deck, such as LED (light emitting diode) fiber-optic systems, may be utilized if the manufactures specifications provide for the equivalency in watt output.</u>

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490						3				
ate Submitted	11/22/2015 4	Section 4	54.10.4 I Z No	Proponent	Mo Ma	adani				
AC Recommenda	tion Pending Review n Pending Review	w w		Automiter						
Related Modificat 6491, 6492	ions 6493, 6494									
Summary of Modification										
The propose Rationale The propose	ed code change requires	GFCI protection b	e provided for replac	ectrocution in swimmin	otors, if not alı a pools, Also,	eady in place.				
Fiscal Impact Sta Impact to Ic Furthe	tement local entity relative to enter er enforcement/inspectio	forcement of code	sary by the enforcer	nent agencies to impler	nent this previ	sion.				
Impact to b The p swimr Impact to in The p	 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 summing pools. 									
equirements	ning pools.									
Has a reaso The p	nable and substantial or	connection with th	e health, safety, and	welfare of the general	public	ing pools				
Strengthen	s or improves the code,	and provides equ	ivalent or better pro	ducts, methods, or sy	stems of cons	truction				
Does not di The p Does not de	roposed code change in scriminate against mate roposed code change do earade the effectiveness	proves the code b erials, products, m bes not discriminat s of the code	y provision ethods, or systems e against materials c	of construction of der r products.	nonstrated ca	nng pools. pabilities				
The p	roposed code change in	nproves the code b	y providing provision	ns for reducing electroc	ution in swimn	ning pools.				
he proposed cod	e modification part of a	prior code version	1? No							
st Comme	nt Period Histor	ry	<u>01/13/2016 - 0</u>	2/25/2016						
Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No					
Comment: NEUTRAL										
Ш 1st Commo	nt Period Histo	ry	01/13/2016 - 0	02/25/2016						
	Brvan Holland	Submitted	2/22/2016	Attachments	No					
Proponent										
Proponent Comment:										

	<u>1st Comment Period</u>	od History
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Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No	

01/13/2016 - 02/25/2016

Comment:

C

6496-0

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🕥 On behalf of the Association of Pool & amp; Spa Professionals & #39; 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.

A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health 2. 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.

There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, 3. 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. <u>Where alteration work includes replacement of pool pump motors, a ground-fault circuit-interrupter</u> <u>shall be provided, if one is not already in place.</u>
- 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.

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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

POOL SAFETY PROJECT REPORT

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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

E6496 Text Modification

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/SwimPool_TAC/Swimming_Pool_TA

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 od 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				
	 Identification, Discussion and Acceptability Ranking of Options In Turn 					
E.) ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE						
		COMMISSION				
12:00 PM	LUN	CH				
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				
		Bonding				
		Grounding				
		Retrofitting of Existing Swimming Pools				
		Education of Contractors and Consumers				
3:00 PM	BRE.	ΑΚ				
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				

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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					
		Identification, Discussion and Acceptability Ranking of Options In Turn				
	E.)	Adoption of Phase I Consensus Recommendations for Submittal to the				
		COMMISSION				
12:00 PM	LUN	ICH				
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				
		Bonding				
		Grounding				
		Retrofitting of Existing Swimming Pools				
		Education of Contractors and Consumers				
3:00 PM	BRE.	AK				
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	4=acceptable	3= minor	2=major	1= not acceptable				
October 14, 2015		reservations	reservations					
Option A: Require lo	Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade							
requirements).								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Electrical TAC	4	1	1	3				
(5-4) 56%								
Option B: Maintain N	NEC requireme	nts for new resident	ial pools					
Swimming Pool TAC	6	1	1	1				
(7-2) 78%								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Revised Ranking	4	1	3	1				
Electrical TAC								
(5-4) 56%								
Option C: Require lo	w voltage lighti	ng in residential poo	ols for new construc	tion (Miami-Dade				
requirements) for ene	rgy conservation	on purposes.						
Swimming Pool TAC	5	2	1	1				
(7-2) 78%								
Swimming Pool TAC	2	2	2	3				
(4-5) 44%								
Revised Ranking	2	4	0	3				
Electrical TAC								
(6-3) 67%								
Revised Ranking	3	2	1	3				
Electrical TAC								
(5-4) 56%								
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.				
Swimming Pool TAC	2	1	3	3				
(3-6) 33%								
Electrical TAC	1	1	4	3				
(2-7) 22%								

POOL ELECTRICAL SAFETY PROJECT REPORT 9

E6496 Text Modification

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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.							
Swimming Pool TAC	0	2	5	2			
(2-7) 22%							
Electrical TAC	1	2	6	0			
(3-6) 33%							

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	-
Option A: Require	that all electrical	circuits feeding equ	ipment that could	potentially energize a
pool have GFCI pr	otection for new re	esidential and com	mercial swimming	pools (the goal is to
fill in any gaps in t	he current Code).			
Swimming Pool TAC	4	5	0	0
(9-0) 100%				
Electrical TAC	5	4	0	0
(9-0) 100%				

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	
Option A: Requi	re existing comr	nercial and reside	ential swimming	pools to have GFCI
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the
close out inspecti	on ensuring that	the existing bondi	ing system is com	plete and terminated
properly.	_			-
Swimming Pool TAC	2	3	3	0
(5-3) 63%				
Electrical TAC	4	2	2	0
(6-2) 75%				

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	
Option A: Initiate	a comprehensive e	educational effort to	o ensure there is a c	onsistent message
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing
resources including	g educational prov	iders and association	ons. The effort show	uld include defining
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge to stakeholders
(contractors, consu	imers, home inspe	ctors, pool mainter	nance providers, etc	c.) through training
courses, flyers, bro	chures, websites, e	etc. Key issues for e	education messagin	g include lighting,
bonding, groundin	g, GFCI, mainten	ance of existing po	ols, and monitoring	devices to detect
stray currents in th	e pool water, etc.			
Swimming Pool TAC	9	0	0	0
(9-0) 100%				
Electrical TAC	8	0	0	0
(9-0) 100%				

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

POOL SAFETY PROJECT REPORT

1

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).

POOL SAFETY PROJECT RECOMMENDATIONS 2

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Date Submitted	12/7/2015	Section 454		Proponent	Bryan Holland
Chapter	4	Affects HVHZ	No	Attachments	No
TAC Recommendation Pending Review					

4

Commission Action Pending Review

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 & amp; 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 & amp; 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.

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 exihibits 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

1st Comment Period History

01/13/2016 - 02/25/2016



1st	Comment	Period History		<u>01/13/2016 -</u>	<u>02/25/2016</u>	
	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
E6531-G2	Comment: Support					
<u>1st</u>	Comment	Period History		<u>01/13/2016 -</u>	<u>02/25/2016</u>	
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
<mark>С</mark> С	Comment: On behalf of the Ph.D., who sits	e Association of Pool &am on Panel 17 of the Nation	o; Spa Profess al Electrical Co	ionals' Techn de, the following is	ical Committee, which in submitted:	ncludes E.P. Hamilton III,

This proposal is generally consistent with the NEC. In terms of reference regarding prohibition of lights operating at 1. 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.

531

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454.1.4.1 Electrical equipment and wiring. Electrical equipment wiring and installation, including the <u>bonding and</u> grounding of pool components shall conform with Chapter 27 of the Florida Building Code, Building. <u>Outlets supplying pool equipment and underwater</u> <u>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.</u>

454.2.16 Electrical. Electrical wiring and equipment shall comply with Chapter 27 of the Florida Building Code, Building. <u>Outlets supplying pool equipment and underwater</u> 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.

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E6460

Date Submitted	11/6/2015	Section 2703		Proponent	Bryan Holland
Chapter	35	Affects HVHZ	No	Attachments	Yes
TAC Recommer	dation Pending Review				
Commission Ac	tion Pending Review				

Related Modifications

Yes. See Modification #6458

Summary of Modification

This modification expands the requirements for the installation of lightning protection systems to certain commercial occupancies and provides exceptions to the new rule.

Rationale

Please see the attached file. The FBC currently requires lightning protection for three occupancies in Sections 449, 450, and 453. This modification would expand lightning protection requirements to other commercial occupancies where the calculated Risk Assessment determines a lightning protection system is needed. One- and two-family dwellings would be exempt. The attached substantiation clearly shows the need for lightning protection, especially in the state of Florida, to ensure the health, safety, and public welfare of the citizens of Florida.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification will have a slightly elevated impact to the local AHJ relative to enforcement of the code. This modification will increase the number of lightning protection system installations, thus resulting in increased permits, plan review, and inspection requirements.

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

This modification will increase the cost of compliance. The average cost of a complete LPS is approximately 1% to 5% of total construction cost of the building. However, the cost of the LPS can be off-set as much as 80% by insurance deductions and rebates.

Impact to industry relative to the cost of compliance with code

This modification will increase the cost of compliance to the industry but will also increase the purchase of products and services to complete the LPS installation. This includes engineered documents, project materials, certifications, and permitting.

Requirements

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

This modification significantly enhances the health, safety, and welfare of the public. Florida is the lightning capital of the US and the citizens of this state would most benefit from expanding the current requirements for lightning protection.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction This modification strengthens the code. Compliance with this modification will save persons and property from loses associated with lightning damage. This modification ensures the state of Florida remains a national leader when it comes to lightning safety.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities This modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code but rather enhances the effectiveness of the code by expanding current LPS requirements.

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

<u>1s</u>	<u>t Commen</u>	t Period History		01/13/20	<u>16 - 02/25/2016</u>			
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No		
E6460-G1	Comment: I SUPPORT							
<u>1s</u>	<u>t Commen</u>	t Period History		01/13/20	<u>)16 - 02/25/2016</u>			
	Proponent	Don Whitehead	Submitted	2/3/2016	Attachments	No		
	Comment:							

This change would not affect public schools, since it is the same as 453.17.7. It will bring other building types up to public

educational facility standards.

5

<u>01/13/2016 - 02/25/2016</u>

No

Attachments

2/7/2016

Proponent Vincent Della Croce Submitted

Comment:

Support

Page:

Section 2703 Lightning Protection

2703.1 Lightning Protection. A lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

2703.2 Where additions are constructed to existing building, the existing building's lightning protection system, if connected to the new lightning protection system, shall be inspected and brought into compliance with current standards.

2703.3 Surge protection devices shall be installed for all normal and emergency electrical systems in accordance with NFPA 70, *National Electrical Code*.

Exceptions:

1. One- and two-family dwellings

2. <u>Lightning protection shall not be required for any building or addition where shown unnecessary by evaluation</u> using the *Risk Assessment Guide* in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

$2017 \; FBC-Modification \, \#6460$

Substantiation:

- 1. According to the National Weather Service:
 - a. The are an average of 20 Million lightning strikes in the US each year
 - b. The average lightning strike delivers between 100 Million and 1 Billion volts of electricity
 - c. The average lightning strike delivers between 10,000 and 200,000 amperes of electricity.
- 2. According to the National Weather Service:
 - a. Between 1959 and 1993, 53.1% of all deaths in the state of Florida related to weather were due to lightning. This is more than drowning, tornadoes, hurricanes, wind and, cold combined.
 - b. During these same years, a total of 449 persons died in the state of Florida from lightning, another 1788 were injured. In comparison, the average number of deaths during this period nationwide is only 48.
 - c. The number of lightning deaths and injuries in the state of Florida outpaces every other state in the nation by 3:1.
- 3. According to the National Fire Protection Association:
 - a. There is an average of 70 to 100 thunderstorm days per year in the state of Florida. (National Weather Services)
 - b. There is an average of 8 to 14+ lightning strikes in the state of Florida for every square kilometer per year. (U.S. National Lightning Detection Network)
- 4. According to the National Lightning Safety Institute:
 - a. In 2008 alone, there were 246,200 insurance claims on residential structures in the US. Insured loses on residential properties exceed \$1 billion dollars annually. (Insurance Information Institute, NY, press release, 6/22/09)
 - Lightning is responsible for more than \$5 billion dollars in total insurance losses annually. (Hartford Insurance Co. – TMCNet Newsletter, Sept 14, 2006)
 - During 2002-2004, fire departments responded annually to about 31,000 fires caused by lightning with \$213,000,000 in direct property damage. (NFPA Report, January 2008)
 - d. Looking specifically at storage and processing facilities, lightning accounts for 61% of the accidents initiated by natural events. 16 out of 20 accidents involving petroleum products storage tanks were due to lightning strikes. (Journal of Hazardous Materials 40 (1995) 43-54
 - e. 30% of U.S. businesses suffer damage from lightning storms. (Carnegie Mellon Report, 02/06)

- f. 30% of all power outages annually are lightning-related, on average, with a total cost of \$1 billion dollars. (Ralph Berstein, EPRI; Diels, et al (1997))
- 5. According to the National Oceanic and Atmospheric Administration
 - a. The average cost of lightning-caused damages in the US is between \$5,000 and \$50,000. (Storm Data)
 - b. Between 1959 and 1994, there were 17 lightning losses of over \$5 million dollars. (Storm Data)
 - c. During these same years, 92 lightning losses exceed \$500,000 dollars.
- 6. According to the Factory Mutual System:
 - a. Lightning related private sector property damage costs for the 1990-1992 period averaged \$27 million annually.
 - b. Information complied by the nation's fire chiefs indicate structural lightning losses at \$138.7 million as average over 1989-1993.
 - c. There were 20,000 lightning-caused residential annually during that same period.
 - d. During the period of 1973-1982, there were 2,926 lightning claims for a total cost of \$385 million dollars. Lost time from an idle workforce was not included therein.

Cost:

- 1. The average cost of a complete lightning protection system, including deign, materials, installation, and maintenance is approximately 1% to 5% of total construction cost of the building.
- 2. The average cost to renovate a building with lightning protection after completion of construction is approximately 10 times that of a new building under construction.
- 3. The cost of the lightning protection system can be off-set as much as 80% by insurance deductions and rebates.
- Lightning risk assessment calculations are readily available free online and take approximately 15 minutes to complete.

Enforcement:

- 1. Standard and reference materials are readily available. The NFPA 780 is already a referenced standard in the FBC and mandated by section 449, 450, and 453.
- Underwriter's Laboratories offers lightning protection education for design professionals, installers, and enforcement officials. Systems installed under the provisions of NFPA 780 must be in compliance with UL96 and 96A.

3. UL has been testing and certifying lightning protection equipment since 1908. UL issues inspection certificates for systems by inspecting system components and checking completed installations. Installations are required to comply with UL's internationally recognized Standards for lightning protection systems.

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Date Submitted	11/22/2015	Section 2703		Proponent	Mo Madani
Chapter	35	Affects HVHZ	No	Attachments	Yes
TAC Recommenda	ation Pending Review	1			
Commission Actio	n Pending Review				

Related Modifications

6491

Summary of Modification

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools by requiring that all pool electrical circuits feeding equipment have GFCI protection.

Rationale

The proposed code change provides for provisions necessary to prevent electrocution in swimming pools by requiring that all pool electrical circuits feeding equipment have GFCI protection. (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 prevision.

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.

Requirements

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

The proposed code change has the potential 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 has the potential 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

6

<u>1st</u>	Comment	Period History		01/13/201	6 - 02/25/2016	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6492-G1	Comment: NEUTRAL					
<u>1st</u>	Comment	Period History		01/13/201	<u>6 - 02/25/2016</u>	
	Proponent	Bryan Holland	Submitted	2/22/2016	Attachments	No
E6492-G2	Comment: While I generall #6530 and #653 modification to t	y support the concept of th 31. Proposals specific to f the National Electrical Coc	nis proposed m Florida should l le for this issue	nodification, I be be contained in e.	lieve this action is best add the Florida Building Code,	dressed by modifications so I do not feel we need a
<u>1st</u>	<u>Comment</u>	Period History		01/13/201	<u>6 - 02/25/2016</u>	
	Proponent	Joe Bigelow	Submitted	2/25/2016	Attachments	Yes
E6492-G3	Comment: Comment subm	nitted by Irv Chazen				
<u>1st</u>	Comment	Period History		01/13/201	<u>6 - 02/25/2016</u>	
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
E6492-G4	Comment: On behalf of the Ph.D., who sits 1. This proposa energize a pool energizing the v connection exis connected meta require the use not they are ass equipment grou	e Association of Pool & am on Panel 17 of the Nation I, as written, is vague and ." No voltage level is spect vater in a pool where there ts between the pool water allic underwater light, rega of GFCI protection for per sociated with the pool. A C inding conductor.	p; Spa Profess al Electrical Co unenforceable cified. Further, a is improper, c and the electri rdless of voltag sonnel on each GFCI does not	ionals' Te de, the followin . First, there is since any grou lamaged and/or cal grounding s le, or any bond n and every elec and cannot dete	chnical Committee, which i g is submitted: no definition of "equipment nd fault anywhere on the el r nonexistent equipotential system (e.g., via the green g to water on any pool with a ctrical circuit on the premise ect or protect against curre	ncludes E.P. Hamilton III, that could potentially lectrical system is capable of bonding and an electrical ground wire in a properly pump), the proposal would es, regardless of whether or nt flowing in the green

2. This proposal would require GFCI protection for personnel on the line side of transformers and power supplies serving low voltage lights and any other low voltage equipment not exceeding the LVCL. A GFCI does not and cannot detect or protect against ground faults on the load (low voltage) side of these devices and therefore this rule would require the unnecessary installation of a GFCI on a low voltage light circuit while not providing any level of protection for the low voltage light. The NEC has historically not required GFCI protection for low voltage lights for this reason.

There is no evidence this proposal would provide additional safety, instead we encourage adoption of the 2014 NEC that provides the latest technologies and safety requirements for pools & amp; spas.

1st Comment Period History				01/13/201	<u>6 - 02/25/2016</u>	
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No
	Comment:					

🗘 On behalf of the Association of Pool & amp; Spa Professionals & #39; Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted as a general comment to ALL the swimming pool electrical proposals put forward (ten in total):

1. The appropriate edition of the NEC which should be adopted is the 2014 Edition, which has been in effect since August 21, 2013. Earlier editions do not incorporate changes that reflect and address latest technologies and contain sections that have been eliminated or significantly modified in current editions.

2. The 15 volt ac limit utilized in editions of the NEC prior to the 2011 edition has been superseded by the Low Voltage Contact Limit (LVCL), which addresses current technology. All references to 15 volts ac should be replaced with the LVCL (as defined in the NEC). The LVCL is defined as follows: Low Voltage Contact Limit. A voltage not exceeding the following values: (1) 15 volts RMS for sinusoidal ac

(2) 21.2 volts peak for nonsinusoidal ac

(3) 30 volts for continuous dc

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(4) 12.4 volts peak for dc that is interrupted at a rate of 10 to 200 Hz

With the adoption of the 2014 NEC, Florida will have the edition that provides the latest technologies and safety requirements for pools & amp; spas. Proper education of these requirements and hiring of properly licensed contractors who go through the permitting process is critical.

Chapter 27 Electrical

Add Section 2703 GFCI Protection to read as follows:

Section 2703 GFCI Protection

2703.1 NFPA70-14 National Electric Code, Article 680.21 (Motors), Section 680.21(C) GFCI Protection, is amended to read as follows:

Revise 680.21(C) to read as follows:

(C) GFCI Protection. Outlets supplying pool pump motors to a single phase. 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel. <u>All electrical circuits feeding equipment that could potentially energize a pool shall also be provided with ground-fault circuit-interrupter.</u>

Page:

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

POOL SAFETY PROJECT REPORT

1

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

E6492 Text Modification

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/SwimPool_TAC/Swimming_Pool_TA

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 od 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						
		 Identification, Discussion and Acceptability Ranking of Options In Turn 						
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE						
		COMMISSION						
12:00 PM	LUN	CH						
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						
		Bonding						
		Grounding						
		Retrofitting of Existing Swimming Pools						
		Education of Contractors and Consumers						
3:00 PM	BRE	AK						
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						

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						
		 Identification, Discussion and Acceptability Ranking of Options In Turn 						
	E.)	Adoption of Phase I Consensus Recommendations for Submittal to the						
		COMMISSION						
12:00 PM	LUN	ICH						
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						
		Bonding						
		Grounding						
		Retrofitting of Existing Swimming Pools						
		Education of Contractors and Consumers						
3:00 PM	BRE.	AK						
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	4=acceptable	3= minor	2=major	1= not acceptable
October 14, 2015		reservations	reservations	
Option A: Require lo	w voltage light	ing in residential po	ols for new construc	ction (Miami-Dade
requirements).				
Swimming Pool TAC	5	1	1	2
(6-3) 67%				
Electrical TAC	4	1	1	3
(5-4) 56%				
Option B: Maintain N	VEC requireme	nts for new resident	ial pools	
Swimming Pool TAC	6	1	1	1
(7-2) 78%				
Swimming Pool TAC	5	1	1	2
(6-3) 67%				
Revised Ranking	4	1	3	1
Electrical TAC				
(5-4) 56%				
Option C: Require lo	w voltage lighti	ng in residential poo	ols for new construc	tion (Miami-Dade
requirements) for ene	rgy conservation	on purposes.		
Swimming Pool TAC	5	2	1	1
(7-2) 78%				
Swimming Pool TAC	2	2	2	3
(4-5) 44%				
Revised Ranking	2	4	0	3
Electrical TAC				
(6-3) 67%				
Revised Ranking	3	2	1	3
Electrical TAC				
(5-4) 56%				
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.
Swimming Pool TAC	2	1	3	3
(3-6) 33%				
Electrical TAC	1	1	4	3
(2-7) 22%				

POOL ELECTRICAL SAFETY PROJECT REPORT 9

E6492 Text Modification

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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.							
Swimming Pool TAC	0	2	5	2			
(2-7) 22%							
Electrical TAC	1	2	6	0			
(3-6) 33%							

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

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

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015	_	reservations	reservations	_
Option A: Requi	re existing comr	nercial and reside	ential swimming	pools to have GFCI
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the
close out inspecti	on ensuring that	the existing bondi	ing system is com	plete and terminated
properly.				
Swimming Pool TAC	2	3	3	0
(5-3) 63%				
Electrical TAC	4	2	2	0
(6-2) 75%				

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable			
October 14, 2015		reservations	reservations				
Option A: Initiate	a comprehensive e	educational effort to	o ensure there is a c	onsistent message			
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing			
resources including	g educational prov	iders and association	ons. The effort show	uld include defining			
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge to stakeholders			
(contractors, consu	imers, home inspe	ctors, pool mainter	nance providers, etc	c.) through training			
courses, flyers, bro	chures, websites, e	etc. Key issues for e	education messagin	g include lighting,			
bonding, groundin	g, GFCI, mainten	ance of existing po	ols, and monitoring	devices to detect			
stray currents in th	stray currents in the pool water, etc.						
Swimming Pool TAC	9	0	0	0			
(9-0) 100%							
Electrical TAC	8	0	0	0			
(9-0) 100%							

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

POOL SAFETY PROJECT REPORT

1

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).

POOL SAFETY PROJECT RECOMMENDATIONS 2



CERTIFIED GUNITE COMPANY, INC. • INCORPORATED IN FLORIDA AUGUST, 1964

February 23, 2016

E6492 -G3 General Comment

TO: MEMBERS OF THE FLORIDA BUILDING COMMISSION

Innocent people are being electrocuted in their own backyard swimming pools. The prevention of electrocution is well worth the few additional cost dollars. I do not want the pools that I build, or the pools built by other members of my industry, to cause death or serious injury to the people who only want to enjoy them. I have been building swimming pools in Dade County since 1959. CC# 0605 was issued to me at that time. My company has installed GFCI breakers in the electrical panels together with 12 volt reduction transformers to power 12 volt pool lights in all of the pools we have built for about the past 30 years. We have not had one incident of electric shock or electrocution since then.

The NEC does not provide adequate protection from electrical shock and electrocution. Incidents of electric shock and electrocution have occurred in swimming pools that were built to NEC standards. The installation of GFCI breakers in the electrical panel together with voltage reduction transformers and low volt lights would provide the level of protection needed to prevent further incidents of this type of avoidable accident.

Implementing these code changes would then eliminate the present double standard that makes low volt lighting mandatory in commercial swimming pools, but not in residential swimming pools. We need to place the safety of the people and families who reside in Florida, ahead of efforts to save a few dollars. As lawmakers, you are empowered to change the building code and remove the danger of having people die from electrocution, while having fun in their backyard pools.

Thank you for giving serious consideration to my recommendations and for allowing me to express my opinion to you on this very crucial topic.

CUSTOM POOLS

Chazen,

13250 S.W. 131 STREET, SUITE 100 • MIAMI, FLORIDA 33186 • PHONE: 305 NEW POOL • FAX: 305 255-9720 www.custompoolsmiami.com

Sub Code: Existing Building

E6529						7
Date Submitted	12/7/2015	Section 302.6		Proponent	Bryan Holland	
Chapter	3	Affects HVHZ	No	Attachments	No	
TAC Recommend	ation Pending Review					

Commission Action Pending Review

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.

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

<u>1st</u>	Comment	t Period History		01/13/2016	- 02/25/2016	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6529-G1	Comment: I SUPPORT					
<u>1st</u>	Comment	t Period History		01/13/2016	- 02/25/2016	
	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
2	Comment: Support					

1st Comment Period History

01/13/2016 - (02/25/2016	

Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments No

Comment:

2. Ŭ

On behalf of the Association of Pool & amp; Spa Professionals #39; 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.

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. 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.

Page:

E6493		<u>.</u>		· · · · · · · · · · · · · · · · · · ·		8
Date Submitted	11/22/2015	Section 413		Proponent	Mo Madani	
Chapter	4	Affects HVHZ	No	Attachments	Yes	
TAC Recommend	ation Pending Review	,		•		
Commission Acti	on Pending Review	V				
Related Modifica	ations					
6491						
6492						
Summary of Mo	dification					
The propos	sed code change requires	GFCI protection be pro	ovided for replacen	nent of pool pump motors	s, if not already in place	2.
Rationale						
The propos	sed code change provides	for provisions necessa	iry to prevent elect	rocution in swimming po	ols by requiring GFCI p	rotection.
Fiscal Impact St	atement					
Impact to Furth	local entity relative to enformer enforcement/inspection	brcement of code is would be necessary	by the enforcemer	nt agencies to implement	this prevision.	
Impact to The swin	building and property owr proposed code change has nming pools.	ners relative to cost of s the potential of addin	compliance with g cost to construct	code ion and at the same time	reducing electrocution	in
Impact to i	industry relative to the co	st of compliance with	code			
The swin	proposed code change has nming pools.	s the potential of addin	g cost to construct	ion and at the same time	reducing electrocution	in
Requirements						
Has a reas	onable and substantial co	onnection with the hea	alth, safety, and we	elfare of the general pub	olic	
The	www.www.and.and.and.and.im.	analia tha anda bu ana	uidina navuinina f			
Strengther	proposed code change imp	proves the code by pro	nt or bottor produ	or reducing electrocution	in swimming pools.	
The	proposed code change im	proves the code by pro	vidina provisions f	or reducing electrocution	in swimming pools	
Does not a	discriminate against mater	rials, products, metho	ds. or systems of	construction of demons	trated capabilities	
The	proposed code change do	es not discriminate aga	ainst materials or p	roducts.		
Does not o	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

<u>1st</u>	Comment	Period History		01/13/201	<u>6 - 02/25/2016</u>	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6493-G1	Comment: NEUTRAL					
<u>1st</u>	Comment	Period History		01/13/201	<u>6 - 02/25/2016</u>	
-	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.

|--|

Comment Period History		<u>01/13/201</u>	<u> 16 - 02/25/2016</u>		
Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No

Comment:

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🕥 On behalf of the Association of Pool & amp; Spa Professionals & #39; 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.

A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health 2. 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.

There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, 3. 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.

E6493 Text Modification

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.

Page:
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

POOL SAFETY PROJECT REPORT

1

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

E6493 Text Modification

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_Po

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 od 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
		 Identification, Discussion and Acceptability Ranking of Options In Turn
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE
		COMMISSION
12:00 PM	LUN	СН
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
		Bonding
		Grounding
		Retrofitting of Existing Swimming Pools
		 Education of Contractors and Consumers
3:00 PM	BRE	AK
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

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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						
		 Identification, Discussion and Acceptability Ranking of Options In Turn 						
	E.)	Adoption of Phase I Consensus Recommendations for Submittal to the						
		COMMISSION						
12:00 PM	LUN	ICH						
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						
		Bonding						
		Grounding						
		Retrofitting of Existing Swimming Pools						
		Education of Contractors and Consumers						
3:00 PM	BRE	AK						
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	4=acceptable	3= minor	2=major	1= not acceptable				
October 14, 2015		reservations	reservations					
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade								
requirements).								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Electrical TAC	4	1	1	3				
(5-4) 56%								
Option B: Maintain NEC requirements for new residential pools								
Swimming Pool TAC	6	1	1	1				
(7-2) 78%								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Revised Ranking	4	1	3	1				
Electrical TAC								
(5-4) 56%								
Option C: Require low voltage lighting in residential pools for new construction (Miami-Dade								
requirements) for ene	rgy conservation	on purposes.						
Swimming Pool TAC	5	2	1	1				
(7-2) 78%								
Swimming Pool TAC	2	2	2	3				
(4-5) 44%								
Revised Ranking	2	4	0	3				
Electrical TAC								
(6-3) 67%								
Revised Ranking	3	2	1	3				
Electrical TAC								
(5-4) 56%								
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.				
Swimming Pool TAC	2	1	3	3				
(3-6) 33%								
Electrical TAC	1	1	4	3				
(2-7) 22%								

POOL ELECTRICAL SAFETY PROJECT REPORT 9

E6493 Text Modification

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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.							
Swimming Pool TAC	0	2	5	2			
(2-7) 22%							
Electrical TAC	1	2	6	0			
(3-6) 33%							

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding	4=acceptable	3= minor	2=major	1 = not acceptable				
October 14, 2015		reservations	reservations	-				
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).								
Swimming Pool TAC	4	5	0	0				
(9-0) 100%								
Electrical TAC	5	4	0	0				
(9-0) 100%								

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable					
October 14, 2015	_	reservations	reservations	_					
Option A: Requi	Option A: Require existing commercial and residential swimming pools to have GFCI								
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI					
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the					
close out inspecti	close out inspection ensuring that the existing bonding system is complete and terminated								
properly.									
Swimming Pool TAC	2	3	3	0					
(5-3) 63%									
Electrical TAC	4	2	2	0					
(6-2) 75%									

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable				
October 14, 2015		reservations	reservations					
Option A: Initiate a comprehensive educational effort to ensure there is a consistent message								
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing				
resources including	g educational prov	iders and association	ons. The effort show	uld include defining				
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge 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.								
Swimming Pool TAC	9	0	0	0				
(9-0) 100%								
Electrical TAC	8	0	0	0				
(9-0) 100%								

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

POOL SAFETY PROJECT REPORT

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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).

POOL SAFETY PROJECT RECOMMENDATIONS 2

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ate Submitted	11/22/2015	Section 709	Proponent	Mo Madani
Chapter	7	Affects HVHZ No	Attachments	Yes
FAC Recommend	ation Pending Revie	W	• •	
Commission Activ	on Pending Revie	ew .		
Related Modifica	ations			
6491, 6492	, 6493			
Summary of Mo	dification			
The propos	sed code change require	s GFCI protection be provided	for replacement of pool pump mote	ors, if not already in place.
Rationale				
The propos	sed code change provide	s for provisions necessary to	prevent electrocution in swimming p	bools. Also, see upleaded files.
Fiscal Impact St	atement			
Impact to I	ocal entity relative to en	forcement of code		
Furth	ner enforcement/inspection	ons would be necessary by the	e enforcement agencies to impleme	ent this prevision.
Impact to I	ouilding and property ov	vners relative to cost of com	pliance with code	
The	proposed code change h	as the potential of adding cost	t to construction and at the same tir	ne reducing electrocution in
swim	iming pools.			
Impact to i	ndustry relative to the c	ost of compliance with code		
Ine	proposed code change h	as the potential of adding cost	t to construction and at the same tir	ne reducing electrocution in
Swift	iming pools.			
Has a reas	onable and substantial	connection with the health s	afety, and welfare of the general p	ublic
The	proposed code change in	nproves the code by providing	provisions for reducing electrocution	on in swimming pools.
Strengther	ns or improves the code	, and provides equivalent or	better products, methods, or syste	ems of construction
The	proposed code change ir	nproves the code by providing	provisions for reducing electrocution	on in swimming pools.
Does not c	liscriminate against mat	erials, products, methods, or	r systems of construction of demo	nstrated capabilities
The	proposed code change d	oes not discriminate against n	naterials or products.	
Does not c	legrade the effectivenes	s of the code		
	proposed code change in	nproves the code by providing	g provisions for reducing electrocuti	on in swimming pools.
The				•
the proposed co	de modification part of a	prior code version? No		
the proposed co 1st Comme	de modification part of a ent Period Histo	rior code version? No	<u> 3/2016 - 02/25/2016</u>	
the proposed con 1st Comme Proponent	de modification part of a ent Period Histo Thomas Lasprogato	ry 01/13 Submitted 2/3/2016	3/2016 - 02/25/2016 6 Attachments N	0

NEUTRAL E6494-G1

1st Comment Period History

01/13/2016 - 02/25/2016

Proponent	Bryan Holland	Submitted	2/22/2016	Attachments	No

While I generally support the concept of this proposed modification, I believe this action is best addressed by modification #6529.

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Comment Period History			<u>01/13/201</u>	<u>6 - 02/25/2016</u>	
Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No

Comment:

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6494

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🕥 On behalf of the Association of Pool & amp; Spa Professionals & #39; Technical Committee, which includes E.P. Hamilton III, Ph.D., who sits on Panel 17 of the National Electrical Code, the following is submitted:

No enforcement measures are identified. 1.

A retrofit program was implemented in California for non-residential pools only. Enforcement was through the county health 2. 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.

There is no assurance that a homeowner or other untrained personnel will not try to perform the retrofit to avoid costs, 3. 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.

E6494 Text Modification

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. <u>Where alteration work includes replacement of pool pump motors, a ground-fault circuit-interrupter</u> <u>shall be provided, if one is not already in place.</u>
- 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.

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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

POOL SAFETY PROJECT REPORT

1

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

E6494 Text Modification

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_Po

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 od 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					
		 Identification, Discussion and Acceptability Ranking of Options In Turn 					
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE					
		COMMISSION					
12:00 PM	LUN	СН					
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					
		Bonding					
		Grounding					
		Retrofitting of Existing Swimming Pools					
		 Education of Contractors and Consumers 					
3:00 PM	BRE	AK					
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					

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.)	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							
		 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							
		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	4=acceptable	3= minor	2=major	1 = not acceptable				
October 14, 2015		reservations	reservations					
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade								
requirements).								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Electrical TAC	4	1	1	3				
(5-4) 56%								
Option B: Maintain N	IEC requireme	nts for new resident	ial pools					
Swimming Pool TAC	6	1	1	1				
(7-2) 78%								
Swimming Pool TAC	5	1	1	2				
(6-3) 67%								
Revised Ranking	4	1	3	1				
Electrical TAC								
(5-4) 56%								
Option C: Require lo	w voltage lighti	ng in residential poo	ols for new construc	tion (Miami-Dade				
requirements) for ene	ergy conservation	on purposes.						
Swimming Pool TAC	5	2	1	1				
(7-2) 78%								
Swimming Pool TAC	2	2	2	3				
(4-5) 44%								
Revised Ranking	2	4	0	3				
Electrical TAC								
(6-3) 67%								
Revised Ranking	3	2	1	3				
Electrical TAC								
(5-4) 56%								
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.				
Swimming Pool TAC	2	1	3	3				
(3-6) 33%								
Electrical TAC	1	1	4	3				
(2-7) 22%								

POOL ELECTRICAL SAFETY PROJECT REPORT 9

E6494 Text Modification

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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.							
Swimming Pool TAC	0	2	5	2			
(2-7) 22%							
Electrical TAC	1	2	6	0			
(3-6) 33%							

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

Grounding	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	-
Option A: Require	that all electrical	circuits feeding equ	ipment that could	potentially energize a
pool have GFCI pr	otection for new re	esidential and com	mercial swimming	pools (the goal is to
fill in any gaps in t	he current Code).			
Swimming Pool TAC	4	5	0	0
(9-0) 100%				
Electrical TAC	5	4	0	0
(9-0) 100%				

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable				
October 14, 2015		reservations	reservations					
Option A: Requi	Option A: Require existing commercial and residential swimming pools to have GFCI							
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI				
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the				
close out inspecti	on ensuring that	the existing bondi	ing system is com	plete and terminated				
properly.	_			-				
Swimming Pool TAC	2	3	3	0				
(5-3) 63%								
Electrical TAC	4	2	2	0				
(6-2) 75%								

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable
October 14, 2015		reservations	reservations	
Option A: Initiate	a comprehensive e	educational effort to	o ensure there is a c	onsistent message
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing
resources including	g educational prov	iders and association	ons. The effort show	uld include defining
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge to stakeholders
(contractors, consu	imers, home inspe	ctors, pool mainter	nance providers, etc	c.) through training
courses, flyers, bro	chures, websites, e	etc. Key issues for e	education messagin	g include lighting,
bonding, groundin	g, GFCI, mainten	ance of existing po	ols, and monitoring	devices to detect
stray currents in th	e pool water, etc.			
Swimming Pool TAC	9	0	0	0
(9-0) 100%				
Electrical TAC	8	0	0	0
(9-0) 100%				

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

POOL SAFETY PROJECT REPORT

1

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).

POOL SAFETY PROJECT RECOMMENDATIONS 2

E6494 Text Modification

Sub Code: Residential

E7078

E7078	}		<u>.</u>		10
Date Submitted	1/1/2016	Section 3902	Proponent	Joseph Belcher	
Chapter	39	Affects HVHZ Yes	Attachments	No	
TAC Recommer	ndation Pending Review				
Commission Ac	tion Pending Review				
Deleted Marsh					

Related Modifications

Summary of Modification

Removes kitchen and laundry areas from code.

Rationale

FHBA believes arc fault protection in locations where appliances and other mechanical equipment may cause frequent arcs will be problematic. If people are away from their homes when an arc fault circuit interrupter activates on a refrigerator or freezer located in the kitchen or a laundry room or perhaps a spare refrigerator or freezer in a garage or other room, it could result in considerable loss of food and substantial expense to replace. FHBA recommends retaining 2011 NEC Section 210.12 (A) with the Exceptions 1 – 3 and (B). A recent report by the University of Florida estimates the cost of compliance with the revisions to E3902.16 [NEC 210.12(A)] will cost \$200.00 per house. Nationally, from 2006 to 2010 arc or sparks from operating equipment was the factor contributing to fires in 110 fires or 6% of the total with no civilian deaths or injuries. (Home Structure Fires Involving Kitchen Equipment Other Than Cooking Equipment, John R. Hall, Jr., NFPA Fire Analysis and Research Division, November 2012) The National Association of Home Builders estimates a cost of over \$2.5 BILLION per year nationally to provide all the fault protection required in dwellings.

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 Approximate savings of \$200 per unit with no increased risk.

Impact to industry relative to the cost of compliance with code

Approximate savings of \$200 per unit with no increased risk.

Requirements

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

While we agree there is always a risk, the risk of false activations and loss of food seem greater.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction The proposal will remove an unnecessary expansion of the code thereby improving the code.

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 code.

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

1st Comment Period History				01/13/20	<u>)16 - 02/25/2016</u>	
Propo	nent Th	nomas Lasprogato	Submitted	2/3/2016	Attachments	No

Comment: I OPPOSE

1st	Comment	Period History		01/13/2016 - 02/25	/2016	
	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No
	Comment:					
3-G2	Oppose. o The loss in fi circuits that are	re, injury and death far ex subject to hazardous arcir	ceeds that of long faults and no	ost food in a refrigerator. ot just the refrigerator.	The kitchen requ	irement includes all branch

o Cord-and-plug kitchen and laundry appliances are fully compatible with AFCI devices. There should be no interoperability issues with AFCIs on kitchen and laundry area branch circuits. Several states, such as Texas and Georgia have been requiring the installation of AFCIs in accordance with the 2014 NEC & amp; 2015 IRC for over a year. There have been no reported problems or issues with unwanted or nuisance tripping in these states.

o Branch circuits supplying these two areas are the same wiring method (NM cable) and are routed in the same locations as other AFCI protected circuits (in attics and behind walls). The exposure to damage from sharp points, nails and screws is the same for all branch circuits supplying outlets and devices within a dwelling.

o AFCI protection has been endorsed by the NFPA, NEMA, CPSC, ESFI, NECA, and the IAEI.

<u>st Commer</u>	nt Period Histo	ry	01/13/201	<u>16 - 02/25/2016</u>	
Proponent	Bryan Holland	Submitted	2/24/2016	Attachments	No

Comment:

E7078-G3

The National Electrical Manufacturers Association (NEMA) strongly opposes this proposed modification to the Florida Building Code. The substantiation provided by the proponent simply does not justify the reduction in safety that would result with the deletion of AFCI protection of branch circuits that supply kitchens and laundry areas. The cost to replace groceries can never be compared to the loss in life and property from fire. The savings to Floridian's as a result of this proposal would be completely wiped away by the death of a single person from an electrical fire that could have been prevented by AFCI protection. AFCI protection represents an extremely inexpensive and effective public safety policy.

NEMA urges the members of the Electrical TAC to reject this proposal and keep the expansion of this life saving device intact. The state of Florida has had a history of supporting and prompting above-code policies when it comes to the safety of persons and property from the use of electricity. Let's not start a precedent with the approval of this proposal that will result in less effective safety codes, higher insurance premiums, greater property loss, and diminished public trust in the government.

We greatly appreciate your sincere consideration of this important issue. Thank You.

E3902.16 Arc-fault circuit-interrupter protection. Branch circuits that supply 120-volt, singlephase, 15- and 20- ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by any of the following: [210.12(A)]

REMAINDER OF SECTION UNCHANGED

Page:

E6491

L0491						11	
Date Submitted	11/22/2	2015	Section 4203.1.	.3	Proponent	Mo Madani	
Chapter	42		Affects HVHZ	No	Attachments	Yes	
TAC Recommend Commission Action	ation on	Pending Review Pending Review					
Related Modifica	ations						
Summary of Moo The propos electrical c	d ification sed code ircuits fee	change provides for eding equipment have	provisions necessar e GFCI protection.	ry to prevent electrocu	ution in swimming pools	by requiring that all pool	
Rationale							
As directed uploaded s	d by the C support fil	commission, the said es.	code change was s	ubmitted to improve/p	prevent electrocution in	swimming pools. Also, see	
Fiscal Impact Sta	atement						
Impact to I	ocal entit	ty relative to enforce	ement of code				
	~						

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

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.

Requirements

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

The proposed code change has the potential 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 has the potential 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

<u>1st</u>	Comment	Period History		01/13/2016 - 02/25	<u>5/2016</u>	
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No
E6491-G2	Comment: NEUTRAL					
<u>1st</u>	Comment	Period History		01/13/2016 - 02/25	<u>5/2016</u>	
	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 modifications

9 #6530 and #6531.

st Comment Period History			01/13/201	<u>01/13/2016 - 02/25/2016</u>		
Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No	

Comment:

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On behalf of the Association of Pool & amp; Spa Professionals #39; 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, as written, is vague and unenforceable. First, there is no definition of "equipment that could potentially energize a pool." No voltage level is specified. Further, since any ground fault anywhere on the electrical system is capable of energizing the water in a pool where there is improper, damaged and/or nonexistent equipotential bonding and an electrical connection exists between the pool water and the electrical grounding system (e.g., via the green ground wire in a properly connected metallic underwater light, regardless of voltage, or any bond to water on any pool with a pump), the proposal would require the use of GFCI protection for personnel on each and every electrical circuit on the premises, regardless of whether or not they are associated with the pool. A GFCI does not and cannot detect or protect against current flowing in the green equipment grounding conductor.

2. This proposal would require GFCI protection for personnel on the line side of transformers and power supplies serving low voltage lights and any other low voltage equipment not exceeding the LVCL. A GFCI does not and cannot detect or protect against ground faults on the load (low voltage) side of these devices and therefore this rule would require the unnecessary installation of a GFCI on a low voltage light circuit while not providing any level of protection for the low voltage light. The NEC has historically not required GFCI protection for low voltage lights for this reason.

There is no evidence this proposal would provide additional safety, instead we encourage adoption of the 2014 NEC that provides the latest technologies and safety requirements for pools & amp; spas.

Chapter 42 Swimming Pools

Revise Section E4203.1.3 to read as follows:

E4203.1.3 GFCI protection. All 15- and 20-ampere, single phase, 125-volt receptacles located within 20 feet (6096 mm) of the inside walls of pools and outdoor spas and hot tubs shall be protected by a ground-fault circuit interrupter. Outlets supplying pool pump motors supplied

from branch circuits rated at 120 volts through 240 volts, single phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel. <u>All electrical circuits feeding</u> equipment that could potentially energize a pool shall also be provided with ground-fault circuit-interrupter. [680.21(C) and 680.22(A)(4)]

Page:
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

POOL SAFETY PROJECT REPORT

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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

E6491 Text Modification

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/Swimping_Pool_TAC/Swimping_Po

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 od 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.)	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)	2013) IDENITIERCATION DECORPTONI AND ACCEPTABLETY DANKING OF DUAGE I				
	D.)	OPTIONS				
		Requirement for Low Voltage Lighting in Residential Pools for New Construction				
		 Identification, Discussion and Acceptability Ranking of Options In Turn 				
	E.)	ADOPTION OF PHASE I CONSENSUS RECOMMENDATIONS FOR SUBMITTAL TO THE				
		COMMISSION				
12:00 PM	LUN	СН				
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				
		Bonding				
		Grounding				
		Retrofitting of Existing Swimming Pools				
		Education of Contractors and Consumers				
3:00 PM	BRE.	AK				
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				

Electrical

POOL ELECTRICAL SAFETY PROJECT REPORT 7

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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.)	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						
		Identification, Discussion and Acceptability Ranking of Options In Turn						
	E.)	Adoption of Phase I Consensus Recommendations for Submittal to the						
		COMMISSION						
12:00 PM	LUN	ICH						
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						
		Bonding						
		• Grounding						
		Retrofitting of Existing Swimming Pools						
		Education of Contractors and Consumers						
3:00 PM	BRE	AK						
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	Voltage 4=acceptable 3=		2=major	1 = not acceptable			
October 14, 2015		reservations	reservations				
Option A: Require low voltage lighting in residential pools for new construction (Miami-Dade							
requirements).							
Swimming Pool TAC	5	1	1	2			
(6-3) 67%							
Electrical TAC	4	1	1	3			
(5-4) 56%							
Option B: Maintain N	IEC requireme	nts for new resident	ial pools				
Swimming Pool TAC	6	1	1	1			
(7-2) 78%							
Swimming Pool TAC	5	1	1	2			
(6-3) 67%							
Revised Ranking	4	1	3	1			
Electrical TAC							
(5-4) 56%							
Option C: Require lo	w voltage lighti	ng in residential poo	ols for new construc	tion (Miami-Dade			
requirements) for ene	rgy conservation	on purposes.					
Swimming Pool TAC	5	2	1	1			
(7-2) 78%							
Swimming Pool TAC	2	2	2	3			
(4-5) 44%							
Revised Ranking	2	4	0	3			
Electrical TAC							
(6-3) 67%							
Revised Ranking	3	2	1	3			
Electrical TAC							
(5-4) 56%							
Option D: Require L	ED pool lights	with plastic niches o	or without niches in	new construction.			
Swimming Pool TAC	2	1	3	3			
(3-6) 33%							
Electrical TAC	1	1	4	3			
(2-7) 22%							

POOL ELECTRICAL SAFETY PROJECT REPORT 9

E6491 Text Modification

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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.									
Swimming Pool TAC	0	2	5	2					
(2-7) 22%									
Electrical TAC	1	2	6	0					
(3-6) 33%	(3-6) 33%								

II. PHASE II RECOMMENDATIONS

1. BONDING

No specific options were evaluated for bonding.

2. GROUNDING

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

3. RETROFITTING OF EXISTING POOLS

Retrofitting	4=acceptable	3= minor	2=major	1 = not acceptable					
October 14, 2015	_	reservations	reservations						
Option A: Requi	Option A: Require existing commercial and residential swimming pools to have GFCI								
protection for rep	placement pool p	ump motors, if n	ot already in place	ce; to provide GFCI					
protection for the	replacement of 120) volt pool lights wl	hen they are replac	ed; and, as part of the					
close out inspecti	on ensuring that	the existing bondi	ing system is com	plete and terminated					
properly.	properly.								
Swimming Pool TAC	2	3	3	0					
(5-3) 63%	(5-3) 63%								
Electrical TAC	4	2	2	0					
(6-2) 75%									

4. EDUCATION INITIATIVES FOR CONTRACTORS AND CONSUMERS

Education	4=acceptable	3= minor	2=major	1 = not acceptable				
October 14, 2015		reservations	reservations					
Option A: Initiate	Option A: Initiate a comprehensive educational effort to ensure there is a consistent message							
to enhance pool ele	ectrical safety issue	es for existing and	new pools by worki	ng with existing				
resources including	g educational prov	iders and association	ons. The effort show	uld include defining				
the problems, iden	tifying solutions a	nd communicating	a consistent messa	ge to stakeholders				
(contractors, consu	imers, home inspe	ctors, pool mainter	nance providers, etc	c.) through training				
courses, flyers, bro	chures, websites, e	etc. Key issues for e	education messagin	g include lighting,				
bonding, groundin	g, GFCI, mainten	ance of existing po	ols, and monitoring	devices to detect				
stray currents in th	e pool water, etc.							
Swimming Pool TAC	9	0	0	0				
(9-0) 100%								
Electrical TAC	8	0	0	0				
(9-0) 100%								

POOL ELECTRICAL SAFETY PROJECT REPORT 11

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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.

POOL SAFETY PROJECT REPORT

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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).

POOL SAFETY PROJECT RECOMMENDATIONS 2

Date Submitted	12/7/2015	Section 4501.16	Proponent	Bryan Holland
Chapter	45	Affects HVHZ No	Attachments	No
TAC Recommend	lation Pending Review			

Commission Action Pending Review

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.

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 exihibits 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?

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<u>1st</u>	Comment	Period History		01/13/2016 - 02/25	/2016		
	Proponent	Thomas Lasprogato	Submitted	2/3/2016	Attachments	No	
E6530-G1	Comment: I SUPPORT						
1st	Comment	Period History		01/13/2016 - 02/25	/2016		
	Proponent	Vincent Della Croce	Submitted	2/7/2016	Attachments	No	
	Comment:						
E6530-G2	Support						
<u>1st</u>	Comment	Period History		01/13/2016 - 02/25	<u>/2016</u>		
	Proponent	Jennifer Hatfield	Submitted	2/25/2016	Attachments	No	
6530-G3	 Comment: On behalf of the Association of Pool & amp; 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 						

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.

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E6530 Text Modification

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.

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