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# MEMORANDUM

**TO:** Technical Committee on Electrical Systems

**FROM:** Elena Carroll, *Project Administrator* 

**DATE:** November 20, 2018

SUBJECT: NFPA 99 First Draft Technical Committee FINAL Ballot Results (A2020)

According to the final ballot results, all ballot items received the necessary affirmative votes to pass ballot.

- 29 Members Eligible to Vote
- 3 Members Not Returned (Fiske, Meade, Sappington)

The attached report shows the number of affirmative, negative, and abstaining votes as well as the explanation of the vote for <u>each</u> revision.

To pass ballot, <u>each</u> revision requires: (1) a simple majority of those eligible to vote and (2) an affirmative vote of  $^{2}/_{3}$  of ballots returned. See Sections 3.3.4.3.(c) and 4.3.10.1 of the *Regulations Governing the Development of NFPA Standards*.

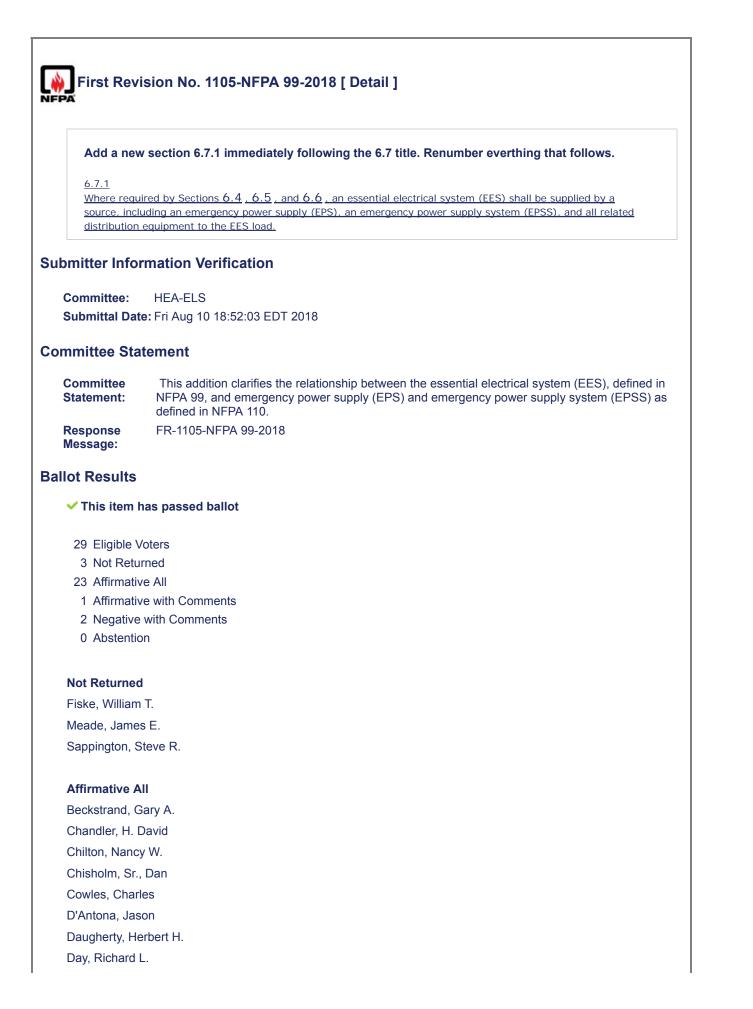
First Revision No. 1100-NFPA 99-2018 [ Global Input ]				
	In Sections 6.7.5.3, 6.7.6.1, 6.7.6.2, 6.7.6.4 remove the parenthetical reference to Type 1 or Type 2 where used in the section title.			
Sub	mitter Information Verification			
-	Committee: HEA-ELS Submittal Date: Fri Aug 10 12:54:44 EDT 2018			
Con	mittee Statement			
	Committee Statement: Editorially revised for consistency. Response Message: FR-1100-NFPA 99-2018			
Ball	ot Results			
	This item has passed ballot			
	<ul> <li>29 Eligible Voters</li> <li>3 Not Returned</li> <li>25 Affirmative All</li> <li>1 Affirmative with Comments</li> <li>0 Negative with Comments</li> <li>0 Abstention</li> </ul>			
	Not Returned			
	Fiske, William T.			
	Meade, James E.			
	Sappington, Steve R.			
	Affirmative All			
	Beckstrand, Gary A.			
	Chandler, H. David			
	Chilton, Nancy W.			
	Chisholm, Sr., Dan			
	Cowles, Charles			
	D'Antona, Jason			
	Dagenais, David A.			
	Daugherty, Herbert H.			
	Day, Richard L.			
	Finen, Chris M.			
	Gwynn, Pamela			
	Krupa, Gary J.			

McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

# Affirmative with Comment

Rock, Brian E.

The Sections identified in the First Revision FR-1100 as "6.7.5.3, 6.7.6.1, 6.7.6.2, 6.7.6.4" should be indicated as 6.7.6.3, 6.7.7.1, 6.7.7.2, and 6.7.7.4, respectively, as displayed in TerraView.



Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

Rock, Brian E.

• In accordance with 1.8.3.2 of the Manual of Style for NFPA Technical Committee Documents, because all other Subsections of this Section have titles, for consistency this Subsection should have a title as well, such as "Emergency Power Supply (EPS) and Emergency Power Supply System (EPSS)". . • This addition of an organizing title might in part address the AHJ confusion concern raised by Mr. Smidt's ballot comment.

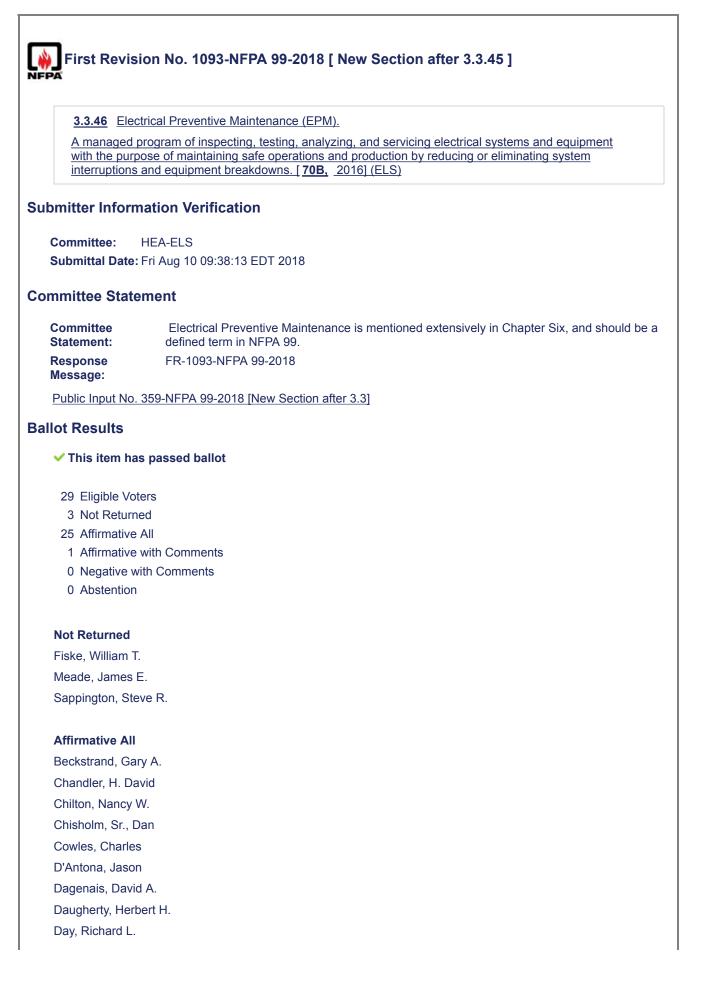
### **Negative with Comment**

Dagenais, David A.

This implies that the EES should be made up of 3 parts that will be confusing for the AHJ

Smidt, Ronald M.

This paragraph seems to say that you're essential electrical systems must be made up by at least three distinct parts – the source, the emergency power supply (EPS) and the emergency power supply system (EPSS) which I think will be confusing to AHJ's looking for these distinct parts of the essential electrical system. Although those are all covered by the EES, they are rarely distinct systems within the EES



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Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

### Rock, Brian E.

Correlation Note 1: The defined term is "Electrical Preventive Maintenance", consistent with the extraction from NFPA 70B, 3.3.22. The term used in A.6.8.1, throughout 6.9, and in A.6.9.1.1, however, is "Electrical Preventative Maintenance". See FR-1091. While "preventive" and "preventative" have identical meanings, the NFPA 70B extract is predicated upon "preventive", and that word "preventive" should be used consistently throughout NFPA 99 in relation to "Electrical Preventive Maintenance". Correlation Note 2: Further correlating revision are needed as follows: • in 1.1.4.2, list item (1), revise "equipment" to "electrical systems and components thereof" to avoid confusion with electrical equipment addressed in 1.1.8. • in 1.1.4.2, insert between existing list items (1) and (2) a NEW list item (2):"(2) Specific requirements for maintenance of electrical systems and components thereof are covered in NFPA 70B, NFPA 110, NFPA 111, NEMA ICS 2.3, and ANSI/NEMA PB 1.1." • in 1.1.4.2, renumber existing list items (2) through (5) as list items (3) through (6). Correlation Note 3: • in 2.2, insert NEW entry for "NFPA 70B, Recommended Practice for Electrical Equipment Maintenance, 2016 edition." • in 2.3, insert NEW entry as: "2.3.14 NEMA Publications. National Electrical Manufacturers Association, 1300 N 17th Street, Arlington VA 22209. "NEMA Standards Publication ANSI/NEMA PB 1.1, General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 V or Less, 2013. "NEMA Standards Publication NEMA ICS 2.3, Instructions for the Handling, Installation, Operation and Maintenance of Motor Control Centers Rated Not More Than 600 V, 1995, reaffirmed 2008."

	6.3.2.2.1* Types of Receptacles.
	A.6.3.2.2.1
	It is best, if possible, to employ only one type of receptacle ( <u>i.e.</u> , standard three-prong type) for as many receptacles being served by the same line voltage to avoid the inability to connect life-support equipment in emergencies. The straight-blade, three-prong receptacle is now permitted in all locations in a hospital. Previously, special receptacles were specified in operating room locations and have caused compatibility problems.
	Hospital grade requirements are in addition to the basic construction and performance requirements for general-purpose receptacles. These requirements enhance the safety of patients who might be more susceptible to stray currents, evaluate the integrity of the receptacle's grounding path where subjected to the conditions encountered in health care facilities, and apply to receptacles that are non-locking-type, 125-volt, 15- or 20-ampere grounding receptacles of NEMA configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, and 6-20RA. For the evaluation requirements of hospital-grade receptacles, see UL 498, <i>Standard for Attachment Plugs and Receptacles</i> . For receptacle configuration dimensions, see ANSI/NEMA WD 6, <i>Wiring Devices — Dimensional Requirements</i> .
	(A)
	Each receptacle shall provide at least one separate, grounding terminal capable of maintaining low- contact resistance with its mating plug, despite severe electrical and mechanical use of the receptacle. The grounding terminal of each receptacle shall be connected to the reference grounding point by means of an insulated copper equipment grounding conductor.
	(B) Special receptacles, such as the following, shall be permitted:
	<ul><li>(1) Four-pole units providing an extra pole for redundant grounding or ground continuity monitoring</li></ul>
	<ul><li>(1) Four-poie units providing an extra pole for redundant grounding or ground continuity monitoring</li><li>(2) Locking-type receptacles</li></ul>
	(C)
	All non-locking-type, 125-volt, 15- or 20-ampere single, duplex, or quadruplex type receptacles, or any combination thereof, located in operating rooms and at patient bed locations in Category 1 and Category 2 spaces shall be listed and identified as "hospital grade."
	(D)
	Receptacles that are located within patient rooms, bathrooms, playrooms, and activity rooms of pediatric units or spaces with similar risk as determined by the health care facility's governing body by conducting a risk assessment, other than infant nurseries, shall be listed and identified as "tamper resistant" or shall employ a listed tamper-resistant cover.
1	itter Information Verification
	mmittee: HEA-ELS
	bmittal Date: Fri Aug 10 12:16:36 EDT 2018
ľ	nittee Statement
	<ul><li>mmittee Category 2 spaces, by definition, have risks to patients which warrant the use of hospir grade receptacles.</li></ul>

### This item has passed ballot

- 29 Eligible Voters
- 3 Not Returned
- 23 Affirmative All
- 1 Affirmative with Comments
- 2 Negative with Comments
- 0 Abstention

### **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

### Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

#### Rock, Brian E.

• With the 2018 edition of NFPA 99®, Chapter 6 was reorganized extensively from the 2015 edition. • 2015 edition of NFPA 99®, Section 6.3.2.2.6.2, "Minimum NUMBERS of Receptacles", in its Subsections (A) [Category 2 patient bed locations] and (B) [Category 1 patient bed locations] and (C) [Operating Rooms] segregated the differing QUANTITIES but also EACH repeated the same TYPE [Hospital Grade] requirement for such receptacles. • For the 2018 edition, the common TYPE specification was separated from the QUANTITY

specifications to improve readability and avoid confusion. In relocating the Hospital Grade TYPE specification to the post-reorganized 6.3.2.2.1(C) TYPE requirement common to BOTH Category 2 AND Category 1 patient bed locations, First Revision FR-9 HEA-ELS Committee Statement explicitly noted that "Many of the requirements of 6.3.2.2.6.2 relate to TYPES of receptacles rather than MINIMUM NUMBERS. This revision also removes redundant language from the final sentence of 6.3.2.2.6.2(A) for Category 1 spaces and RELOCATES THE SIMILAR REQUIREMENT FROM CATEGORY 2 SPACES AND OPERATING ROOMS in the final sentences of 6.3.2.2.6.2(B) and (C). References to receptacles being LISTED AS "HOSPITAL GRADE" in those sections HAVE BEEN RELOCATED for clarity to the code users." This Committee Statement was balloted AFFIRMATIVE by all Members, save one NEGATIVE related to tamper-resistant. . • Since at least as early as the 1990 edition of NFPA 70/NEC®, nonlocking-type, 15- and 20-ampere, 125-volt receptacles at patient bed locations in BOTH General Care (now known as Category 2) AND Critical Care (now known as Category 1) have been mandated to be listed and identified as Hospital Grade. . • Since as at least as early as the 2002 edition of NFPA 99® [ref 4.3.2.2.7.1] has mandated that nonlocking-type, 15- and 20-ampere, 125-volt receptacles at patient bed locations in BOTH General Care (now known as Category 2) AND Critical Care (now known as Category 1) have been mandated to "provide at least one separate, highly dependable grounding pole capable of maintaining low-contact resistance with its mating plug despite electrical and mechanical abuse"; the only TYPE of receptacle to be so certified are those listed and identified as Hospital Grade.

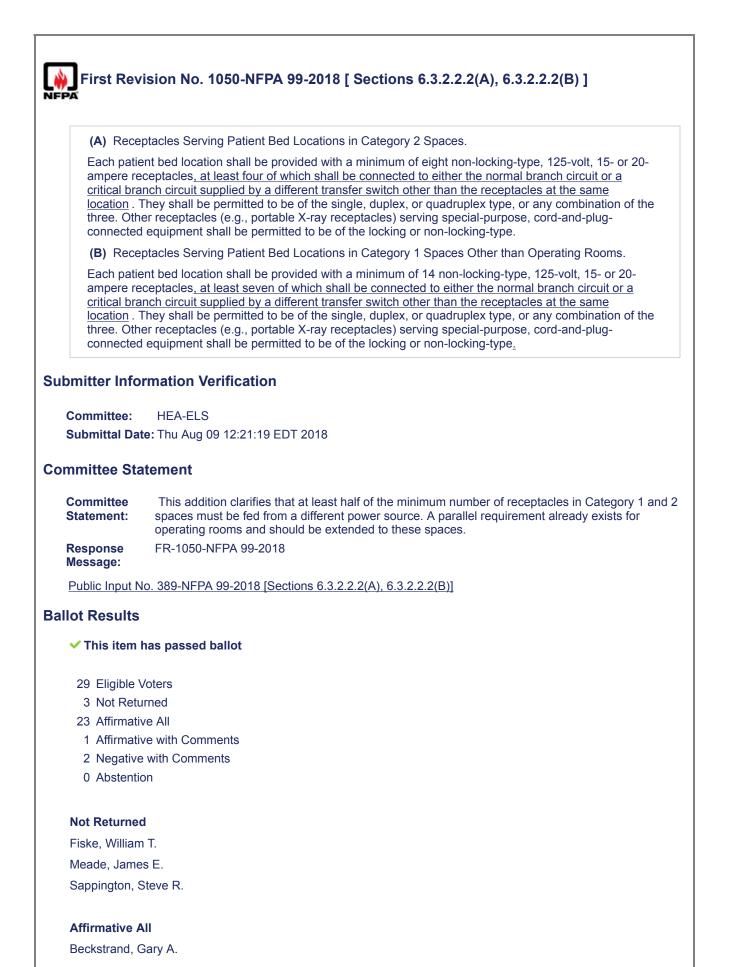
### **Negative with Comment**

#### Dagenais, David A.

It is unnecessary to require hospital grade receptacles in category space, the type of care that is provided in category space would not provide a clear electrical path to the patent.

#### Smidt, Ronald M.

There is no necessary reason to require Category 2 spaces and systems to require hospital grade receptacles. The nature of category 2 (minor injury) identifies that there is no hazard where a hospital grade receptacle would be necessary. The integrity of the ground is necessary only where you have a direct pathway to the heart. Patients laying in a category 2 bed are normal every day patients, not hooked to heart monitors and not on life support. The primary reason to use a hospital-grade receptacle at a patient bed location is to ensure that a receptacle with a greater contact tension is provided to minimize possibilities that an attachment plug supplying medical or life support equipment may be disconnected because the attachment plug slipped out of the receptacle. In non-category 1 spaces this isn't as critical. Hospitals should be able to voluntary decide to take advantage of the integrity, strength and durability of hospital grade plugs. The committee shouldn't make this change without any justification such as a study that shows what the potential hazards are to non-critical patients.



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Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

Rock, Brian E.

• Correlation Note 1: In the revised portions of the first sentences of 6.3.2.2.2(A) and 6.3.2.2.2(B) and in the similar, existing portion of the first sentence of 6.3.2.2.2(C), the "other than" reference is not structured clearly or grammatically; gerunds are missing from what should be gerund phrases in each; revise to "... a critical branch circuit supplied by a different transfer switch SERVING other than THOSE receptacles at the same PATIENT BED location" for clarity. . • Correlation Note 2: In the second sentences of both 6.3.2.2.2(A) and 6.3.2.2.2(B), the pronoun "They" is not clearly specific to any preceding noun; revise to "These receptacles" for clarity. Also in these same sentences, revise the less-specific phrase "... or any combination of the three" to "... or any combination thereof" for clarity and for consistent wording with this same phrase used in 6.3.2.2.1(C).

#### **Negative with Comment**

Dagenais, David A.

There was no justification for the change

Smidt, Ronald M.

There is no reasonable justification to split the emergency/normal outlets 50/50. Note even in Operating rooms should be based on an analysis of the demand.

6.3.2.6 Ba	ttery-Powered Lighting Units.						
6.3.2.6.1							
	One or more battery-powered lighting units shall be provided within locations where deep sedation and general anesthesia is administered.						
6.3.2.6.2	6.3.2.6.2						
The lighting the operatir	level of each unit shall be sufficient to terminate procedures intended to be performed within g room.						
6.3.2.6.3							
The sensor within the re	for units shall be wired to the unswitched portion of branch circuit(s) serving general lighting pom.						
<u>6.3.2.6.4</u>							
lighting. Thi	or Level 2 EPS equipment location(s) shall be provided with battery-powered emergency s requirement shall not apply to units located outdoors in enclosures that do not include ess. [110: 7.3.1]						
<u>6.3.2.6.5</u>							
	ency lighting charging system and the normal service room lighting shall be supplied from the the transfer switch. [110: _7.3.2]						
6.3.2.6.6							
building or the floor level	m average horizontal illumination provided by normal lighting sources in the separate oom housing the EPS equipment for Level 1 shall be 32.3 lux (3.0 ft-candles) measured at el, unless otherwise specified by a requirement recognized by the authority having [110: _7.3.3]						
6.3.2.6.7							
	be capable of providing lighting for $1\frac{1}{2}$ hours.						
6.3.2.6.8							
Units shall I	be tested monthly for 30 seconds, and annually for 30 minutes.						
Committee:	mation Verification HEA-ELS : Fri Aug 10 11:10:25 EDT 2018						
Committee Statement:	This revision is one of several that incorporate applicable sections of NFPA 110 into NFPA 99. Battery lighting in Level 1 and Level 2 EPS locations should be incorporated to assure appropriat illumination required for safety in EPS spaces of healthcare facility upon loss of power.						
Response Message:	FR-1095-NFPA 99-2018						
	. 339-NFPA 99-2018 [New Section after 6.3.2.6.3]						
Public Input No							
Public Input No							

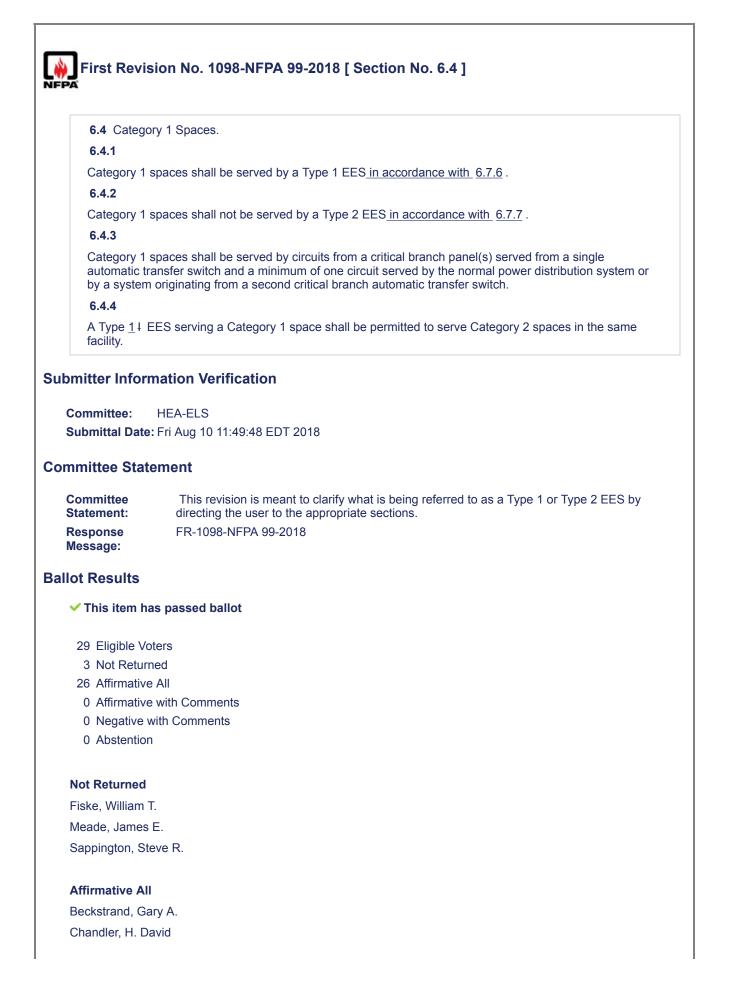
- 3 Not Returned
- 26 Affirmative All
- 0 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

# **Not Returned**

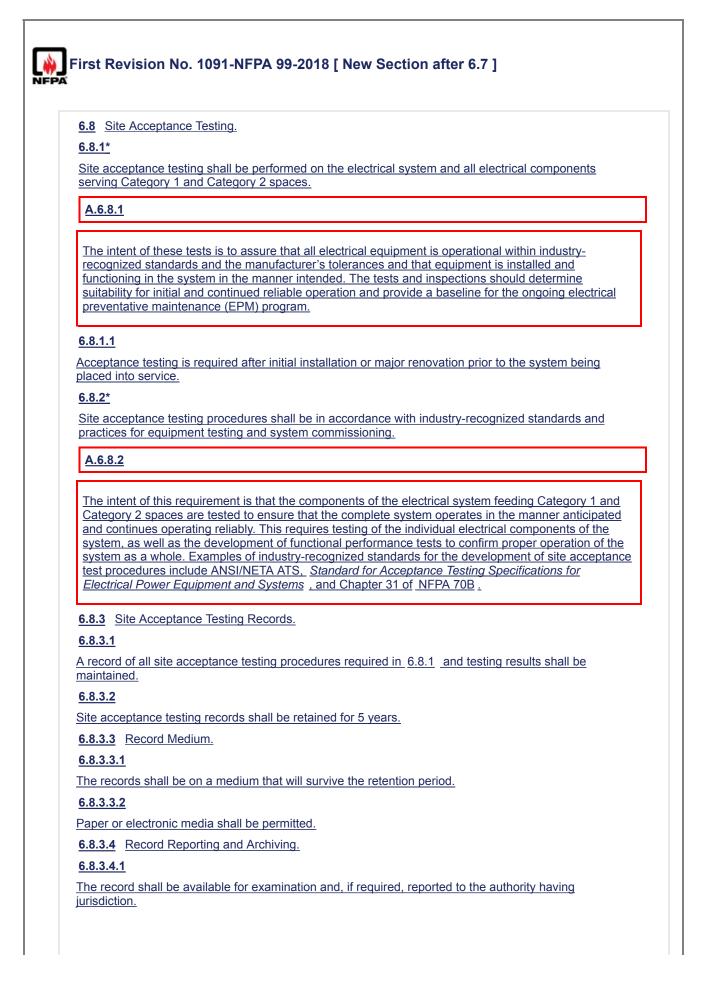
Fiske, William T. Meade, James E. Sappington, Steve R.

# Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



# <u>6.8.3.4.2</u>

Archiving of records by any means shall be permitted if hard copies of the records can be provided promptly when requested.

6.9 Electrical Preventative Maintenance (EPM).

6.9.1 EPM Program.

<u>6.9.1.1\*</u>

All electrical components which are part of an electrical system serving a Category 1 and Category 2 space shall be part of an electrical preventative maintenance (EPM) program.

# <u>A.6.9.1.1</u>

The purpose of any electrical preventative maintenance (EPM) program is to establish the condition of equipment, determine what work should be done, and verify the equipment will continue to function until the next scheduled servicing occurs. Inspection and testing are best done in conjunction with routine maintenance. In this way, many minor items that require no special tools, training, or equipment can be corrected as they are found. The inspection and testing program is probably the most important function of a maintenance department because it establishes what should be done to keep the system in service performing the function for which it is required.

# <u>6.9.1.2</u>

The EPM program shall include the following elements:

- (1) Listing of all equipment and systems included as part of the program
- (2) Schedule of inspection, testing, and servicing (maintenance) of equipment
- (3) <u>Survey and analysis of electrical equipment and systems to determine maintenance requirements</u> and priorities
- (4) Scheduled routine inspections and tests
- (5) <u>Review of inspection and test reports so that proper corrective measures can be prescribed</u>
- (6) Performance of necessary work

(7) Complete records

6.9.2 EPM Records.

<u>6.9.2.1</u>

A record of all testing and maintenance described in 6.9.4 shall be maintained.

# <u>6.9.2.2</u>

EPM program inspection, testing, and maintenance records shall be retained for 5 years.

6.9.2.3 EPM Record Medium.

<u>6.9.2.3.1</u>

The records shall be on a medium that will survive the retention period.

## <u>6.9.2.3.2</u>

Paper or electronic media shall be permitted.

6.9.2.4 EPM Record Reporting and Archiving.

## <u>6.9.2.4.1</u>

The record shall be available for examination and, if required, reported to the authority having jurisdiction.

## <u>6.9.2.4.2</u>

Archiving of records by any means shall be permitted if hard copies of the records can be provided promptly when requested.

6.9.3 Corrective Measures.

6.9.3.1\* Analysis of Inspection, Test and Maintenance Reports.

Analysis of inspection, testing, and maintenance reports shall be followed by the implementation of appropriate corrective measures. <u>A.6.9.3.</u>1 Appropriate corrective measures can include, but are not limited to, repair, replacement, and adjustment. Follow-through with necessary repairs, replacement, and adjustment is the end purpose of an effective EPM program. 6.9.3.2 All corrective measures shall be documented in accordance with the requirements of 6.9.2. 6.9.4 EPM Intervals. 6.9.4.1\* EPM intervals shall be in accordance with Table 6.9.4.1 . Table 6.9.4.1 Electrical Preventative Maintenance (EPM) Intervals Testing Maintenance Inspection ltem Period Period Period Medium-voltage switchgear Every 3 months Every 3 years Every 3 years Power distribution transformers (≥ 750 kVA) Monthly Every 3 years Every 3 years Generator (alternate source) (See 6.7.5.1.) (See 6.7.5.1.) (See 6.7.5.1.) Generator paralleling switchgear Monthly Annually Every 3 years Low-voltage switchgear/switchboards Every 3 years Every 3 years Every 3 years **Overcurrent Protective Devices** Fuses (≥ 400 A) Every 3 years Every 3 years Every 3 years Low-voltage power circuit breakers (≥ 400 A) Every 3 years Every 3 years Every 3 years Low-voltage molded-case circuit breakers (≥ 400 Every 3 years Every 3 years Every 3 years A) Medium-voltage circuit breakers Every 3 years Every 3 years Every 3 years Relays (including polyphase ground-fault equipment protection) Every 3 years Every 3 years Every 3 years Transfer equipment Monthly Every 3 years Every 3 years Bus duct Every 3 years Every 3 years Every 3 years Every 6 Uninterruptible power supplies (≥ 100 kW) Every 3 months months Every 6 months (See <u>6.3.3.3.3.)</u> Isolated power panels (See 6.3.3.3.3.) (See 6.3.3.3.3.) Motor control equipment Annually Every 3 years Every 3 years Branch-circuit panelboards Annually Every 3 years N/A Wiring devices (See 6.3.3.2.) (See 6.3.3.2.) (See 6.3.3.2.) (See Battery-powered lighting units (See 6.3.2.6.8.) 6.3.2.6.8.) (See 6.3.2.6.8.)

N/A: not applicable.

See Table A.6.9.4.1 for sources	with recommended maintenance activities.	
Table A.6.9.4.1 Recommended M		
ltem	References	
Medium-voltage switchgear	See Sections 11.10 and 15.5 of NFPA 70B.	
<u>Power distribution transformers (≥</u> <u>750 kVA)</u>	See 11.11.2, 11.11.8, 21.2.2.2, and 21.3.5 of NFPA 70B.	
Generator (alternate source)	See 6.7.4.1 of this code.	
Generator paralleling switchgear	See 8.3.5 of NFPA 110.	
Overcurrent Protective Devices		
<u>Fuses (≥ 400 A)</u>	See 18.1.2 and 18.2.3 of NFPA 70B.	
<u>Low-voltage power circuit</u> <u>breakers (≥ 400 A)</u>	See Sections 11.10 and 15.4 of NFPA 70B.	
<u>Low-voltage molded-case circuit</u> <u>breakers (≥ 400 A)</u>	See Sections 17.7 through 17.11 and 11.10.5 of NFPA 70B.	
Medium-voltage circuit breakers	See Sections 15.4 through 15.8 of NFPA 70B.	
<u>Relays (including polyphase</u> <u>ground-fault equipment</u> protection)	See Section 11.12, 13.3.5, and 15.9.7.3 of NFPA 70B.	
Transfer equipment	See 8.3.4 of NFPA 110.	
<u>Uninterruptible power supplies (≥</u> 100 kW)	See NFPA 111.	
Isolated power panels	See 6.3.3.3.3 of this code.	
Motor control equipment	See NEMA ICS 2.3, Instructions for the Handling, Installation, Operation and Maintenance of Motor Control Centers Rated Not More than 600 V.	
Branch-circuit panelboards	See ANSI/NEMA PB 1.1, General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 V or Less .	
Wiring devices	See 6.3.3.2 of this code.	
Battery-powered lighting units	See 6.3.2.6.8 of this code.	

6.9.4.2\* Alternative Equipment Maintenance (AEM) Program.

# <u>A.6.9.4.2</u>

Health care facilities that choose to establish alternate equipment maintenance (AEM) activities and/or schedules must develop, implement, and maintain a documented AEM program to minimize risk to patients and others in the facility associated with the use of electrical utility equipment. Generally, multiple factors must be considered because different types of equipment present different combinations of severity of potential harm and likelihood of failure.

# <u>6.9.4.2.1</u>

EPM intervals shall be permitted to be developed as part of an alternative equipment maintenance (AEM) program.

	4.2.2
(1) <u>*</u>	AEM shall include the following elements: The AEM program shall be based on accepted standards of practice for electrical equipment
<u>r</u>	naintenance.
	<u>A.6.9.4.2.2(1)</u>
	Standard examples for physical plant equipment maintenance can be found in the American Society for Healthcare Engineering (ASHE) document, Maintenance Management for Health Care Facilities, and in NFPA 70B.
(2)	The AEM program requirements (including EPM schedules) shall be clearly documented and available for inspection by the authority having jurisdiction.
(3)	The AEM program shall be developed and administered by qualified personnel, regardless of whether they are health care facility employees or contractors.
Ē	The AEM program shall consider the typical health and safety risks associated with the equipment's use, including "critical equipment" for which there exists a risk of serious injury or leath to a patient or staff person if the equipment fails.
	<u>A.6.9.4.2.2(4)</u>
[	An example of "critical equipment" is electrical utility equipment.
Commit	TINFORMATION Verification ttee: HEA-ELS tal Date: Fri Aug 10 09:21:47 EDT 2018
Committe	e Statement
Commit Stateme	<b>Electrical</b> systems are critical utilities in health care facilities and need to be inspected, tested, and maintained. Health care facilities are already required to do this work, however there is not necessarily any consistent guidance available as to what constitutes an appropriate program. This revision introduces the prescriptive intervals for these tasks into NFPA 99. It consolidates existing requirements and guidance that were previously scattered in several places so that facilities are able to find a comprehensive list of minimum requirements for such a program. This allows the ITM requirements to be in a publicly reviewed, consensus process where feedback can lead to changes. As part of determining baselines, this revision also include the new 6.8 for site acceptance testing for new systems.
Respon Messag	
Public I	nput No. 392-NFPA 99-2018 [New Section after 6.7]
Ballot Res	sults
🗸 This	item has passed ballot
3 No 25 Afi	gible Voters ot Returned firmative All firmative with Comments
	egative with Comments

### 0 Abstention

### **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

### Affirmative All

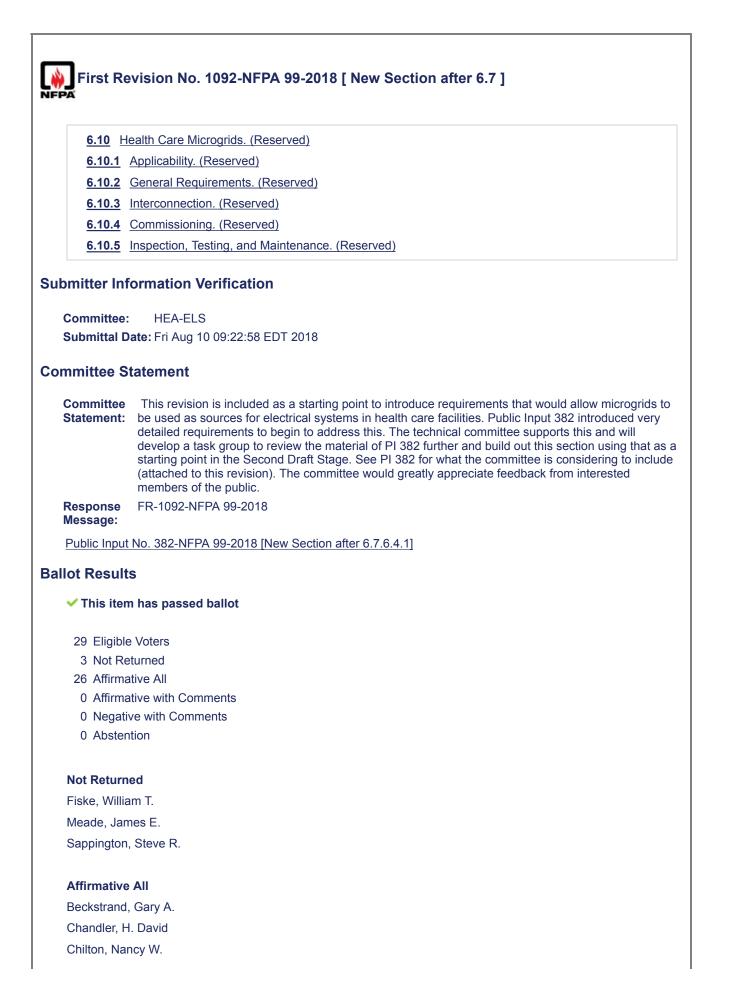
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### Affirmative with Comment

Rock, Brian E.

See my Ballot Comment for FR-1093. Correlation Note 1: Revise the term "Electrical Preventative Maintenance" to "Electrical Preventive Maintenance" in A.6.8.1, throughout 6.9, and in A.6.9.1.1 to be consistent with the defined term added at 3.3.46 (ref. FR-1093) and its source material in NFPA 70B. Correlation Note 2: Further correlating revision are needed as follows: • in 1.1.4.2, list item (1), revise "equipment" to "electrical systems and components thereof" to avoid confusion with electrical equipment addressed in 1.1.8. • in 1.1.4.2, insert between existing list items (1) and (2) a NEW list item (2):"(2) Specific requirements for maintenance of electrical systems and components thereof are covered in NFPA 70B, NFPA 110, NFPA 111, NEMA ICS 2.3, and ANSI/NEMA PB 1.1." • in 1.1.4.2, renumber existing list items (2) through (5) as list items (3) through (6). Correlation Note 3: • in 2.2, insert NEW entry for "NFPA 70B, Recommended Practice for Electrical Equipment Maintenance, 2016 edition." • in 2.3, insert NEW entry as: "2.3.14 NEMA Publications. National Electrical Manufacturers Association, 1300 N 17th Street, Arlington VA 22209. "NEMA Standards Publication ANSI/NEMA PB 1.1, General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 V or Less, 2013. "NEMA Standards

Publication NEMA ICS 2.3, Instructions for the Handling, Installation, Operation and Maintenance of Motor Control Centers Rated Not More Than 600 V, 1995, reaffirmed 2008."



Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

٦

6.11 Classification of Emergency Power Supply Systems (EPSSs).					
6.11.1 Gener	al.				
The EPSS sha	all provide a source of electrical power of required capacity, reliability, and quality to loads				
for a length of time as specified in Table 6.11.1(a) and within a specified time following loss the normal power supply as specified in Table 6.11.1(b) . [ <b>110:</b> 4.1]					
	) Classification of EPSSs				
<u>Class</u> Class 0.083	<u>Minimum Time</u>				
Class 0.003 Class 0.25	<u>0.083 hr (5 min)</u> 0.25 hr (15 min)				
Class 2	2 hr				
Class 6	6 hr				
Class 48	<u>48 hr</u>				
Class X	Other time, in hours, as required by the application, code, or user				
[110: Table 4.	1(a)]				
	) Types of EPSSs				
Designat					
<u>Type U</u> Type 10	Basically uninterruptible (UPS systems) 10 sec				
<u>Type 60</u>	60 sec				
Type 120	120 sec				
Type M	Manual stationary or nonautomatic — no time limit				
[110: Table 4.	1(b)]				
6.11.2 Class.					
	nes the minimum time, in hours, for which the EPSS is designed to operate at its rated				
	eing refueled or recharged. [See Table 6.11.1(a) .] [10: 4.2]				
6.11.3 Type.					
	es the maximum time, in seconds, that the EPSS will permit the load terminals of the				
transfer switch this standard.	to be without acceptable electrical power. <u>Table 6.11.1(b)</u> provides the types defined by [110: 4.3]				
6.11.4 Level.					
	recognizes two levels of equipment installation, performance, and maintenance.				
[ <u>110:</u> 4.4]					
<u>6.11.4.1</u>					
	ns shall be installed where failure of the equipment to perform could result in loss of				
	serious injuries. [ 110: 4.4.1]				
<u>6.11.4.2</u>					
Level 2 system safety. [ 110: 4	ns shall be installed where failure of the EPSS to perform is less critical to human life and [.4.2]				
<u>6.11.4.3</u>					
	shall be permanently installed. [ 110: 4.4.3]				

## <u>6.11.4.4</u>

Level 1 and Level 2 systems shall ensure that all loads served by the EPSS are supplied with alternate power that meets all the following criteria:

- (1) Of a quality within the operating limits of the load
- (2) For a duration specified for the class as defined in Table 6.11.1(a)
- (3) Within the time specified for the type as defined in Table 6.11.1(b)
- [<u>110:</u> 4.4.4]

# **Submitter Information Verification**

Committee: HEA-ELS Submittal Date: Mon Aug 13 07:40:03 EDT 2018

## **Committee Statement**

Committee NFPA 99 does not define the EPSS classifications. These basic definitions are necessary to quantify the Level, Class and Type of EPSS system in a healthcare facility. The text is extracted directly from Chapter 4 of NFPA 110 for the benefit of users of the code. The committee needs to further review the appropriate location for this material in the second draft stage of development.
 Response FR-1106-NFPA 99-2018

Message:

Public Input No. 342-NFPA 99-2018 [New Section after 6.7]

# **Ballot Results**

### This item has passed ballot

- 29 Eligible Voters
- 3 Not Returned
- 26 Affirmative All
- 0 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

### **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

## Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

# First Revision No. 1094-NFPA 99-2018 [ Section No. 6.7.1.2.4.1 ] 6.7.2.2.4.1\* Type 1 and Type 2 essential electrical system EES power sources shall be classified as Type 10, Class X, Level 1 generator sets per NFPA 110. A.6.7.2.2.4.1 A Class X system is intended to give the facility the flexibility to provide the appropriate duration before refueling operations are needed. The hospital should determine the appropriate run time for the EES and size the fuel tanks accordingly. Careful consideration should be given to the potential types of outages anticipated and the availability of fuel. It should be noted that in some situations it might be permissible to size the fuel system to accommodate less than 48 hours of fuel. If life safety systems are included on the EES, other codes and standards might have minimum durations of required operation. **Submitter Information Verification** Committee: HFA-FI S Submittal Date: Fri Aug 10 09:41:02 EDT 2018 **Committee Statement** Committee The added note is intended to explain why there isn't a set duration required for the EES. In some Statement: hospitals and ambulatory surgery centers, the intention is to begin evacuation operations almost immediately if there is an outage (specialty hospitals that do elective surgeries, nearly all ASC's). in some cases they may need only a few hours to complete the evacuation operation. Response FR-1094-NFPA 99-2018 Message: Public Input No. 374-NFPA 99-2018 [New Section after A.6.7.1.1] **Ballot Results** This item has passed ballot 29 Eligible Voters 3 Not Returned 25 Affirmative All 1 Affirmative with Comments 0 Negative with Comments 0 Abstention **Not Returned** Fiske, William T. Meade, James E. Sappington, Steve R. Affirmative All

28 of 84

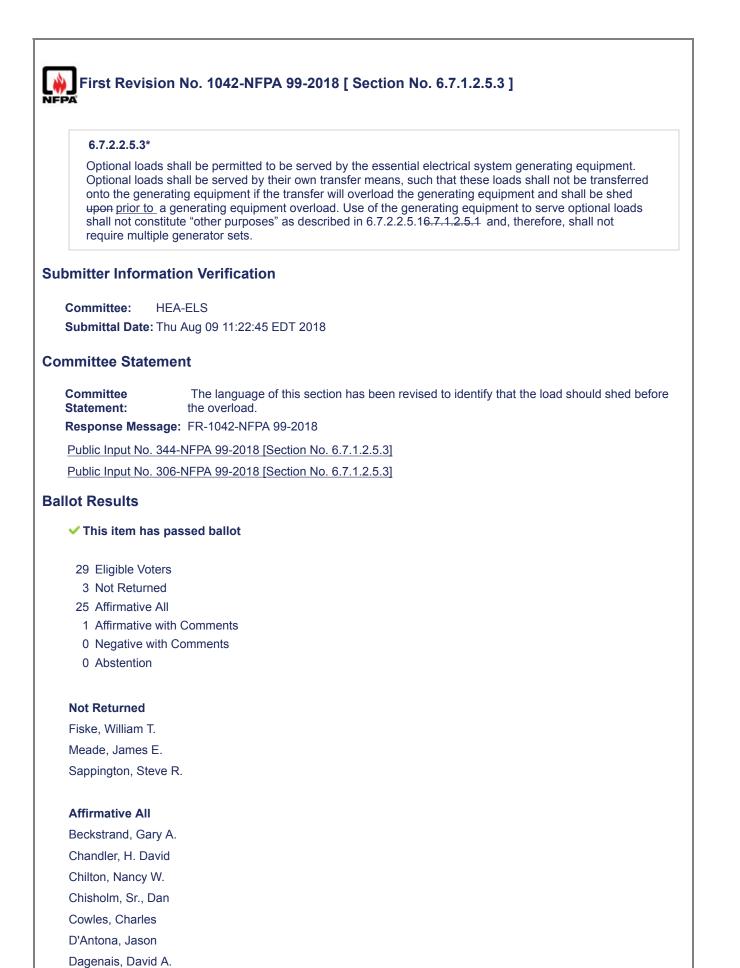
Beckstrand, Gary A.

Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1094 incorrectly cites nonexistent 6.7.1.2.4.1 instead of the intended 6.7.2.2.4.1 and A.6.7.2.2.4.1.



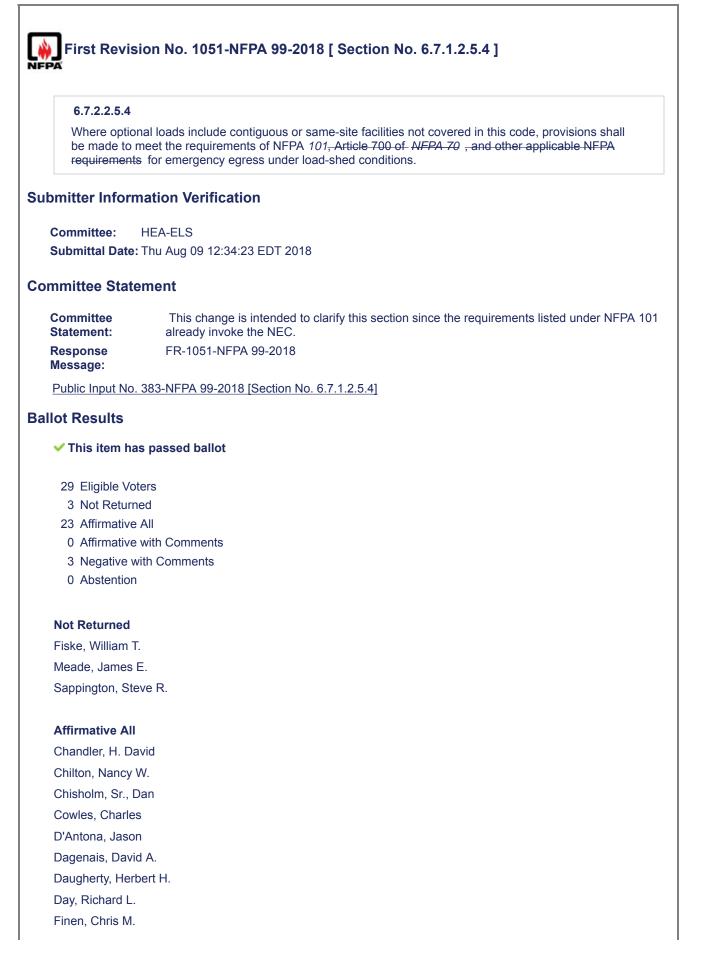
30 of 84

Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1042 incorrectly cites nonexistent 6.7.1.2.5.3 instead of the intended 6.7.2.2.5.3.



Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### **Negative with Comment**

Beckstrand, Gary A.

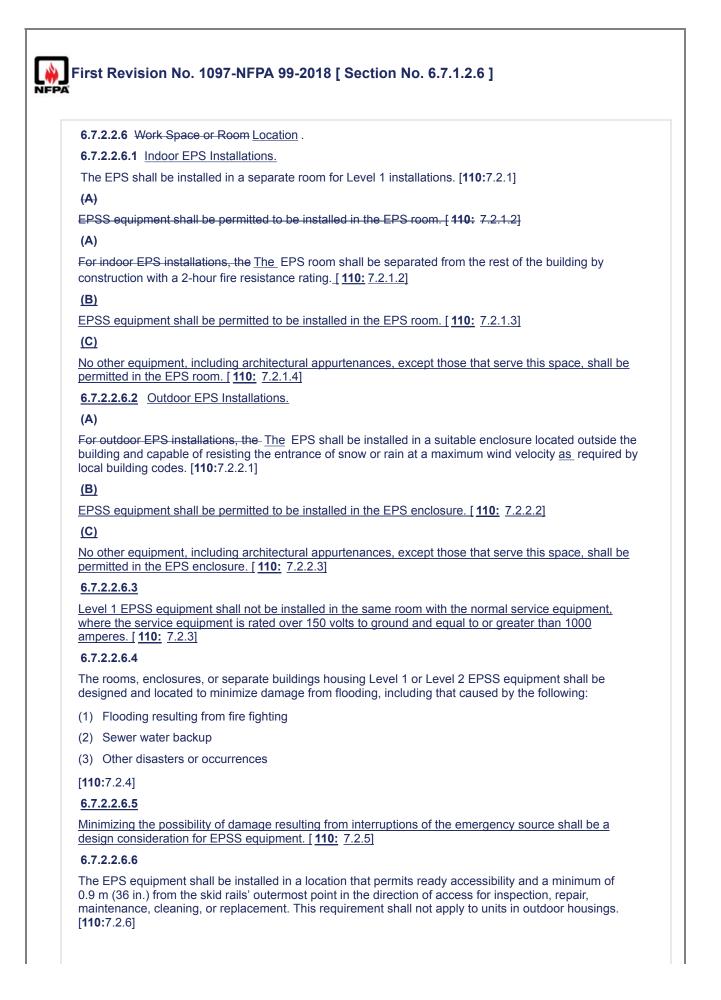
Contiguous facilities are addressed in NFPA 70. It is inappropriate to remove direction to NFPA 70 in this section of NFPA 99.

Krupa, Gary J.

Deleting the reference to NEC Art 700 seems to reduce the clarity of the requirement. It will now create at least an additional step for the reader to locate the "700" requirements.

Rock, Brian E.

• Upon review of the ballot comments by Messrs Krupa and Beckstrand, I concur and am revising my ballot in recirculation to NEGATIVE as well. In accordance with Standards Council Decision D11-07, NFPA 70/NEC® Article 517 has jurisdiction for installation requirements. NEC® 517.26 explicitly indicates that NEC® Article 700 applies "except as amended [explicitly] by Article 517". Sections 517.29 and 517.30 apply directly. Consequently, the 6.7.2.2.5.4 reference to "Article 700 of NFPA 70" is essential, perhaps subsequently modified to "Article 700 and related Article 517 amendments of NFPA 70". . • Correlation Note: The Section reference for FR-1051 incorrectly cites nonexistent 6.7.1.2.5.4 instead of the intended 6.7.2.2.5.4.



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# 6.7.2.2.6.7

Design considerations shall minimize the effect of the failure of one energy converter on the continued operation of other units. [110: 7.2.7]

Approved

# **Supplemental Information**

<u>File Name</u> PI\_345\_FR\_1097.pdf 99\_1097\_JH\_.docx

staff use only Staff use only - Updated

**Description** 

# **Submitter Information Verification**

Committee: HEA-ELS Submittal Date: Fri Aug 10 11:29:06 EDT 2018

# **Committee Statement**

CommitteeThis revision is one of several to incorporate applicable sections of NFPA 110 into NFPA 99. The<br/>description "Location" is consistent with NFPA 110 requirements for EPSS equipment. Some of the<br/>NFPA 110 Article 7.2.1, 7.2.2 and 7.2.3 items were already included in 6.7.1.2.6, but all of the<br/>requirements are applicable for a healthcare installation.ResponseFR-1097-NFPA 99-2018

Message:

Public Input No. 345-NFPA 99-2018 [Section No. 6.7.1.2.6]

# **Ballot Results**

- This item has passed ballot
- 29 Eligible Voters
- 3 Not Returned
- 24 Affirmative All
- 2 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

### **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

## Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H.

Day, Richard L. Finen, Chris M. Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

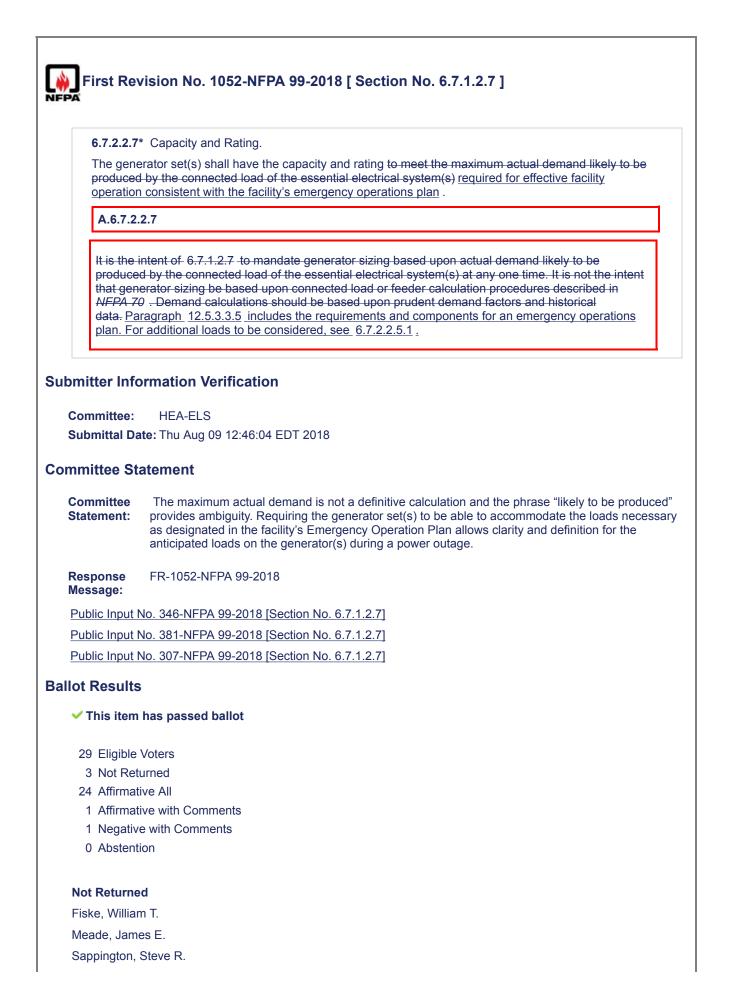
#### **Affirmative with Comment**

Krupa, Gary J.

We've recently been challenged on authority of Codes regarding foreign systems in the dedicated electrical space. That is, ATS and other EPSS components aren't specifically listed in NEC Art. 110.26. Consider adding statement in 6.7.2.2.6.4 that the EPSS should also be protected dedicated equipment space IAW NEC Art 110.26

Rock, Brian E.

• Upon review of the ballot comment by Mr Krupa, I concur (except for the exact suggested wording of the 6.7.2.2.6 requirement) with regard to equipment access and working space. Suggested added wording: "The clear access and working space surrounding EPSS shall be in accordance with Section 110.26 of NFPA 70.'. • The Section reference for FR-1097 incorrectly cites nonexistent 6.7.1.2.6 instead of the intended 6.7.2.2.6.



#### Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

#### Affirmative with Comment

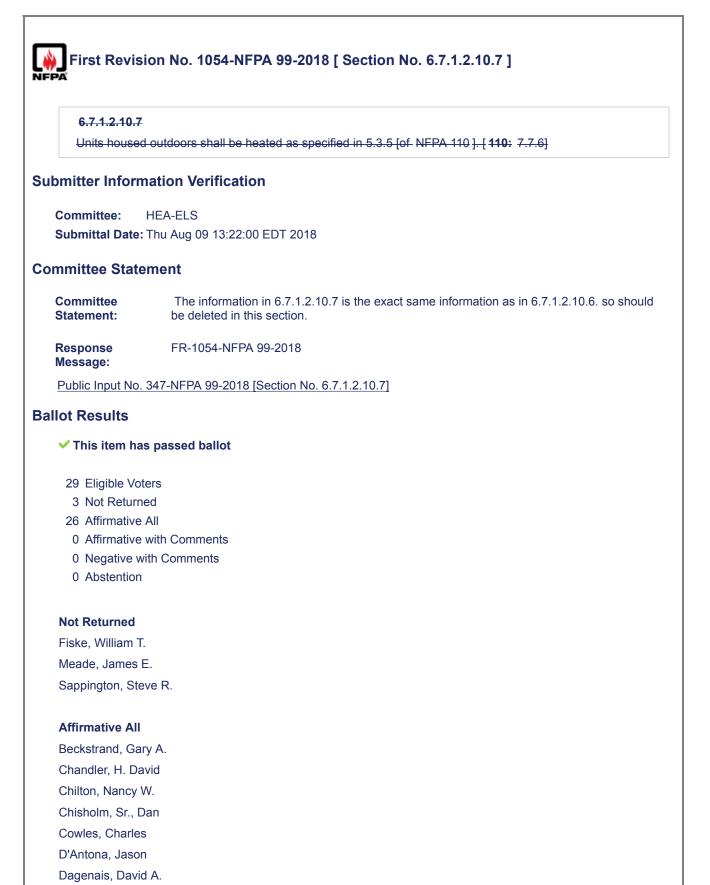
Rock, Brian E.

• The Section reference for FR-1052 incorrectly cites nonexistent 6.7.1.2.7 instead of the intended 6.7.2.2.7 and A.5.7.2.2.7.

#### **Negative with Comment**

Krupa, Gary J.

If NFPA 99 is to be a "performance and design" Code, it is curious that we are deferring to the Emergency Operations Plan...which is a function of the medical center staff. Not sure that an AE would necessarily have access to the Em Ops Plan..and for new facilities, such may not exist.

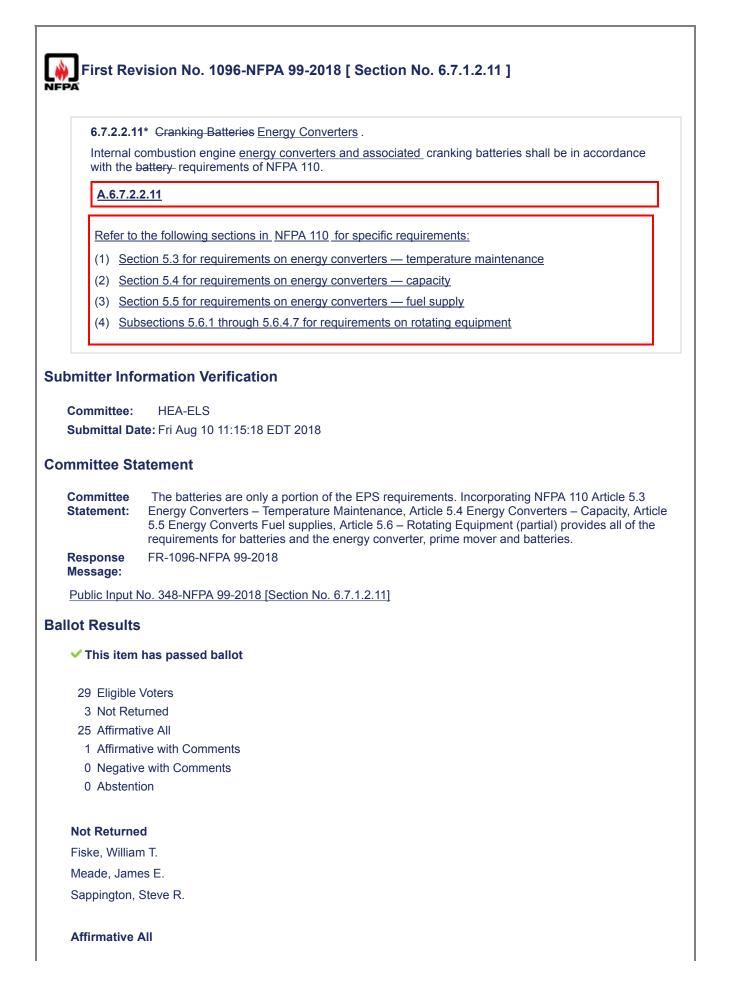


Daugherty, Herbert H.

Day, Richard L.

Finen, Chris M.

Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1096 incorrectly cites nonexistent 6.7.1.2.11 instead of the intended 6.7.2.2.11.

	purpleter that is storage bettery, newered shall be provided to exerct outside of the		
A remote annunciator that is storage battery_ powered shall be provided to operate outside of the generating room in a location readily observed by operating personnel at a regular work station (see 700.12 of NFPA 70). The annunciator shall be hard-wired to indicate alarm conditions of the emergency or auxiliary power source as follows: indicated in 6.7.2.2.15.1 through 6.7.2.2.15.9.			
Ibmitter Information Verification			
Committee:	HEA-ELS		
Submittal Date	: Thu Aug 09 13:23:59 EDT 2018		
ommittee Stat	ement		
Committee Statement:	The referenced section is incorrect and not applicable to the requirements for the alarm annunciator. Removal of this reference does not change the requirements of 6.7.1.2.15 and will alleviate enforcement interpretation issues.		
Response Message:	FR-1055-NFPA 99-2018		
Public Input No	. 384-NFPA 99-2018 [Section No. 6.7.1.2.15 [Excluding any Sub-Sections]]		
llot Results			
🗸 This item ha	as passed ballot		
29 Eligible Vo	oters		
3 Not Return	ned		
25 Affirmative	e All		
1 Affirmative	e with Comments		
-	with Comments		
0 Abstentior	)		
Not Returned			
Fiske, William	Г.		
Meade, James	E.		
Sappington, St	eve R.		
Affirmative All	I		
Beckstrand, Ga	агу А.		
	avid		
Chandler, H. Da			
Chandler, H. Da Chilton, Nancy	W.		

Dagenais, David A. Daugherty, Herbert H.

Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1055 incorrectly cites nonexistent 6.7.1.2.15 instead of the intended 6.7.2.2.15.

6.7.2.2.15	.10
Wireless tr	ansmission of the EPS data required by 6.7.2.2.14.2 and 6.7.2.2.15.2 shall be permitted.
bmitter Info	rmation Verification
Committee:	HEA-ELS
Submittal Dat	e: Thu Aug 09 13:25:58 EDT 2018
mmittee Sta	tement
Committee Statement:	In some cases it becomes difficult to install a hard wired remote annunciator to meet requirements without unreasonable difficulties. Wireless technology is used in many similar applications.
	The committee welcomes public comment on what specific requirements need to accompany this to ensure that an equivalent level of reliability, interoperability, and performance is met.
Response Message:	FR-1056-NFPA 99-2018
-	o. 34-NFPA 99-2018 [New Section after 6.7.1.2.15.9]
llot Results	
✓ This item I	nas passed ballot
29 Eligible V	/oters
3 Not Retu	
25 Affirmativ	re All
1 Affirmativ	ve with Comments
0 Negative	with Comments
0 Abstentic	n
Not Returned	I
Fiske, William	Т.
Meade, Jame	s E.
Sappington, S	iteve R.
Affirmative A	II
Beckstrand, G	Gary A.
Chandler, H. [	David
Chilton, Nanc	y W.
Chisholm, Sr.,	Dan
Cowles, Charl	les
D'Antona, Jas	on

Dagenais, David A.

Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1056 incorrectly cites nonexistent 6.7.1.2.15.9 instead of the intended 6.7.2.2.15.9.

Systems. shall be permitted to serve as the alternate source for all or part of an essential electrical he conditions in 6.7.1.4.1 6.7.2.4.1 through 6.7.2.4.4 6.7.1.4.6 apply. omply with NFPA 853. provided where N units have sufficient capacity to supply the demand load of the om served capacity determined by 6.7.2.2.7.
omply with NFPA 853. provided where N units have sufficient capacity to supply the demand load of the om served capacity determined by 6.7.2.2.7.
provided where N units have sufficient capacity to supply the demand load of the or served capacity determined by <u>6.7.2.2.7</u> .
provided where N units have sufficient capacity to supply the demand load of the or served capacity determined by <u>6.7.2.2.7</u> .
m served capacity determined by 6.7.2.2.7
ble to assume loads within 10 seconds of loss of normal power source.
e a continuing source of fuel supply together with <u>and</u> sufficient on-site fuel storage for m type.
nd critical portions of the distribution system are present, a connection shall be able diesel generator.
sted for emergency use.
ELS
ug 09 13:56:16 EDT 2018
t
6.7.1.4.2 has been revised to clarify that the same load needs to be accommodated that e determined in the revised 6.7.1.2.7. Section 6.7.1.4.5 has been deleted as the decision to connection for a portable generator is an emergency management and business continuity . Section 6.7.1.4.6 has been deleted similar to NFPA 70 which removed the requirement of UL does not list generators, fuel cells or other similar devices for emergency use.
3-NFPA 99-2018
IFPA 99-2018 [Section No. 6.7.1.4.3]
IFPA 99-2018 [Section No. 6.7.1.4.6]
IFPA 99-2018 [Section No. 6.7.1.4.5]
IFPA 99-2018 [Section No. 6.7.1.4.5] IFPA 99-2018 [Section No. 6.7.1.4.2]
IFPA 99-2018 [Section No. 6.7.1.4.2]

- 29 Eligible Voters
- 3 Not Returned
- 25 Affirmative All
- 1 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

## Not Returned

Fiske, William T. Meade, James E. Sappington, Steve R.

### **Affirmative All**

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

#### Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1058 incorrectly cites nonexistent 6.7.1.4 instead of the intended 6.7.2.4.

A	rst Revision No. 1059-NFPA 99-2018 [ Section No. 6.7.2.1 ]
A	<b>.</b> .6.7.3
ar er su ac of po of	should be emphasized that the type of system selected and its area and type of coverage should be poropriate to the medical procedures being performed in the facility. For example, a battery-operated mergency light that switches "on" when normal power is interrupted and an alternate source of power for action equipment, along with the immediate availability of some portable handheld lighting, would be dvisable where oral and maxillofacial surgery (e.g., extraction of impacted teeth) is performed. On the ther hand, in dental offices where simple extraction, restorative, prosthetic, or hygienic procedures are erformed, only- remote corridor lighting for purposes of egress <u>only</u> would be sufficient. Emergency ower for equipment would not be necessary. As with oral surgery locations, a surgical clinic requiring use f life-support or emergency devices, such as suction machines, ventilators, cauterizers, or defibrillators, ould require both emergency light and power.
	istribution system arrangements shall should be designed to minimize interruptions to the electrical stems due to internal failures by the use of adequately rated equipment.
Т	he following factors shall should be considered in the design of the distribution system:
(1	<ul> <li>Abnormal voltages, such as single phasing of three-phase utilization equipment; switching or lightning surges, or both; and voltage reductions; and so forth</li> </ul>
(2	2) Capability of achieving the fastest possible restoration of any given circuit(s) after clearing a fault
(3	3) Effects of future changes, such as increased loading or supply capacity, or both
(4	) Stability and power capability of the prime mover during and after abnormal conditions
(5	<ul> <li>Sequence reconnection of loads to avoid large current inrushes that trip overcurrent devices or overload the generator(s)</li> </ul>
(6	Bypass arrangements to allow testing and maintenance of system components that could not otherwise be maintained without disruption of important hospital functions
(7	7) Effects of any harmonic currents on neutral conductors and equipment
e	areful consideration should be given to the location of the spaces housing the components of the ssential electrical system (EES) to minimize interruptions caused by natural forces common to the area e.g., storms, floods, or earthquakes; or hazards created by adjoining structures or activities).
si ea	onsideration should also be given to the possible interruption of normal electrical services resulting from milar causes as well as possible disruption of normal electrical service due to internal wiring and quipment failures. Consideration should be given to the physical separation of the main feeders of the sential electrical system <u>EES</u> from the normal wiring of the facility to prevent possible simultaneous estruction as a result of a local catastrophe.
hi co fe gi	a selecting electrical distribution arrangements and components for the essential electrical system <u>EES</u> , gh priority should be given to achieving maximum continuity of the electrical supply to the load. Higher onsideration should be given to achieving maximum reliability of the alternate power source and its eeders rather than protection of such equipment, provided that the protection is not required to prevent a reater threat to human life, such as fire, explosion, <u>and</u> electrocution, <u>and so forth</u> , than would be aused by the lack of an essential electrical supply.
pler	nental Information
	File Name Description Approved
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omitt	er Information Verification
Comr	nittee: HEA-ELS

CommitteePer 1.1.4.1 Chapter 6 covers the performance, maintenance, and testing of electrical systemsStatement:(both normal and essential) in health care facilities. Design considerations and specific design<br/>criteria are not all inclusive of design considerations and are not applicable to this section.

Response FR-1059-NFPA 99-2018 Message:

Public Input No. 349-NFPA 99-2018 [Section No. 6.7.2.1]

# **Ballot Results**

#### This item has passed ballot

- 29 Eligible Voters
- 3 Not Returned
- 24 Affirmative All
- 2 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

#### **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

#### Affirmative All

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent

White, Leonard W. Wolff, Robert

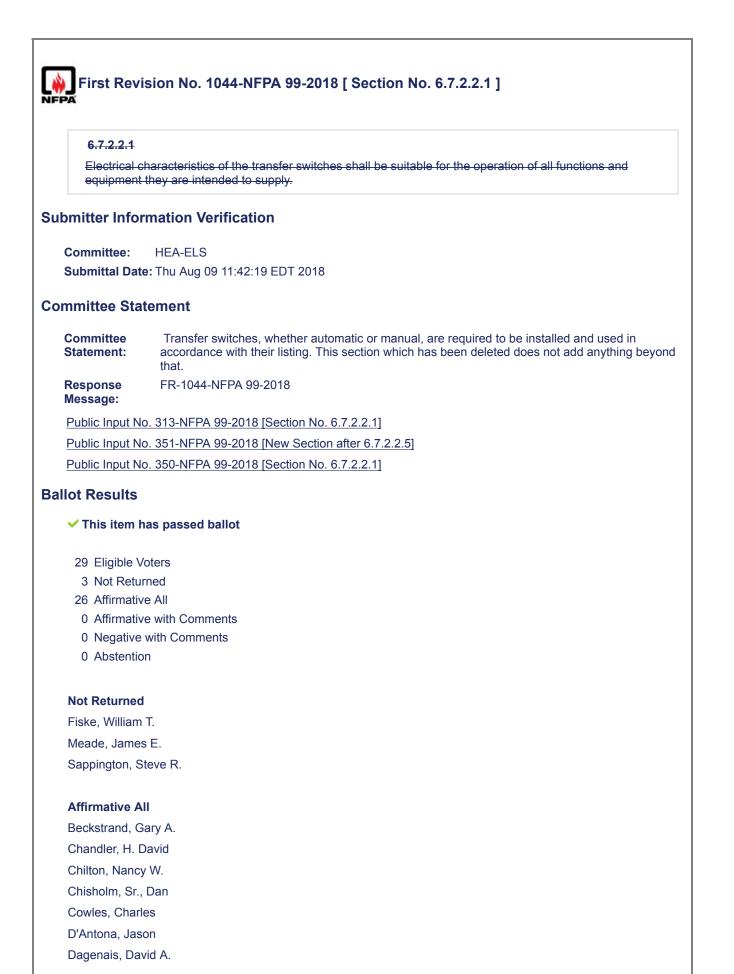
Affirmative with Comment

Krupa, Gary J.

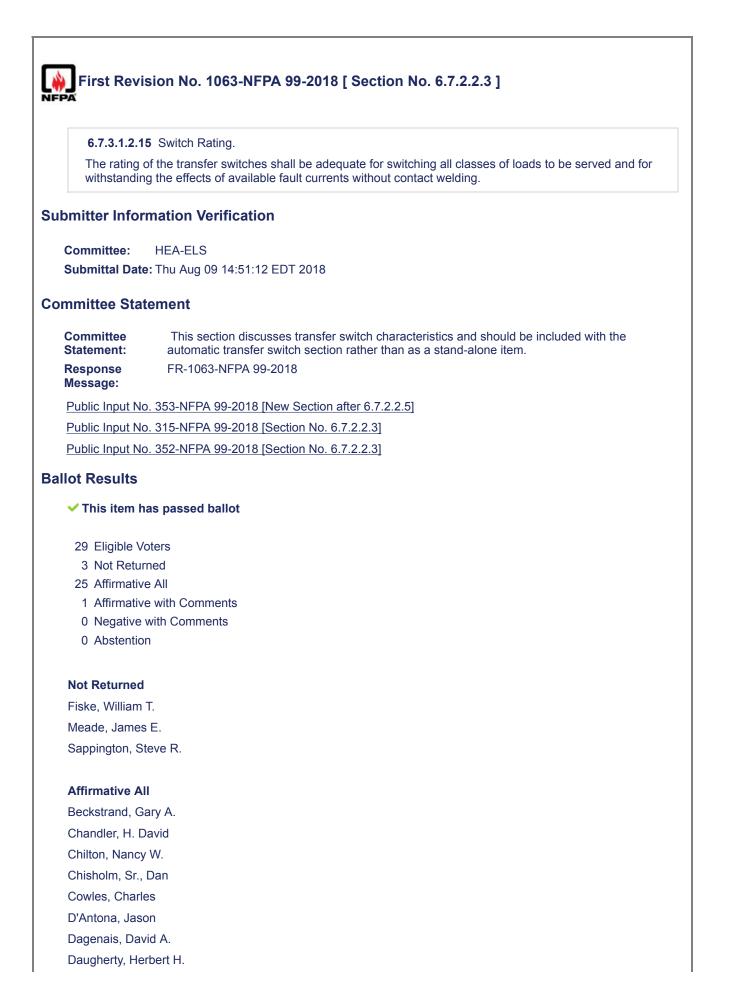
Not sure that using "should" is the correct measure. If this is a Code, "should" makes this clause unenforceable.

Rock, Brian E.

• The Section reference for FR-1059 incorrectly cites normative Subsection 6.7.2.1 instead of the intended informative annex Subsection A.6.7.3.



Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

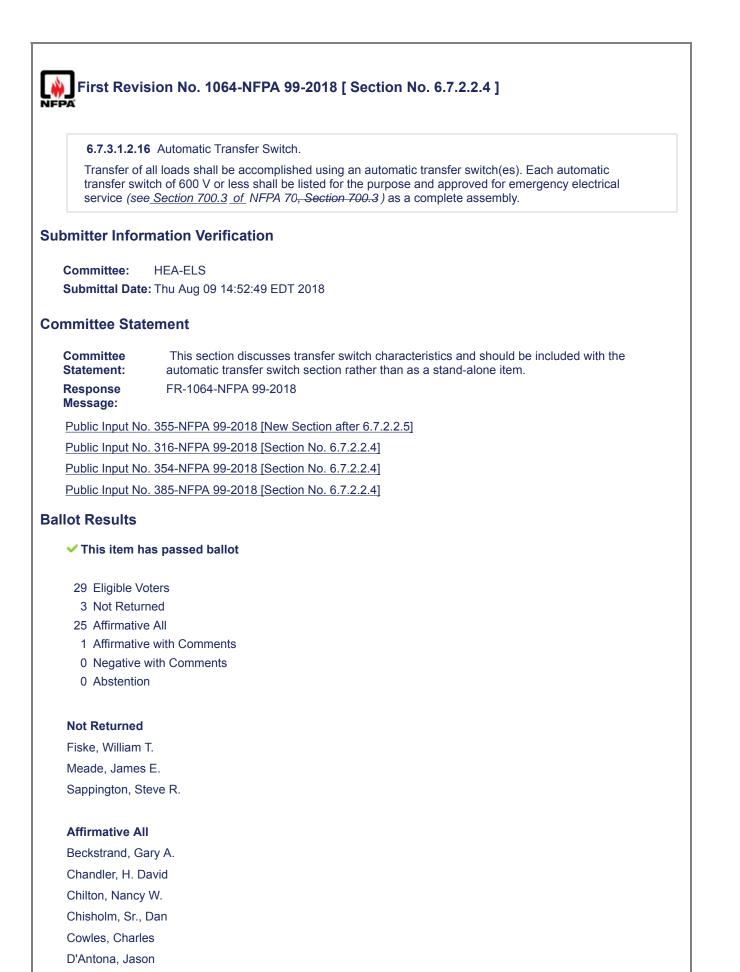


Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1063 incorrectly cites nonexistent 6.7.2.2.3 instead of the intended 6.7.3.1.2.15.

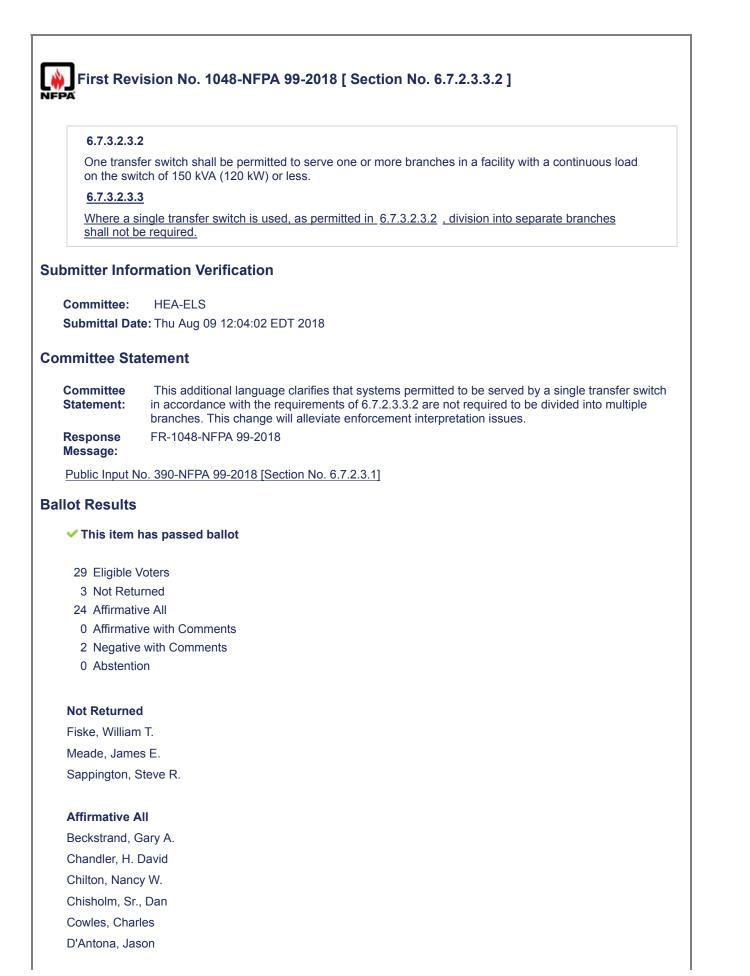


Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1064 incorrectly cites unrelated 6.7.2.2.4 instead of the intended 6.7.3.1.2.16.



Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

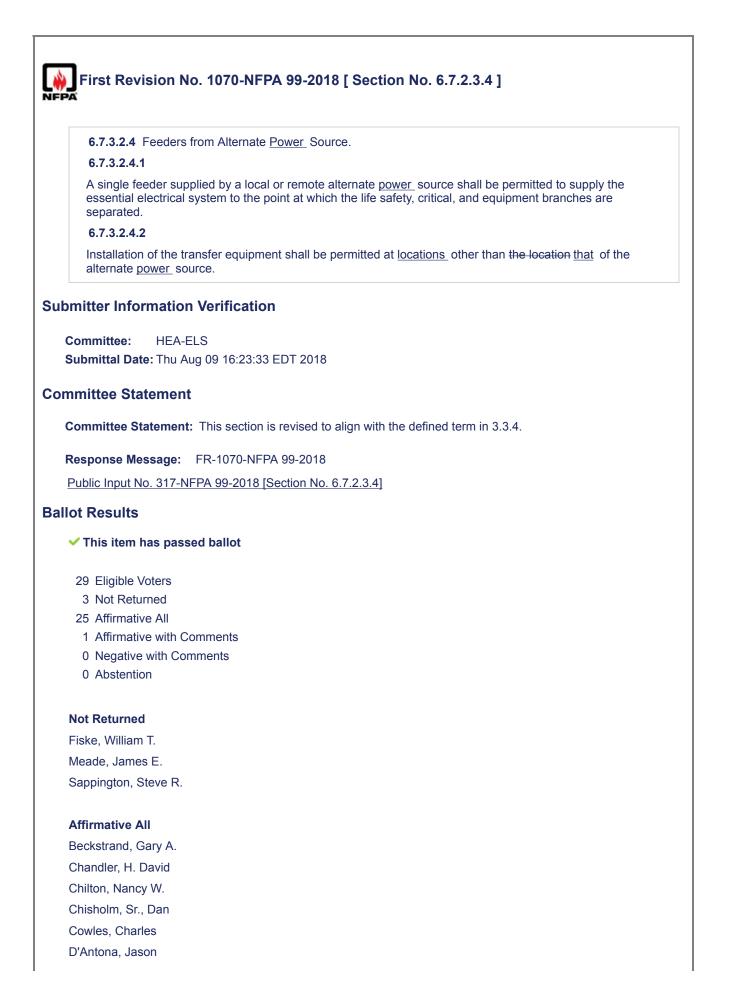
#### **Negative with Comment**

#### Krupa, Gary J.

This matter was also discussed at CMP 15 in San Diego. Many of the committee members did not agree with concept of eliminating the respective branches, even when a single ATS is used. At the very least, the branches facilitate system growth and would ease the addition of ATS in the future. Moreover, a concern was voiced over decreased reliability should the branches be combined.

Rock, Brian E.

• Upon review of the ballot comment by Mr Krupa, I concur and am revising my ballot in recirculation to NEGATIVE as well. • The Section reference for FR-1048 incorrectly cites nonexistent 6.7.2.3.3.2 instead of the intended "new Section after 6.7.3.2.3.2", i.e., 6.7.3.2.3.3.

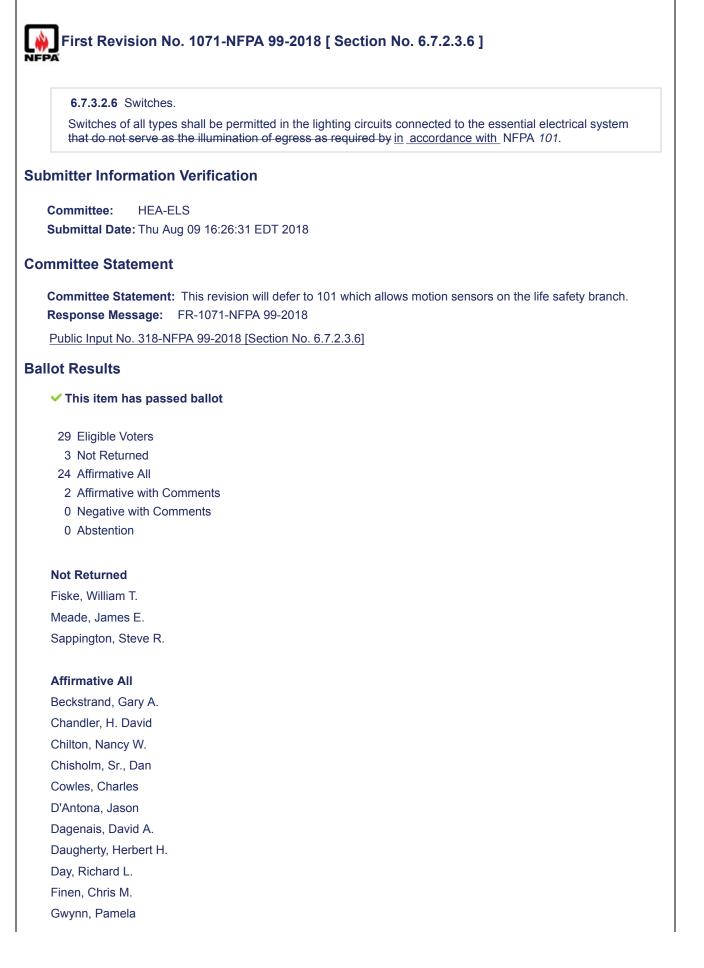


Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1070 incorrectly cites nonexistent 6.7.2.3.4 instead of the intended 6.7.3.2.4.



McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

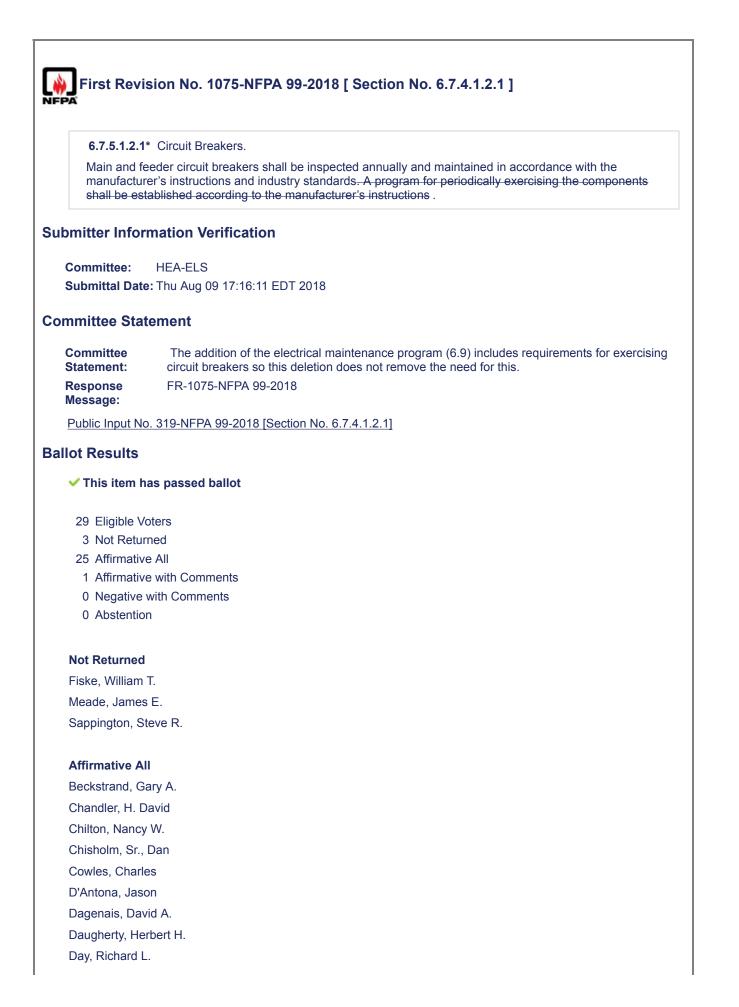
### Affirmative with Comment

### Krupa, Gary J.

Interesting. Just had a "claim" issue with an AE that pointed out (in their professional opinion) that NFPA 70, Art 700 does not allow switching of egress lighting...

#### Rock, Brian E.

• The Section reference for FR-1071 incorrectly cites nonexistent 6.7.2.3.6 instead of the intended 6.7.3.2.6.

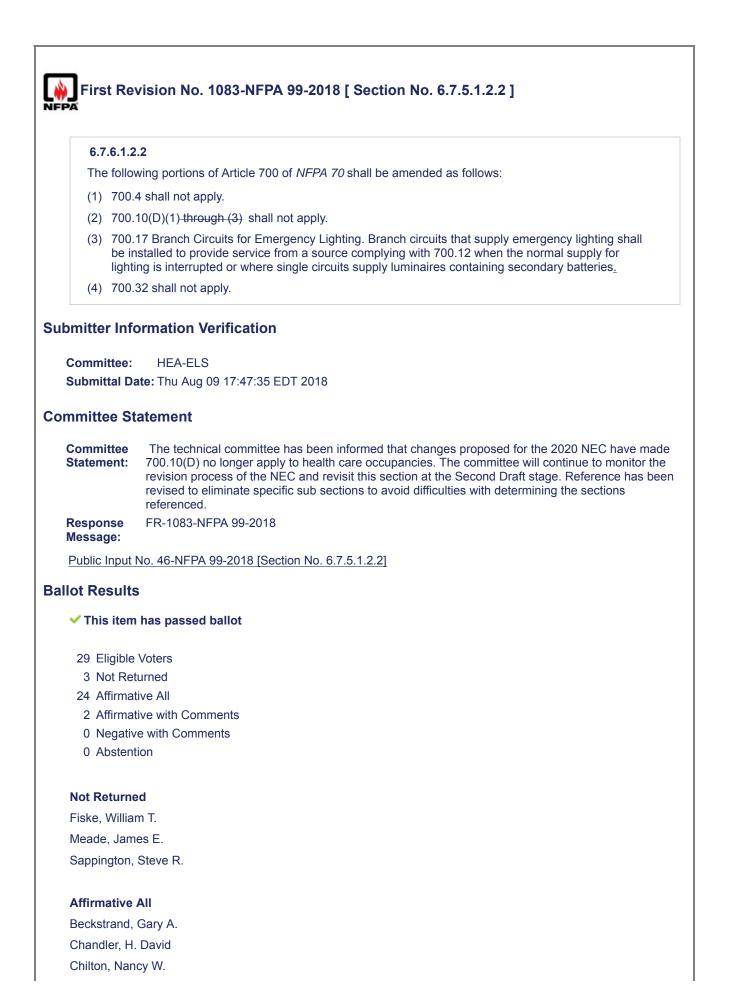


Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

### Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1075 incorrectly cites nonexistent 6.7.4.1.2.1 instead of the intended 6.7.5.1.2.1.



Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

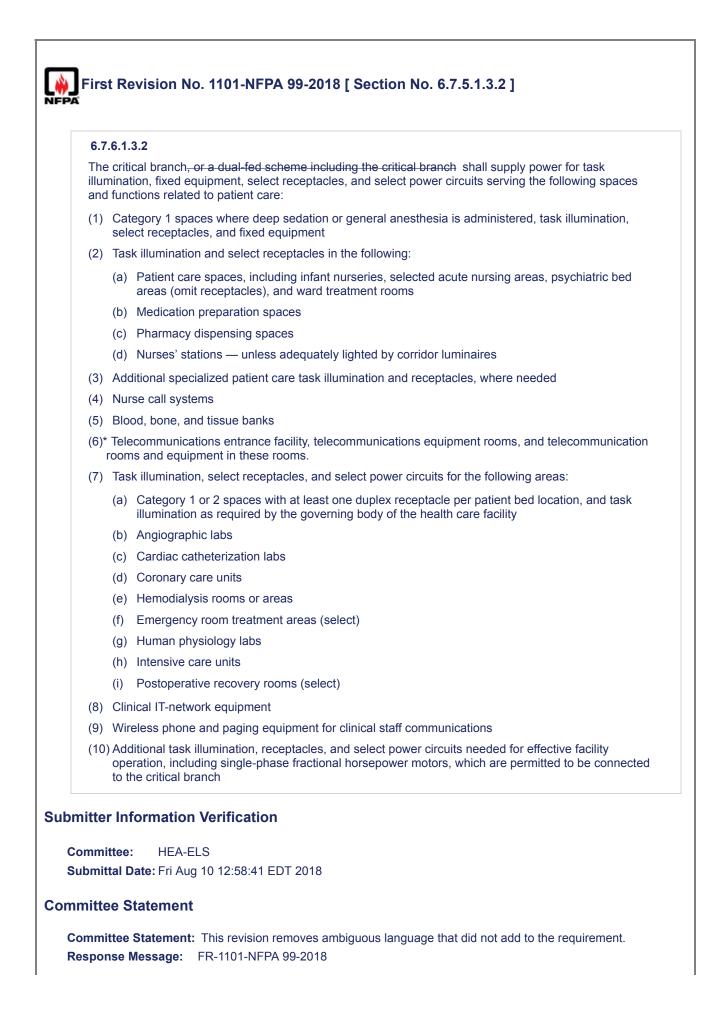
#### Affirmative with Comment

Krupa, Gary J.

Having just "survived" CMP 15 meeting in San Diego, seems like there is confusion over what is really being deleted here...which should be discussed at next committee meeting.

Rock, Brian E.

• The Section reference for FR-1083 incorrectly cites unrelated 6.7.5.1.2.2 instead of the intended 6.7.6.1.2.2. . • Upon review of Mr Krupa's ballot comment, I concur that this should be revisited at the HEA-ELS Second Draft meeting to review the finalized wording of Subsection 700.10(D) of NFPA 70-2020. The last sentence of the Committee Statement should have more accurately read: "Reference has been revised to eliminate specific Subsections to avoid confusion with similarly numbered list items in the charging text of 700.10(D) of NFPA 70-2017 in determining the Subsection referenced."



# **Ballot Results**

This item has passed ballot

- 29 Eligible Voters
- 3 Not Returned
- 25 Affirmative All
- 1 Affirmative with Comments
- 0 Negative with Comments
- 0 Abstention

## **Not Returned**

Fiske, William T. Meade, James E. Sappington, Steve R.

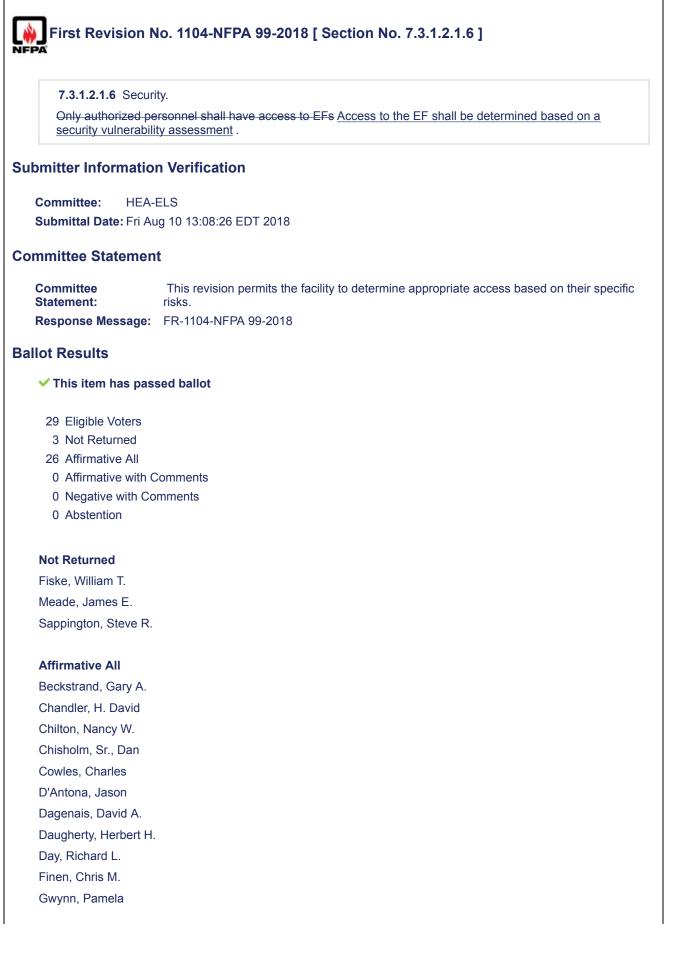
## **Affirmative All**

Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

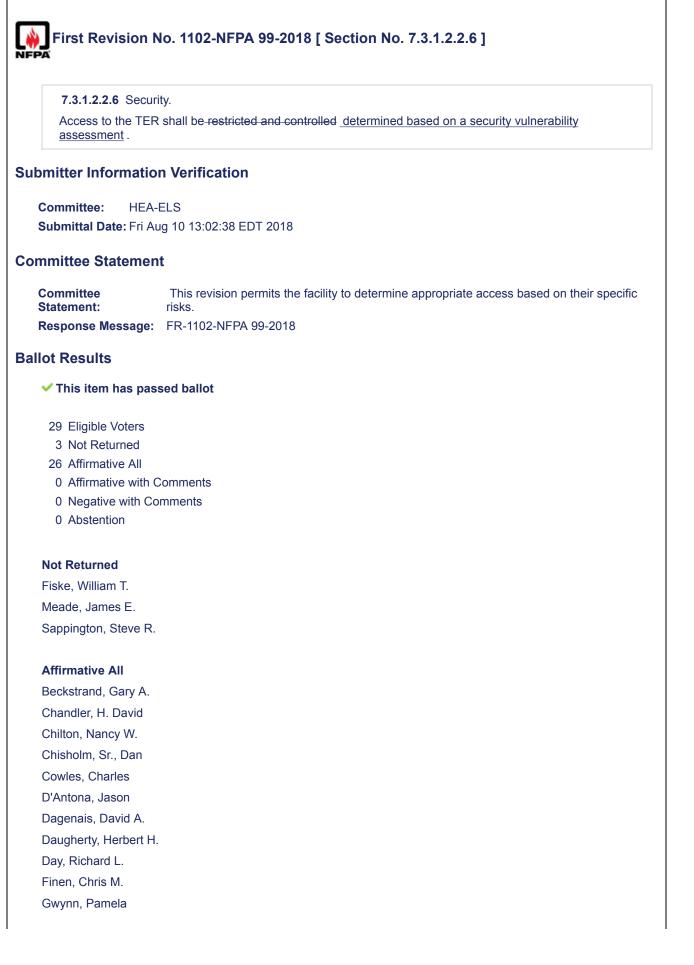
## Affirmative with Comment

Rock, Brian E.

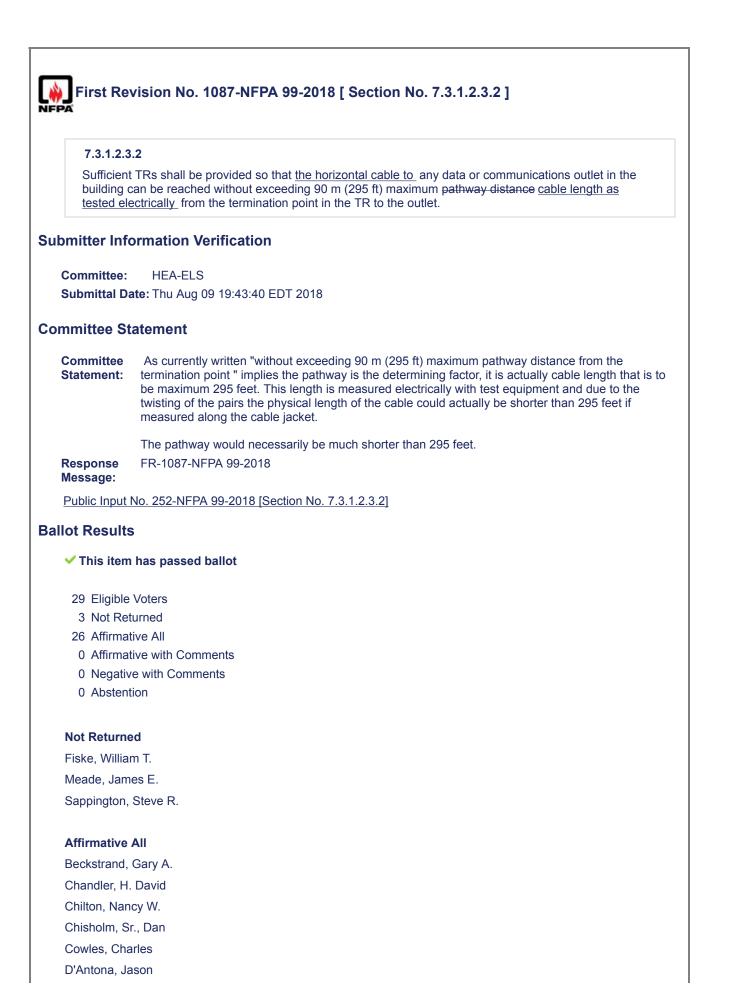
• The Section reference for FR-1101 incorrectly cites nonexistent 6.7.5.1.3.2 instead of the intended 6.7.6.1.3.2.



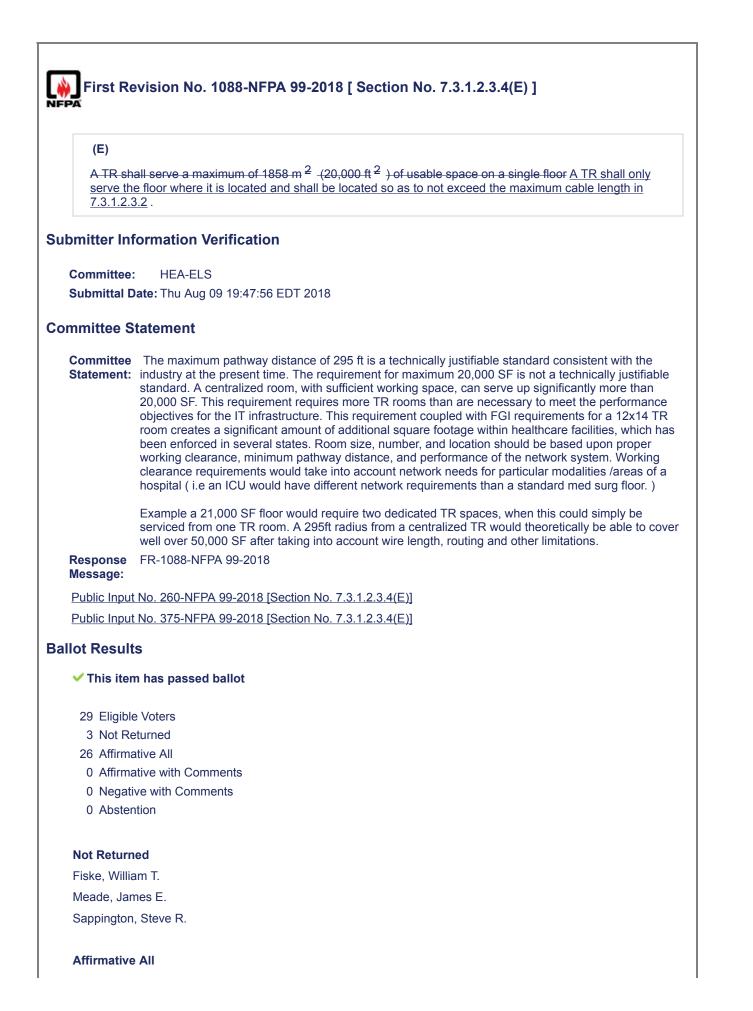
Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W.



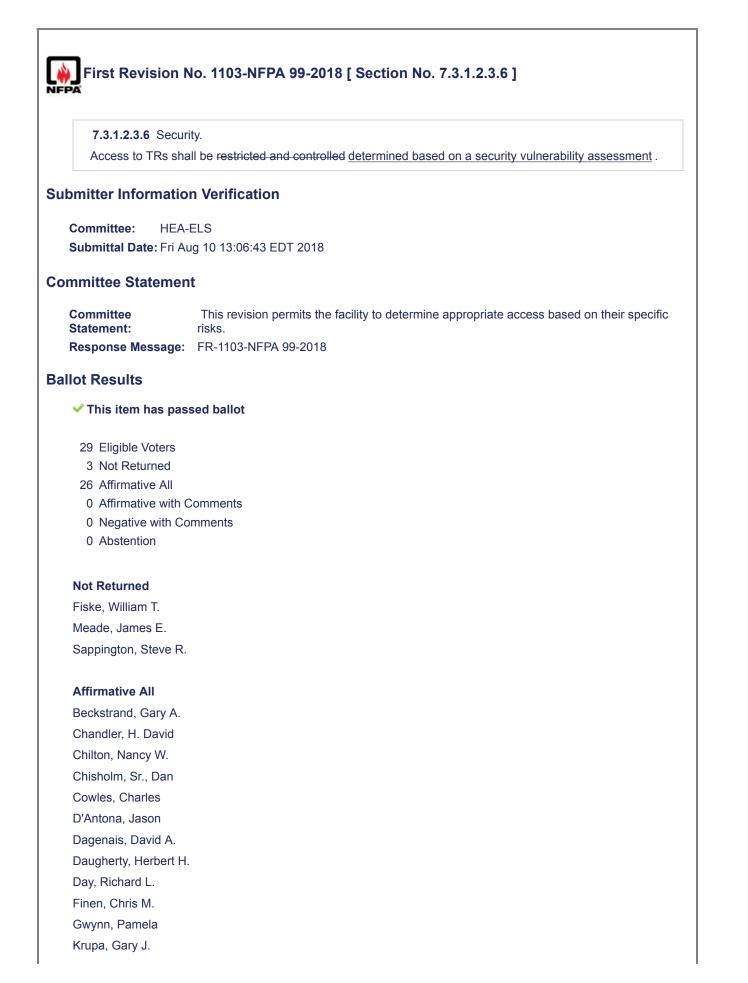
Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W.



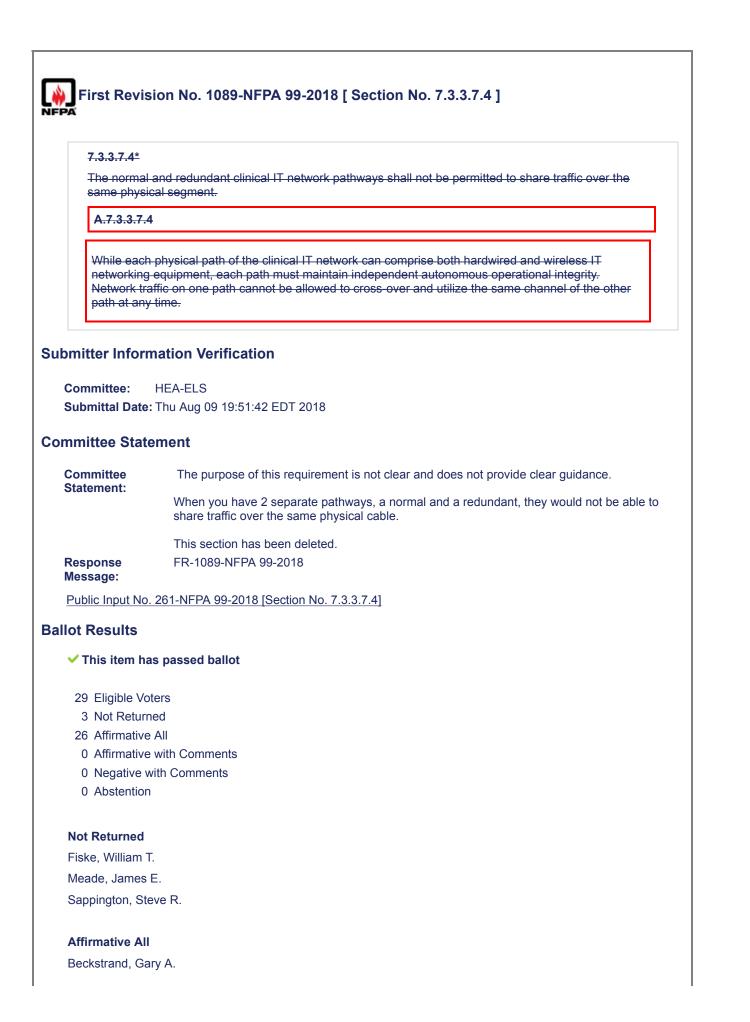
Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



Beckstrand, Gary A. Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert



Chandler, H. David Chilton, Nancy W. Chisholm, Sr., Dan Cowles, Charles D'Antona, Jason Dagenais, David A. Daugherty, Herbert H. Day, Richard L. Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Rock, Brian E. Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

A.6.7.6.1	
Type 1 essential electrical systems are comprised of three separate branches capable of supplying a limited amount of lighting and power service that is considered essential for life safety and effective facility operation during the time the normal electrical service is interrupted for any reason. These three separate branches are the life safety, critical, and equipment branches.	
mitter Information Verification	
Committee: HEA-ELS Submittal Date: Thu Aug 09 19:54:43 EDT 2018	
mmittee Statement	
Committee Statement: 386	
Response Message: FR-1090-NFPA 99-2018	
Public Input No. 387-NFPA 99-2018 [New Section after A.6.7.5]	
Public Input No. 386-NFPA 99-2018 [Section No. A.6.7.2.3]	
ot Results	
✓ This item has passed ballot	
29 Eligible Voters	
3 Not Returned	
25 Affirmative All	
1 Affirmative with Comments	
0 Negative with Comments	
0 Abstention	
Not Returned	
Fiske, William T.	
Meade, James E.	
Sappington, Steve R.	
Affirmative All	
Beckstrand, Gary A.	
Chandler, H. David	
Chilton, Nancy W.	
Chisholm, Sr., Dan	
Cowles, Charles	
D'Antona, Jason	
Dagenais, David A.	
Daugherty, Herbert H.	
Day, Richard L.	

Finen, Chris M. Gwynn, Pamela Krupa, Gary J. McKinch, Terrance L. Parrish, Thomas J. Peterson, John W. Rabel, Don Rea, Vincent M. Riechers, Keith Romano, Christopher M. Smidt, Ronald M. Vann, Joshua Vernon, IV, Walter N. Walker, Kent White, Leonard W. Wolff, Robert

## Affirmative with Comment

Rock, Brian E.

• The Section reference for FR-1090 incorrectly cites A.6.7.2.3 for informative material unrelated to battery systems, instead of to the intended A.6.7.6.1.