Public Comment No. 2220-NFPA 70-2018 [Global Input]

The Correlating Committee directs Panel 15 to review all references to Article 310 under their purview. Article 310 has been divided into Article 310,

Conductors for General Wiring, and Article 311, Medium Voltage Conductors and Cables for usability and clarity. Panel 15 shall appoint a task group

to review all necessary references to verify their accuracy and submit Public Comments where necessary. This action instructs Panel 15 to

submit a Public Comment(s) within the time frame required in the NEC schedule.

This action shall be considered as a public comment.

Additional Proposed Changes

File Name	Description	Approved
CN_270.pdf	CN_270	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 270 in the First Draft Report.

The Correlating Committee directs Panel 15 to review all references to Article 310 under their purview. Article 310 has been divided into Article 310,

Conductors for General Wiring, and Article 311, Medium Voltage Conductors and Cables for usability and clarity. Panel 15 shall appoint a task group

to review all necessary references to verify their accuracy and submit Public Comments where necessary. This action instructs Panel 15 to

submit a Public Comment(s) within the time frame required in the NEC schedule.

This action shall be considered as a public comment.

Related Item

- Correlating Committee Note No. 270

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Fri Sep 07 14:17:58 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution:	SR-8002-NFPA 70-2018 CMP 15 reviewed all existing cross-references and found only one instance that required correction.
Statement:	The cross-reference in Table Note 1 is updated per the changes in Article 310.

Correlating Committee Note No. 270-NFPA 70-2018 [Global Input]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Fri May 11 17:54:55 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs all panels to review all references to Article 310 under their purview. Article 310 has been divided into Article 310, Conductors for General Wiring, and Article 311, Medium Voltage Conductors and Cables for usability and clarity. Each panel shall appoint a task group to review all necessary references to verify their accuracy and submit Public Comments where necessary. This action instructs the referenced panels to submit a Public Comment(s) within the time frame required in the NEC schedule.

This action shall be considered as a public comment.

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 2237-NFPA 70-2018 [Global Input]

The Correlating Committee directs Panel 15 to review all Articles, within their purview, that supplement or modify (90.3) GFCI requirements in 210.8 for correlation, clarity, usability and standardized format. A Correlating Committee Task Group will be appointed and will submit comments where necessary.

This action shall be considered as a public comment.

Additional Proposed Changes

File Name	Description	Approved
CN_152.pdf	CN_152	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 152 in the First Draft Report.

The Correlating Committee directs Panel 15 to review all Articles, within their purview, that supplement or modify (90.3) GFCI requirements in 210.8 for correlation, clarity, usability and standardized format. A Correlating Committee Task Group will be appointed and will submit comments where necessary.

This action shall be considered as a public comment.

Related Item

• Correlating Committee Note No. 152

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Fri Sep 07 15:04:59 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7859-NFPA 70-2018

Statement: The revised text relocates information from 210.8(B)(5) Exception No. 2 to 517.21 to clarify the use of GFCI.

Section 517.21 was clarified to differentiate the GFCI protection requirements for patient bed locations equipped with sinks or basins and the GFCI requirements for patient bathrooms and toilet rooms beyond the patient bed location but still within the overall “patient room."

Correlating Committee Note No. 152-NFPA 70-2018 [Global Input]

Submitter Information Verification

Submitter Full Name: Erik Hohengasser
Committee:
Submittal Date: Thu May 10 18:00:52 EDT 2018

Committee Statement

Committee Statement: The Correlating Committee directs each panel to review all Articles, within their purview, that supplement or modify (90.3) GFCI requirements in 210.8 for correlation, clarity, usability and standardized format. A Correlating Committee Task Group will be appointed and will submit comments where necessary.

This action shall be considered as a public comment.

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 338-NFPA 70-2018 [Definition: Limited Care Facility.]

Limited Care Facility.

A building or portion thereof used on a 24-hour basis for the housing of four or more persons who are incapable of self-preservation because of age; physical limitation due to accident or illness; or limitations such as (**remove** mental retardation)(**insert** intellectual disability) /developmental disability, mental illness, or chemical dependency.

Reference:

Public Law 111 - 256 - *Rosa's Law* . An act to change references in Federal *law* to mental retardation to references to an intellectual disability, and change references to a mentally retarded individual to references to an individual with an intellectual disability.

Statement of Problem and Substantiation for Public Comment

The NEC is using an outdated term which is intensive to those with intellectual disabilities.
Also, the new term of intellectual disability is consistent with the term developmental disability

Rosa's Law (Pub. L. 111-256) is a United States law which replaces several instances of "mental retardation" in law with "intellectual disability". The bill was introduced as S.2781 in the United States Senate on November 17, 2009, by Barbara Mikulski (D-MD). It passed the Senate unanimously on August 5, 2010, then the House of Representatives on September 22, and was signed into law by President Barack Obama on October 5.[1] The law is named for Rosa Marcellino, a girl with Down Syndrome who was nine years old when it became law, and who, according to President Barack Obama, "worked with her parents and her siblings to have the words 'mentally retarded' officially removed from the health and education code in her home state of Maryland."

Related Item

• PI517.2

Submitter Information Verification

Submitter Full Name: Paul J Kennedy Jr
Organization: Kennedy Seminars
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 01 16:06:10 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7877-NFPA 70-2018
Statement: Language was changed to remove an outdated term, which is insensitive to those with intellectual disabilities.

Public Comment No. 396-NFPA 70-2018 [Section No. 517.16 [Excluding any Sub-Sections]]

~~An isolated ground receptacle, if used, shall not defeat the purposes of the safety features of the grounding systems detailed in 517.13.~~ [**~~99:~~** ~~6.3.2.2.5(A)~~]

Statement of Problem and Substantiation for Public Comment

Delete this new text because:
1. I make no sense as to what is required.
2. What is a 'safety feature of the grounding system detailed in 517.13?
3. The 'equipment grounding conductor' requirements of 517.13 always apply, and in addition 517.16 specifically references 517.13(A) and 517.13(B).
Deleting this text helps keep this rule clear as previously written.

Related Item

• FR-8670

Submitter Information Verification

Submitter Full Name: Mike Holt
Organization: Mike Holt Enterprises Inc
Street Address:
City:
State:
Zip:
Submittal Date: Sat Aug 04 17:43:47 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Any changes to the material in the National Electrical Code relating to extracted material from NFPA 99 needs to be changed in that document before a corresponding change can be implemented in the NEC as per Standards Council protocol. The panel suggests the submitter of this public input pursue changing NFPA 99 in the next cycle and then if successful, resubmit this public input to the NEC.

Public Comment No. 337-NFPA 70-2018 [Section No. 517.17]

517.17 Ground-Fault Protection of Equipment .

(A) Applicability.

The requirements of 517.17 shall apply to buildings or portions of buildings containing health care facilities with Category 1 (critical care) spaces or utilizing electrical life-support equipment, and buildings that provide the required essential utilities or services for the operation of Category 1 (critical care) spaces or electrical life-support equipment.

(B) Feeders.

Where ground-fault protection of equipment is provided for operation of the service disconnecting means or feeder disconnecting means as specified by 230.95 or 215.10, an additional step of ground-fault protection shall be provided in all next level feeder disconnecting means downstream toward the load. Such protection shall consist of overcurrent devices and current transformers or other protective equipment that shall cause the feeder disconnecting means to open.

The additional levels of ground-fault protection of equipment shall not be installed on the load side of an essential electrical system transfer switch.

(C) Selectivity.

Ground-fault protection of equipment for operation of the service and feeder disconnecting means shall be fully selective such that the feeder device, but not the service device, shall open on ground faults on the load side of the feeder device. Separation of ground-fault protection time-current characteristics shall conform to manufacturer's recommendations and shall consider all required tolerances and disconnect operating time to achieve 100 percent selectivity.

Informational Note: See 230.95, informational note, for transfer of alternate source where ground-fault protection is applied.

(D) Testing.

When equipment ground-fault protection of equipment is first installed, each level shall be performance tested to ensure compliance with 517.17(C). This testing shall be conducted by a qualified person(s) using a test process in accordance with the instruction provided with the equipment. A written record of this testing shall be made and shall be available to the authority having jurisdiction.

Statement of Problem and Substantiation for Public Comment

READABILITY:

.

• Explicit clarification that 517.17 relates to GFPE, to avoid confusion with ground-fault circuit-interrupter (GFCI) protection of personnel in 517.21.

.

• NEC® discussion forums had erroneously questioned why 517.21 is not consolidated with 517.17(A) and why the Informational Note added by FR-8796 to 517.21 appeared to be in conflict with requirements regarding electrical life-support equipment in 517.17(A). These questions suggest a readability issue needs to be addressed.

Related Item

• First Revision No. 8681-NFPA 70-2018 [Section No. 517.17(A)]	• First Revision No. 8701-NFPA 70-2018 [Section No. 517.17(B)]	• First Revision No. 8685-NFPA 70-2018 [Section No. 517.17(D)]	• First Revision No. 8796-NFPA 70-2018 [Section No. 517.21]

Submitter Information Verification

Submitter Full Name: Brian Rock
Organization: Hubbell Incorporated
Street Address:
City:
State:

Zip:

Submittal Date: Wed Aug 01 14:17:49 EDT 2018

Committee: NEC-P15

Committee Statement

Committee Action: Accepted

Resolution: SR-7879-NFPA 70-2018

Statement: This revision is editorial in nature and will help code users avoid confusion between the use of the terms ground-fault protection of equipment and ground-fault circuit-interrupters.

Public Comment No. 703-NFPA 70-2018 [Section No. 517.18]

~~517~~ **5** 17 .18 Category 2 (General Care) Spaces.

(A) Patient Bed Location.

(1) Each patient bed location shall be supplied by a minimum of eight (8) non-locking-type, 125-volt, 15- or 20- ampere receptacles. They shall be permitted to be of the single, duplex, or quadruplex type, or any combination of the three. Other receptacles (e.g., portable x-ray receptacles) serving special-purpose, cord-and-plug-connected equipment shall be permitted to be of the locking or non-locking type. [99:6.3.2.2.2(A)]

(2) Each patient bed location shall be supplied by at least two branch circuits~~, one from~~ . At least four (4) receptacle outlets at each patient bed location shall be connected to the critical branch and ~~one from the normal system~~ other recpetacles shall be connected to either the normal branch circuit or a critical branch circuit supplied by a different transfer switch other than the receptacles at the same location . All branch circuits from the normal ~~system~~ branch shall originate ~~in~~ from the same panelboard.

Informational Note: Where patient bed location receptacles are served from two or more separate transfer switches on critical branch(s), receptacles are not required to be supplied from the normal system.

(3) Not more than six (6) receptacle outlets shall be connected to a 15- ampere branch circuit. Not more than eight (8) receptacle outlets shall be connected to a 20- ampere branch circuit.

Informational Note: It is not intended that there be a total, immediate replacement of branch circuit wiring and receptacle requirements in an existing health care facility. It is intended that receptacle outlet requirements be updated during modification of use, or as existing circuits are replaced.

(4) The electrical receptacles or ~~the~~ cover plate for the electrical receptacles supplied from the life safety or critical branch shall have a distinctive color or marking ~~so as~~ to be readily identifiable [99:6.7.2.3.5(B)] and shall also indicate the panelboard and branch ~~-~~ circuit number supplying them.

(5) All receptacles shall be listed "hospital grade" and shall be so identified.

Informational Note: It is not intended there be a total replacement of existing non-hospital grade receptacles. It is intended however, that non-hospital grade receptacles be replaced with hospital grade receptacles upon modification of use, or as existing receptacles are replaced.

(6) The grounding terminal of each receptacle shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table 250.122.

Informational Note: See 517.13(A) and (B) for equipment grounding requirements for patient care spaces.

(7) Branch circuits serving patient bed locations shall not be part of a multiwire branch circuit.

~~Exception No~~

Exception No .

~~1: Branch circuits serving only special purpose outlets or receptacles, such as portable X-ray outlets, shall not be required to be served from the same distribution panel or panels.~~ ~~Exception No. 2:~~

1: The requirements of 517.18(A) (1), (2), (3), (5), and (6) shall not apply to

~~patient bed locations in~~

clinics, medical and dental offices

~~, and outpatient facilities~~

~~;~~

~~psychiatric, substance abuse, and rehabilitation hospitals;~~

sleeping rooms of nursing homes; and limited care facilities meeting the requirements of

~~517~~

571 .10(B)(2) .

Exception No. ~~3:~~ ~~A Category 2 (general care) patient bed location served from two separate transfer switches on the critical branch shall not be required to have circuits from the normal system.~~

~~Exception No. 4:~~ ~~Circuits served by Type 2 essential electrical systems shall be permitted to be fed by the equipment branch of the essential electrical system.~~

~~**(B)** Patient Bed Location Receptacles.~~

~~**(1)** Minimum Number and Supply.~~

~~Each patient bed location shall be provided with a minimum of eight receptacles.~~

~~**(2)** Receptacle Requirements.~~

~~The receptacles required in 517.18(B)(1) shall be permitted to be of the single, duplex, or quadruplex type or any combination of the three. All receptacles shall be listed "hospital grade" and shall be so identified. The grounding terminal of each receptacle shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table 250.122 .~~

~~Exception No. 1: The requirements of 517.18(B)(1) and (B)(2)~~ 2: The requirements of 517.18(A)(1), 517.18(A)(3), and 517.18(A)(5) shall not apply to psychiatric, substance abuse, and rehabilitation hospitals meeting the requirements of 517.10(B)(2) .

Exception No. ~~2:~~ ~~Psychiatric security rooms~~ 3: Receptacles shall not be required ~~to have receptacle outlets installed in the room.~~

~~Informational Note: It is not intended that there be a total, immediate replacement of existing non–hospital grade receptacles. It is intended, however, that non–hospital grade receptacles be replaced with hospital grade receptacles upon modification of use, renovation, or as existing receptacles need replacement.~~

~~(C~~

in rooms where medical requirements mandate otherwise (e.g., certain psychiatric (security rooms), pediatric, or hydrotherapy rooms. [99:6.3.2.2.2(E)]

Exception No. 4: Branch circuits serving only special purpose outlets or receptacles, such as portable X-ray outlets, shall not be required to be served from the same distribution panel(s).

(B) Designated Category 2 (General Care) Pediatric Locations.

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. [**99:** 6.3.2.2.1(D)]

Statement of Problem and Substantiation for Public Comment

As part of CMP 15 effort to correlate NFPA 99-2018 Health Care Facilities Code extracted material missed in the first draft is included in this section.
Subparts (A) and (B) is not changed but combined into one sub-part (A) and reorganized into a list format for easy use by Code users. The content of FR-8688, FR-8690, FR-8697, and FR-8698 is included and not changed. NFPA 99 Extracted material is now correlated in the Section and so referenced.
517.18(A)(5) and (6) and 517.18(C) (6) is based on are proposed Public Input found PI 3573-NFPA 70-2017 and attachment which was rejected by CMP 15. Substantiation for adding this requirement to the Code should again be reviewed by CMP-15 as shown in PI 3573-NFPA 70-2017. As well as PI 3573 as support for this change, see PI 389-NFPA 99-2018 approved by the NFPA 99 ELS and included in the first draft of the NFPA 99-2021 edition. This should not be considered as new material as it was submitted in the public input process and would be part of the continued effort to correlate NFPA 99 with Article 517.
517.18(C) (proposed changes) is moved to list format. Subpart (C) is generally not changed but is clarified and reorganized into a list format for easy use by Code users.
The section subpart numbering and lettering is changed to provide order.

Related Item

• PI 3573

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 16 11:58:27 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action:	Rejected
Resolution:	The related text in NFPA 99 is currently being reviewed for changes by the responsible committee. The proposed changes in this public comment could introduce conflicts that would need to be readdressed in the next revision cycle.

Public Comment No. 978-NFPA 70-2018 [Section No. 517.19]

517.19 Category 1 (Critical Care) Spaces.

(A) Patient Bed Location~~.~~ ~~Branch Circuits~~ , Other Than Operating Rooms .

(1) Each patient bed location shall be supplied ~~by at least two branch circuits, one or more from the critical branch and one or more circuits from the normal system. At least one branch circuit from the critical branch shall supply an outlet(s) only at that bed location.The electrical receptacles or the cover plates~~ supplied by a minimum of fourteen (14 non-locking-type, 125-volt, 15- or 20- ampere receptacles. They shall be permitted to be of the single, duplex, or quadruplex type, or any combinations of the three. Other receptacles (e.g., portable X-ray receptacles) serving special-purpose, cord-and-plug-connected equipment shall be permitted to be of the locking or non-locking type. [99:6.3.2.2.2(A)]

(2) Each patient bed location shall be supplied by two or more branch circuits. At least seven (7) of the receptacle outlets at each patient bed location shall be connected to the critical branch circuits(s) and other receptacles shall be connected to either the normal branch circuit or a critical branch circuit supplied by a different transfer switch other than the receptacles at the same location. All branch circuits from the normal branch shall originate from the same panelboard.

Informational Note: Where patient bed location receptacles are served from two or more separate transfer switches on the critical branch(s), receptacles are not required to be supplied from the normal system.

(3) No more than six (6) receptacle outlets shall be connected to a 15- ampere branch circuit. No more than eight receptacle outlets shall be connected to a 20- ampere branch circuit.

Informational Note: It is not intended that there be a total, immediate replacement of branch circuit wiring and receptacle requirements in an existing health care facility. It is intended that receptacle outlet requirements be updated during modification of use, or as existing circuits are replaced.

(4) The electrical receptacles or cover plate for the electrical receptacles supplied from the life safety ~~and~~ or critical ~~branches~~ branch shall have a distinctive color or marking ~~so as~~ to be readily identifiable ~~.~~ [99: 6.7.2.3.5(B)] ~~All branch circuits from the normal system shall be from a single panelboard. Critical branch receptacles shall be identified~~ and shall also indicate the panelboard and branch circuit number supplying them.

~~The branch circuit serving patient bed locations shall not be part of a multiwire branch circuit.~~

~~*Exception No. 1: Branch circuits serving only special-purpose receptacles or equipment in Category 1 (critical care) spaces shall be permitted to be served by other panelboards.*~~

~~*Exception No. 2: Category 1 (critical care) spaces served from two separate critical branch transfer switches shall not be required to have circuits from the normal system.*~~

~~**(B)** Patient Bed Location Receptacles.~~

~~**(1)** Minimum Number and Supply.~~

~~Each patient bed location shall be provided with a minimum of 14 receptacles, at least one of which shall be connected to either of the following:~~

~~(1) The normal system branch circuit required in 517.19(A)~~

~~(2) A critical branch circuit supplied by a different transfer switch than the other receptacles at the same patient bed location~~

~~**(2)** Receptacle Requirements.~~

~~The receptacles required in 517.19(B)(1) shall be permitted to be single, duplex, or quadruplex type or any combination thereof. All receptacles shall be listed "hospital grade" and shall be so identified. The grounding terminal of each receptacle shall be connected to the reference grounding point by means of an insulated copper equipment grounding conductor.~~

~~**(C)** Operating Room Receptacles.~~

~~**(1)** Minimum Number and Supply.~~

~~Each operating room shall be provided with a minimum of 36 receptacles divided between at least two branch circuits. At least 12 receptacles, but no more than 24, shall be connected to either of the following:~~

(1) ~~The normal system branch circuit required in 517.19(A)~~

(2) ~~A critical branch circuit supplied by a different transfer switch than the other receptacles at the same location~~

~~**(2)** Receptacle Requirements.~~

~~The receptacles shall be permitted to be of the locking or nonlocking type, single, duplex, or quadruplex types or any combination of the three.~~

~~All nonlocking-type receptacles shall be listed hospital grade and so identified.~~

(5) All receptacles shall be listed "hospital grade: and shall be so identified.

Informational Note: It is not intended there be a total replacement of existing non-hospital grade receptacles. It is intended however, that non-hospital grade receptacles be replaced with hospital grade receptacles upon modification of use, or as existing receptacles are replaces.

(6) The grounding terminal of each receptacle shall be connected to the reference grounding point by means of an insulated copper equipment grounding conductor. [99:6.3.2.2.1(A)] The equipment grounding conductor shall be sized in accordance with 250.122.

Informational Note: See 517.13(A) and (B) for equipment grounding conductor requirements for patient care spaces.

(7) Branch circuits serving patient bed locations shall not be part of a multiwire branch circuit.

(B) Operating Room Receptacles.

(1) Each operating room shall be provided with a minimum of thirty-six (36), 125-volt, 15- or 20- ampere receptacles. They shall be permitted to be of the single, duplex, or quadruples type, or any combination of the three. Other receptacles (e.g., portable X-ray receptacles) serving special-purpose equipment shall be permitted to be of the locking or non-locking type. [99:6.3.2.2.2(C)]

(2) Each patent bed location shall be supplied by two or more critical branch circuits. At least twelve (12) but not more than twenty-four of the receptacle outlets shall be connected to critical branch and all other recpetacles shall be connected to either the normal branch or a critical branch supplied by a different transfer switch other than the receptacles in the same location. {99:6.3.2.2.2(C)] All branch circuits from the normal branch shall originate from the same panelboard.

Informational Note: Where the patient bed location receptacles are served from two or more seperate transfer switches on the critical branch(s), receptacle are not required to be supplied from the normal system.

(3) Not more than six (6) receptacls outlets shall be connected to a 15- ampere branch circuit. Not more than eight (8) receptacal outlets shall be connected to a 20_ ampere branch circuit. This provision shall apply to new and remodled health care facilities only.

Informational Note: It is not intended that there be a total, replacement of branch circuit wiring and receptacle requirements in an existing health care facility. It is intended that receptacle outlet requirements be updated during modification of use, or as existing circuits are replaced.

(4) The electrical receptacles or the cover plates for the electrical receptacles supplied from the life safety or critical branch shall have a distinctive color or marking to be readily identifiable [99:6.7.2.3.5(B)] and shall indicate the panelboard and branch circuit number supplying them.

(5) The receptacles shall be listed "hospital grade" and shall be so identified.

Informational Note: It is not intended there be a total replacement of existing non-hospital grade receptacles. It is intended however, that non-hospital grade receptacles be replaced with hospital grade receptacles upon modification or use, or as existing receptacles are replaced.

(6) The grounding terminal of each receptacle shall be connected to the reference grounding point by means of an insulated copper equipment grounding conductor. The equipment grounding conductor shall be sized in accordance with Table 250.122.

Informational Note: See 517.13 (

~~D)~~

) and (B) for equipment grounding conductor requirements for patient care areas.

(7) Branch circuits serving patient bed locations shall not be part of a multiwire branch circuit.

(C) _ Patient Care Vicinity Grounding and Bonding (Optional).

A patient care vicinity shall be permitted to have a patient equipment grounding point. The patient equipment grounding point, where supplied, shall be permitted to contain one or more listed grounding and bonding jacks. An equipment bonding jumper not smaller than 10 AWG shall be used to connect the grounding terminal of all grounding-type receptacles to the patient equipment grounding point. The bonding conductor shall be permitted to be arranged centrically or looped as convenient.

> Informational Note: Where there is no patient equipment grounding point, it is important that the distance between the reference grounding point and the patient care vicinity be as short as possible to minimize any potential differences.

(~~E~~ D) Equipment Grounding and Bonding.

Where a grounded electrical distribution system is used and metal feeder raceway or Type MC or MI cable that qualifies as an equipment grounding conductor in accordance with 250.118 is installed, grounding of enclosures and equipment, such as panelboards, switchboards, and switchgear, shall be ensured by one of the following bonding means at each termination or junction point of the metal raceway or Type MC or MI cable:

(1) A grounding bushing and a continuous copper bonding jumper, sized in accordance with 250.122, with the bonding jumper connected to the junction enclosure or the ground bus of the panel

(2) Connection of feeder raceways or Type MC or MI cable to threaded hubs or bosses on terminating enclosures

(3) Other approved devices such as bonding-type locknuts or bushings. Standard locknuts shall not be used for bonding.

(~~F~~ E) Additional Protective Techniques in Category 1 (Critical Care) Spaces (Optional).

Isolated power systems shall be permitted to be used for Category 1 (critical care) spaces, and, if used, the isolated power system equipment shall be listed as isolated power equipment. The isolated power system shall be designed and installed in accordance with 517.160.

Exception: The audible and visual indicators of the line isolation monitor shall be permitted to be located at the nursing station for the area being served.

(~~G~~ F) Isolated Power System Equipment Grounding.

Where an isolated ungrounded power source is used and limits the first-fault current to a low magnitude, the equipment grounding conductor associated with the secondary circuit shall be permitted to be run outside of the enclosure of the power conductors in the same circuit.

Informational Note: Although it is permitted to run the equipment grounding conductor outside of the conduit, it is safer to run it with the power conductors to provide better protection in case of a second ground fault.

(~~H~~ G) Special-Purpose Receptacle Grounding.

The equipment grounding conductor for special-purpose receptacles, such as the operation of mobile X-ray equipment, shall be extended to the reference grounding points of branch circuits for all locations likely to be served from such receptacles. Where such a circuit is served from an isolated ungrounded system, the equipment grounding conductor shall not be required to be run with the power conductors; however, the equipment grounding terminal of the special-purpose receptacle shall be connected to the reference grounding point.

Statement of Problem and Substantiation for Public Comment

As part of CMP 15 effort to correlate NFPA 99-2018 Health Care Facilities Code extracted material missed in the first draft is included in this section.
Subparts (A) and (B) is not changed but combined into one sub-part (A) and reorganized into a list format for easy use by Code users. The content of FR-8688, FR-8690, FR-8697, and FR-8698 is not changed. NFPA 99 Extracted material is now correlated in the Section and so referenced.
517.18(A)(5) and (6) and 517.18(C) (6) (reconsider proposed Public Input) has its foundation in PI 3573-NFPA 70-2017, which was rejected by CMP 15, and PI 389-NFPA 99-2018 currently under consideration. Substantiation for adding this requirement to the Code should again be reviewed by CMP-15 as shown in PI 3573-NFPA 70-2017. This should not be considered as new material as it was submitted in the public input process and would be part of the continued effort to correlate NFPA 99 with Article 517.
517.18(C) (proposed changes) is moved to list format. Subpart (C) is generally not changed but is clarified and reorganized into a list format for easy use by Code users.
The section subpart numbering and lettering is changed to provide order.

Related Item

• PI 3573 and FR 8688, FR-8697

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 21 08:06:45 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: The related text in NFPA 99 is currently being reviewed for changes by the responsible committee. The proposed changes in this public comment could introduce conflicts that would need to be readdressed in the next revision cycle.

Public Comment No. 2165-NFPA 70-2018 [New Section after 517.21]

517.22 **Health Care Facilities.** Rating of feeders, busses, transformers, generators, and services shall be calculated in accordance with Table 517.22, with respect to receptacles and cord-connected equipment.

Table 517.22 Receptacle Outlet and Cord Connected Equipment Demand Factors for Health Care Facilities

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First 5.0 kVA or less at	100
Second 5.0 kVA to 10 kVA at	50
Remainder over 10 kVA at	25

..

Additional Proposed Changes

File Name	Description	Approved
NFPA_70_New_Section_517.22_Bourgault_Submission.1504720288468-1.pdf	Proposed change to 517.22. Same as indicated in public input.	
HospitalPowerUseStudy.xlsx	Study showing actual hospital demand and demand calculated using current NEC procedure and other potential options. Bourgault 1.1&2 is best option and is basis for proposed changes.	

Statement of Problem and Substantiation for Public Comment

We've provided here data from a study we recently conducted at a Hospital that validates this proposal. The "All Methods" tab demonstrates that current NEC methodology vastly oversizes feeders, busses, transformers, generators, etc. for hospitals. The proposal herein helps alleviate this problem.

We are also submitting this content in section 220 as the committee is deciding whether demand factors for healthcare should be in section 200 or in section 517.

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 2172-NFPA 70-2018 [New Section after 517.21]	
Public Comment No. 2178-NFPA 70-2018 [Section No. 220.44]	
Public Comment No. 2182-NFPA 70-2018 [Section No. 220.12(B)]	

Public Comment No. 2192-NFPA 70-2018 [New Section after 220.44]

Public Comment No. 2200-NFPA 70-2018 [Section No. 220.14(I)]

Related Item

• PI 3565-NFPA 70-2017 [New Section after 517.21]

Submitter Information Verification

Submitter Full Name: Ron Bourgault
Organization: Mazzetti
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 30 21:32:50 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7908-NFPA 70-2018

Statement: The revised text reduces oversizing of hospital electrical systems, as justified by the hospital power study provided to the panel.

Per Section 90.3, Chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions and may supplement or modify the requirements in Chapters 1 through 7. Therefore, it is the opinion of Panel 15 that this information belongs in Article 517 instead of Chapter 2.

New Section

517.22 **Health Care Facilities.** Rating of feeders, busses, transformers, generators, and services shall be calculated in accordance with Table 517.22, with respect to receptacles and cord-connected equipment.

Table 517.22 Receptacle Outlet and Cord Connected Equipment Demand Factors for Health Care Facilities

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First 5.0 kVA or less at	100
Second 5.0 kVA to 10 kVA at	50
Remainder over 10 kVA at	25

Substantiation

Due to the requirements of NFPA 99 and FGI Guidelines (which are enforced through the Federal Centers of Medicare & Medicaid Services) the outlet quantity in health care facilities are mandated to be far higher than normally encountered in other occupancies. This high density of outlets is intended to allow clinicians the flexibility to provide care in multiple case scenarios within the same space. In addition, many of these spaces are required to have a set of completely redundant electrical outlets to accommodate medical equipment in the event of an isolated electrical failure. In nearly all of these spaces, the outlets are not intended for simultaneous use.

Currently the calculated sizing of the distribution systems serving these outlets fall under the 180VA requirement outlined in NFPA 70 Article 220.14(L). Adherence to this requirement necessitates the calculation of exceedingly high load densities for typical clinical spaces. For example:

Article 517.19(C) (1) requires that a minimum of 36 receptacles be provided in each operating room. Per Article 220.14(L) a 400-square foot operating room will have a plug load density of 8.1VA / square foot (if duplex receptacles are used) or as high as 16.2VA / square foot if simplex receptacles are used. These load densities are significantly higher than the actual loads that are encountered in these spaces.

Several recent comprehensive studies including; *Plug and Process Loads in Medical Office Buildings* , *Quantifying Hospital Cord Connected Plug Loads in Inpatient Areas* , and *Healthcare Energy End-Use Monitoring'* have concluded that the receptacle load densities in even the most acute healthcare spaces are far less than the presently mandated load densities. These studies have been provided as reference in this proposal.

The requirements of 220.14(L) lead to mandatory oversizing of the distribution components including, feeders, transformers and overcurrent protective devices. This larger equipment introduces several operational issues including higher arc-flash hazards in the clinical care environment.

This proposal is intended to seek relieve healthcare facilities from the mandatory requirements of Article 220.14(L) and place the minimum calculated load densities under the purview of Article 517. This Public Input proposal is intended to be accepted with a companion proposal to Article 517 which will introduce a new section 517.22 which will provide plug load densities for healthcare facilities.

Additional Input:

Change to 220.44: Receptacle Loads -- Other Than Dwelling Units and **Health Care Facilities.** A separate submission has been made to Article 220 for this change.

Substantiation:

By adding Health Care Facilities to the title of this section, this table no longer applies to health care facilities and it allows for different demand factors as identified in new section 517.22.

Definitions

Method	Receptacle Loads
Current NEC	1st 10kVA @ 100% Remainder @ 50%
Bourgault 1.0	1st 10kVA @ 100% Remainder @ 50%
Bourgault 1.1	1st 10kVA @ 100% Remainder @ 50%
Bourgault 2	1st 5kVA @ 100% 2nd 5kVA @ 50% Remainder @ 25%
Bourgaut 1.1 & 2	1st 5kVA @ 100% 2nd 5kVA @ 50% Remainder @ 25%

TAB Summary:

Tab 1	Definitions
Tab 2	Current NEC

Tab 3	Bourgault 1.0
Tab 4	Bourgault 1.1
Tab 5	Bourgault 2
Tab 6	Bourgault 1.1 & 2
Tab 7	All Methods

Cord Connected Equipment
Nameplate Values
pieces <=5: all equip. @ 100% of nameplate value. 6 <= # pieces <= 10: all equip. @ 50% of nameplate value. # pieces > 10: all equip. @ 25% of nameplate value.
pieces <=5: all equip. @ 100% of nameplate value. # pieces > 5: all equip. @ 50% of nameplate value.
Nameplate Values
pieces <=5: all equip. @ 100% of nameplate value. # pieces > 5: all equip. @ 50% of nameplate value.

Definitions:

Current NEC Cord

Bourgault 1 -

Bourgault 1.1

Bourgault 2 -

Bourgault 1.1

definitions of the different methods
comparison of connected to NEC to actual, including safety factor

comparison of the NEC for receps plus the proposed formula for medical equipment. You will see, from line 1, this method does not work in all cases.
Comparison of NEC for receps and the REVISED formula for medical equipment, including safety factors
comparison of Nameplate for medical equipment, and the revised recep table we proposed, including safety factors.
revised recep table AND the revised formula for medical equipment
Depicts All Methods

- Recep Loads: 1st 10kVA @ 100%, remainder @ 50%
connected equipment: Nameplate values.

Recep Loads: 1st 10kVA @ 100%, remainder @ 50%;
Cord connected equipment: Less than 6 pieces @ 100%
pieces @ 50%, greater than 10 pieces @ 25% of namep

- Recep Loads: 1st 10kVA @ 100%, remainder @ 50%;
Cord connected equipment: Less than or equal to 5 piec
than 5 pieces @ 50% of nameplate values.

Recep Loads: 1st 5kVA @ 100%, 2nd 5kVA @ 50% rem
connected equipment: Nameplate Values.

&2 - Recep Loads: 1st 5kVA @ 100%, 2nd 5kVA @ 50%
Cord connected equipment: Less than or equal to 5 p
greater than 5 pieces @ 50% of nameplate values.

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ıainder at 25%; Cord

% remainder at 25%;
ieces @ 100%,

Public Comment No. 2170-NFPA 70-2018 [New Section after 517.21]

TITLE OF NEW CONTENT

Type your content here ...

Additional Proposed Changes

File Name	Description	Approved
NFPA_70_New_Section_517.23_A_Bourgault_Submission.pdf		
NFPA_70_New_Section_517.23_B_Bourgault_Submission.pdf		

Statement of Problem and Substantiation for Public Comment

Based on our research, we believe load per floor area is not a robust enough way to calculate unit loads for healthcare occupancies. Therefore, we suggest the committee not move forward with this proposal. The methodologies we present here as 517.22 and 517.24 (as modified in public comment) are the best approach.

Related Item

• 3573-NFPA 70-2017 [New Section after 517.21]

Submitter Information Verification

Submitter Full Name: Ron Bourgault
Organization: Mazzetti
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 30 21:41:21 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7908-NFPA 70-2018

Statement: The revised text reduces oversizing of hospital electrical systems, as justified by the hospital power study provided to the panel.

Per Section 90.3, Chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions and may supplement or modify the requirements in Chapters 1 through 7. Therefore, it is the opinion of Panel 15 that this information belongs in Article 517 instead of Chapter 2.

New Section

517.23 (A) **Health Care Facilities,** Rating of feeders, busses, transformers, generators, and services shall be calculated in accordance with Table 517.23(A), with respect to receptacles and cord-connected equipment.

Table 517.23(A) Receptacle Outlet Loads and Cord Connected Equipment for Health Care Facilities

A unit load of not less that the specified in Table 517.23 for health care facility occupancies shall constitute the minimum receptacle load. The floor area for each floor shall be calculated from the outside dimensions of the building, or other area involved, the calculated floor area shall not include atriums, or unfinished spaces not adaptable for future use.

Table 517.23 Health Care Facility Receptacle Outlet and Cord Connected Loads by Occupancy

Type of Occupancy	Unit Load	
	Volt-amperes/m^2	Volt-amperes/ft^2
Category 1 (Critical Care)	32.30	3.00
Category 2 (General Care)	21.50	2.00
Category 3 (Basic Care)	16.10	1.50
Category 4 (Support Space)	13.50	1.25

Substantiation

Due to the requirements of NFPA 99 and FGI Guidelines (which are enforced through the Federal Centers of Medicare & Medicaid Services) the outlet quantity in health care facilities are mandated to be far higher than normally encountered in other occupancies. This high density of outlets is intended to allow clinicians the flexibility to provide care in multiple case scenarios within the same space. In addition, many of these spaces are required to have a set of completely redundant electrical outlets to accommodate medical equipment in the event of an isolated electrical failure. In nearly all of these spaces, the outlets are not intended for simultaneous use.

Currently the calculated sizing of the distribution systems serving these outlets fall under the 180VA requirement outlined in NFPA 70 Article 220.14(L). Adherence to this requirement necessitates the calculation of exceedingly high load densities for typical clinical spaces. For example:

Several recent comprehensive studies including; *Plug and Process Loads in Medical Office Buildings* , *Quantifying Hospital Cord Connected Plug Loads in Inpatient Areas* , and *Healthcare Energy End-Use Monitoring'* have concluded that the receptacle load densities in even the most acute healthcare spaces are far less than the presently mandated load densities. These studies have been provided as reference in this proposal.

The requirements of 220.14(L) lead to mandatory oversizing of the distribution components including, feeders, transformers and overcurrent protective devices. This larger equipment introduces several operational issues including higher arc-flash hazards in the clinical care environment.

This proposal is intended to seek relieve healthcare facilities from the mandatory requirements of Article 220.14(L) and place the minimum calculated load densities under the purview of Article 517. This Public Input proposal is intended to be accepted with a companion proposal to Article 517 which will introduce a new section 517.23 which will provide plug load densities for healthcare facilities.

Additional Input:

Change to 220.14 (I) Add 517.23 to paragraph. A separate submission has been made to Article 220 for this change.

Substantiation:

This change breaks the tie of 180 VA for health care facilities allowing 517.23 to dictate the load calculation

New Section

517.23 (B) **Receptacle Outlets.** The maximum number of receptacle outlets connected to a 15 ampere branch circuit shall not exceed 6 outlets. The maximum number of receptacle outlets connected to a 20 ampere branch circuit shall not exceed 8 outlets.

Substantiation

This section is needed to support new section 517.23 (A). It establishes necessary limits for the number of receptacles permitted on a branch circuit.

Due to the requirements of NFPA 99 and FGI Guidelines (which are enforced through the Federal Centers of Medicare & Medicaid Services) the outlet quantity in health care facilities are mandated to be far higher than normally encountered in other occupancies. This high density of outlets is intended to allow clinicians the flexibility to provide care in multiple case scenarios within the same space. In addition, many of these spaces are required to have a set of completely redundant electrical outlets to accommodate medical equipment in the event of an isolated electrical failure. In nearly all of these spaces, the outlets are not intended for simultaneous use.

Currently the calculated sizing of the distribution systems serving these outlets fall under the 180VA requirement outlined in NFPA 70 Article 220.14(L). Adherence to this requirement necessitates the calculation of exceedingly high load densities for typical clinical spaces. For example:

Article 517.19(C) (1) requires that a minimum of 36 receptacles be provided in each operating room. Per Article 220.14(L) a 400-square foot operating room will have a plug load density of 8.1VA / square foot (if duplex receptacles are used) or as high as 16.2VA / square foot if simplex receptacles are used. These load densities are significantly higher than the actual loads that are encountered in these spaces.

Several recent comprehensive studies including; *Plug and Process Loads in Medical Office Buildings*, *Quantifying Hospital Cord Connected Plug Loads in Inpatient Areas*, and *Healthcare Energy End-Use Monitoring'* have concluded that the receptacle load densities in even the most acute healthcare spaces are far less than the presently mandated load densities. These studies have been provided as reference in this proposal.

The requirements of 220.14(L) lead to mandatory oversizing of the distribution components including, feeders, transformers and overcurrent protective devices. This larger equipment introduces several operational issues including higher arc-flash hazards in the clinical care environment.

This proposal is intended to seek relieve healthcare facilities from the mandatory requirements of Article 220.14(L) and place the minimum calculated load densities under the purview of Article 517. This Public Input proposal is intended to be accepted with a companion proposal to Article 517 which will introduce a new section 517.25 which will provide plug load densities for healthcare facilities.

Public Comment No. 2172-NFPA 70-2018 [New Section after 517.21]

517.24 (A) Health Care Facilities. **Rating of feeders, busses, transformers, generators, and services shall be calculated in accordance with Table 517.24 (A), with respect to cord-connected equipment.**

Table 517.24(A) **Cord Connected Equipment Demand Factors for Health Care Facilities**

Number of Cord Connected Equipment	Percent of Full Load
Largest 1 to 5 pieces	100
Additional (more than 5)	50

Additional Proposed Changes

File Name	Description	Approved
PublicComment_LoadDemandFactorsForCordConnected.docx	Proposed load demand factors for cord connected equipment	
HospitalPowerUseStudy.xlsx	Study of hospital showing actual power demand and calculated required power demand using current NEC method and various proposed methods. Bourgault1.1&2 is deemed best method based on data and is thus basis for these public comments	

Statement of Problem and Substantiation for Public Comment

For Public Input 3577-NFPA 70-2017, we proposed revised demand factors for cord connected equipment. We have additional information based on study results. The original proposal was conceptually correct, but based on research data the factors should be revised as indicated. The current NEC methodology vastly oversizes feeders, busses, transformers, generators, etc. The proposal herein helps alleviate this problem by more closely following the actual load for cord connected equipment. This proposal is therefore modified based on study results.

Due to the requirements of NFPA 99 and FGI Guidelines (which are enforced through the Federal Centers of Medicare & Medicaid Services) the outlet quantity in health care facilities are mandated to be far higher than normally encountered in other occupancies. This high density of outlets is intended to allow clinicians the flexibility to provide care in multiple case scenarios within the same space. In addition, many of these spaces are required to have a set of completely redundant electrical outlets to accommodate medical equipment in the event of an isolated electrical failure. In nearly all of these spaces, the outlets are not intended for simultaneous use. Currently the calculated sizing of the distribution systems serving these outlets fall under the 180VA requirement outlined in NFPA 70 Article 220.14(L). Adherence to this requirement necessitates the calculation of exceedingly high load densities for typical clinical spaces. For example:
Article 517.19(C) (1) requires that a minimum of 36 receptacles be provided in each operating room. Per Article 220.14(L) a 400-square foot operating room will have a plug load density of 8.1VA / square foot (if duplex receptacles are used) or as high as 16.2VA / square foot if simplex receptacles are used. These load densities are significantly higher than the actual loads that are encountered in these spaces.
Several recent comprehensive studies including; Plug and Process Loads in Medical Office Buildings, Quantifying Hospital Cord Connected Plug Loads in Inpatient Areas, and Healthcare Energy End-Use Monitoring, have

concluded that the receptacle load densities in even the most acute healthcare spaces are far less than the presently mandated load densities. These studies have been provided as reference in this proposal.

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 2165-NFPA 70-2018 [New Section after 517.21]	both deal wtih demand factors for hospitals
Public Comment No. 2178-NFPA 70-2018 [Section No. 220.44]	
Public Comment No. 2182-NFPA 70-2018 [Section No. 220.12(B)]	
Public Comment No. 2192-NFPA 70-2018 [New Section after 220.44]	

Related Item

• 3577-NFPA 70-2017 [New Section after 517.21]

Submitter Information Verification

Submitter Full Name: Ron Bourgault
Organization: Mazzetti
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 30 21:45:11 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7908-NFPA 70-2018

Statement: The revised text reduces oversizing of hospital electrical systems, as justified by the hospital power study provided to the panel.

Per Section 90.3, Chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions and may supplement or modify the requirements in Chapters 1 through 7. Therefore, it is the opinion of Panel 15 that this information belongs in Article 517 instead of Chapter 2.

New Section

517.24 (A) **Health Care Facilities.** Rating of feeders, busses, transformers, generators, and services shall be calculated in accordance with Table 517.24 (A), with respect to cord-connected equipment.

Table 517.24(A) Cord Connected Equipment Demand Factors for Health Care Facilities

Number of Cord Connected Equipment	Percent of Full Load
Largest 1 to 5 pieces	100
Additional (more than 5)	50

Definitions

Method	Receptacle Loads
Current NEC	1st 10kVA @ 100% Remainder @ 50%
Bourgault 1.0	1st 10kVA @ 100% Remainder @ 50%
Bourgault 1.1	1st 10kVA @ 100% Remainder @ 50%
Bourgault 2	1st 5kVA @ 100% 2nd 5kVA @ 50% Remainder @ 25%
Bourgaut 1.1 & 2	1st 5kVA @ 100% 2nd 5kVA @ 50% Remainder @ 25%

TAB Summary:

Tab 1	Definitions
Tab 2	Current NEC

Tab 3	Bourgault 1.0
Tab 4	Bourgault 1.1
Tab 5	Bourgault 2
Tab 6	Bourgault 1.1 & 2
Tab 7	All Methods

Cord Connected Equipment
Nameplate Values
pieces <=5: all equip. @ 100% of nameplate value. 6 <= # pieces <= 10: all equip. @ 50% of nameplate value. # pieces > 10: all equip. @ 25% of nameplate value.
pieces <=5: all equip. @ 100% of nameplate value. # pieces > 5: all equip. @ 50% of nameplate value.
Nameplate Values
pieces <=5: all equip. @ 100% of nameplate value. # pieces > 5: all equip. @ 50% of nameplate value.

Definitions:

Current NEC Cord

Bourgault 1 -

Bourgault 1.1

Bourgault 2 -

Bourgault 1.1

definitions of the different methods
comparison of connected to NEC to actual, including safety factor

comparison of the NEC for receps plus the proposed formula for medical equipment. You will see, from line 1, this method does not work in all cases.
Comparison of NEC for receps and the REVISED formula for medical equipment, including safety factors
comparison of Nameplate for medical equipment, and the revised recep table we proposed, including safety factors.
revised recep table AND the revised formula for medical equipment
Depicts All Methods

- Recep Loads: 1st 10kVA @ 100%, remainder @ 50%
connected equipment: Nameplate values.

Recep Loads: 1st 10kVA @ 100%, remainder @ 50%;
Cord connected equipment: Less than 6 pieces @ 100%
pieces @ 50%, greater than 10 pieces @ 25% of namep

- Recep Loads: 1st 10kVA @ 100%, remainder @ 50%;
Cord connected equipment: Less than or equal to 5 piec
than 5 pieces @ 50% of nameplate values.

Recep Loads: 1st 5kVA @ 100%, 2nd 5kVA @ 50% rem
connected equipment: Nameplate Values.

&2 - Recep Loads: 1st 5kVA @ 100%, 2nd 5kVA @ 50%
Cord connected equipment: Less than or equal to 5 p
greater than 5 pieces @ 50% of nameplate values.

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Public Comment No. 1293-NFPA 70-2018 [Section No. 517.21]

517.21 Ground-Fault Circuit-Interrupter Protection for Personnel in Category 2 (Basic Care) and Category 1 (Critical Care) Space .

Receptacles shall not be required in bathrooms and toilet rooms. [99:6.3.2.2.6.2] Any receptacle(s) located in patient bathrooms in Category 2 (general care) spaces shall have ground-fault circuit interrupter protection as per 210.8(B)(1).

Ground-fault circuit-interrupter protection for personnel shall not be required for receptacles installed in ~~those~~ Category 2 (general care) and Category 1 (critical care) spaces where ~~the toilet and basin~~ a basin, sink, or other similar plumbing fixtures are installed within the patient ~~room~~ bed location .

Informational Note: UL 943-2016, *Ground-Fault Circuit-Interrupters* , Annex E, indicates that listed ground-fault

~~circuit~~

interrupters should not be used on circuits connected to life-support equipment.

Statement of Problem and Substantiation for Public Comment

This comment is in response to CCN 152 from the Corrolating Committee request to review GFCI requirements located in 210.8. 210.8(B) (5) Exception 2 to (5) address GFCI equipment located next to sinks in patient bed locations. NFPA 99:If a sink is located in the patient bed location and a receptacle is within 6-feet of the sink, GFCI requirements are not required enforce based on the exception. This information should not be located in 210.8 nor under the purview of CMP 15. Rather an informational note should direct code users to 517.21 for installations relating to Category 1 and Category 2 locations.
The section has been revised to include the language from 210.8 as it correlates and clarifies 201.8 into 517.21.

NFPA 99-2018 6.3.2.2.6.2 is included in this comment based on the Chair Report allowing the CMP 15 to add NFPA 99 extract material as comments.

Related Item

• CCN-152

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 26 10:16:56 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7859-NFPA 70-2018
Statement: The revised text relocates information from 210.8(B)(5) Exception No. 2 to 517.21 to clarify the use of GFCI.

Section 517.21 was clarified to differentiate the GFCI protection requirements for patient bed locations equipped with sinks or basins and the GFCI requirements for patient bathrooms and toilet rooms beyond the patient bed location but still within the overall “patient room."

Public Comment No. 358-NFPA 70-2018 [Section No. 517.21]

517.21 Ground-Fault Circuit-Interrupter Protection for Personnel.

Ground-fault circuit-interrupter protection for personnel shall not be required for receptacles installed in those Category 1 (critical care) spaces where the toilet and basin are installed within the patient room.

Informational Note: - ANSI/ UL 943-~~2016~~ 2018 , *Ground-Fault Circuit-Interrupters*, Annex E, indicates that listed ground-fault circuit interrupters ~~should~~ shall not be used on circuits connected to life-support equipment.

Statement of Problem and Substantiation for Public Comment

• This Standard is ANSI-ratified.

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• Reflect the current issuance year (2018). Annex E and Clause 8.1.2 that invokes that Annex E were not revised from the 2016 issuance.

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• The primary verb "indicates" conveys the informational content of this Informational Note. The cited UL Standard CAUTION reference however mandates, and does NOT recommend, that GFCIs SHALL not be installed to supply electrical life-support equipment. Therefore, WITHIN that subordinated noun clause ("that"-clause used as the object of the verb "indicates"), the subordinated verb "should" must be revised to "shall" to convey accurately the content of that reference. That cited UL 943 installation instruction cautionary statement is included in the listing and correlates with NEC® 110.3(B). The Informational Note nonetheless remains as nonmandatory information.

Related Item

• First Revision No. 8796-NFPA 70-2018 [Section No. 517.21]

Submitter Information Verification

Submitter Full Name: Brian Rock
Organization: Hubbell Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 02 16:34:11 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7859-NFPA 70-2018

Statement: The revised text relocates information from 210.8(B)(5) Exception No. 2 to 517.21 to clarify the use of GFCI.

Section 517.21 was clarified to differentiate the GFCI protection requirements for patient bed locations equipped with sinks or basins and the GFCI requirements for patient bathrooms and toilet rooms beyond the patient bed location but still within the overall “patient room."

Public Comment No. 1055-NFPA 70-2018 [Section No. 517.25]

517.25 Scope.

The essential electrical system (EES) for these facilities shall comprise a system capable of supplying a limited amount of lighting and power service, which is considered essential for life safety and orderly cessation of procedures during the time normal electrical service is interrupted for any reason. This includes clinics, medical and dental offices, outpatient facilities, nursing homes, limited care facilities, hospitals, and other health care facilities serving patients.

Informational Note: For information on the need for an essential electrical system, see NFPA 99-2018, *Health Care Facilities Code*.

Additional Proposed Changes

File Name	Description	Approved
CN_117.pdf	70_CN 117	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 117 in the First Draft Report on First Revision No.8712.

The Correlating Committee directs that this First Revision be reviewed for compliance with 2.2.1 of the NEC Style Manual. Article scopes are to be located in the first section of the article.

This action will be considered a public comment.

Related Item

• FR 8712

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 22 11:43:42 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7909-NFPA 70-2018
Statement: The section is re-titled to comply with 2.2.1 of the NEC Style Manual.

The revised text is consistent with NFPA 99. The last sentence is deleted, as it is not a requirement.

Correlating Committee Note No. 117-NFPA 70-2018 [Section No. 517.25]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:15:40 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that this First Revision be reviewed for compliance with 2.2.1 of the NEC Style Manual. Article scopes are to be located in the first section of the article.

This action will be considered a public comment.

First Revision No. 8712-NFPA 70-2018 [Section No. 517.25]

Ballot Results

✔ **This item has passed ballot**

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 271-NFPA 70-2018 [Section No. 517.25]

517.25 ~~Scope~~ Essential Electrical System for Healtcare Facilities .

~~The~~ Where required, the essential electrical system (EES) for ~~these~~ Type 1 and Type 2 facilities shall ~~comprise a system~~ be comprised of separate branches capable of supplying a limited amount of lighting and power service, which is considered essential for life safety and orderly cessation of procedures during the time normal electrical service is interrupted for any reason. ~~This includes clinics, medical and dental offices, outpatient facilities, nursing homes, limited care facilities, hospitals, and other health care facilities serving patients.~~

Informational Note: For information on the need for an essential electrical system, see NFPA 99-2018, *Health Care Facilities Code*, *[A . 6.7.2.3]* .

Statement of Problem and Substantiation for Public Comment

In response to the Correlating Committee CCN 117, CMP 15 has changed the language for compliance with 2.2.1 of the NEC Style Manual. The second sentence is removed as the information does not apply to the section. Extracted material from 2018-NFPA 99 is also added to the Informational Note as part of the committee effort to correlate NFPA 99 with NPFA 70 and for code user access to more information.

Related Item

• Corrolating Committee Request and FR 8712

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 13:51:34 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7909-NFPA 70-2018

Statement: The section is re-titled to comply with 2.2.1 of the NEC Style Manual.

The revised text is consistent with NFPA 99. The last sentence is deleted, as it is not a requirement.

Public Comment No. 1056-NFPA 70-2018 [Section No. 517.26]

517.26 Application of Other Articles.

The life safety branch of the essential electrical system shall meet the requirements of Article 700, except as amended by Article 517.

(A)

The following portions of Article 700 shall be amended as follows:

(1) Section 700.4 shall not apply.

(2) Section 700.10(D)(1) through (D)(3) shall not apply.

(3) Section 700.17 Branch Circuits for Emergency Lighting. Branch circuits that supply emergency lighting shall be installed to provide service from a source complying with 700.12 when normal supply for lighting is interrupted or where single circuits supply luminaries containing secondary batteries.

(4) Section 700.32 shall not apply.

[**99:**6.7.5.1.2.2]

Informational Note No. 1: For additional information, see NFPA 110-2016, *Standard for Emergency and Standby Power Systems*.

Informational Note No. 2: For additional information, see 517.29 and NFPA 99-2018, *Health Care Facilities Code*.

Additional Proposed Changes

File Name	Description	Approved
CN_118.pdf	70_CN 118	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 118 in the First Draft Report on First Revision No. 8713.

The Correlating Committee directs that this First Revision be correlated with the action taken by CMP-13 on FR-7658 regarding section 700.10. The Correlating Committee directs that the structure of the section be reviewed regarding unnecessary first level subdivisions.

This action will be considered as a public comment.

Related Item

• FR 8713

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 22 11:47:33 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action:	Rejected but see related SR
Resolution:	SR-7916-NFPA 70-2018
Statement:	The revised text correlates with pending changes in NFPA 99. The extract tag is removed because the text is no longer identical to the published standard.

Correlating Committee Note No. 118-NFPA 70-2018 [Section No. 517.26]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:17:07 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that this First Revision be correlated with the action taken by CMP-13 on FR-7658 regarding section 700.10. The Correlating Committee directs that the structure of the section be reviewed regarding unnecessary first level subdivisions.

This action will be considered as a public comment.

First Revision No. 8713-NFPA 70-2018 [Section No. 517.26]

Ballot Results

✔ **This item has passed ballot**

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 598-NFPA 70-2018 [Section No. 517.26]

517.26 Application of Other Articles.

The life safety branch of the essential electrical system shall meet the requirements of Article 700, except as amended by Article 517.

~~**(A)**~~

The following portions of Article 700 shall be amended as follows:

(1) Section 700.4 shall not apply.

(2) Section 700.10(D) ~~(1) through (D)(3)~~ shall not apply.

(3) Section 700.17 Branch Circuits for Emergency Lighting. Branch circuits that supply emergency lighting shall be installed to provide service from a source complying with 700.12 when normal supply for lighting is interrupted or where single circuits supply luminaries containing secondary batteries.

(4) Section 700.32 shall not apply.

[**99:**6.7.5.1.2.2]

Informational Note No. 1: For additional information, see NFPA 110-2016, *Standard for Emergency and Standby Power Systems*.

Informational Note No. 2: For additional information, see 517.29 and NFPA 99-2018, *Health Care Facilities Code*.

Statement of Problem and Substantiation for Public Comment

This comment address CCN 117 from the Correlating Committee. There is confusion in the numbering of 700.10(D). It was never the intention that CMP 15 or NFPA 99 ELS to include 700.10(D)(1) Feeder-Circuit Wiring, 700.10(D)(2) Feeder-Circuit Equipment, and 700.10(D)(3) Generator Controlled Wiring, in healthcare installations. 700.10(D)(3) Health care occupancies where persons are not capable of self-preservation, conflicted with NFPA 99-2018 6.7.5.1.2.2 and the action to remove this language in FR 7658 has solved the conflict.

Related Item

• FR 8713 and FR 7658

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 13 15:57:13 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7916-NFPA 70-2018
Statement: The revised text correlates with pending changes in NFPA 99. The extract tag is removed because the text is no longer identical to the published standard.

Public Comment No. 1058-NFPA 70-2018 [Section No. 517.29]

517.29 Type 1 Essential Electrical Systems.

(A) Applicability.

The requirements of Part III, 517.29 through 517.35, shall apply to Type 1 essential electrical systems. Type 1 systems shall be required for Category 1 (critical care) spaces. Type 1 systems shall be permitted to serve Category 2 (general care), Category 3 (basic care), and Category 4 (support) spaces.

Informational Note No. 1: For performance, maintenance, and testing requirements of essential electrical systems in hospitals, see NFPA 99-2018, *Health Care Facilities Code*. For installation of centrifugal fire pumps, see NFPA 20-2016, *Standard for the Installation of Stationary Pumps for Fire Protection*.

Informational Note No. 2: For additional information on Type 1 and Type 2 essential electrical systems, see NFPA 99-2018, *Health Care Facilities Code*, 6.7.5 and 6.7.6.

Informational Note No. 3: 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. [**99:**A.6.7.2.3]

Informational Note No. 4: Type 2 essential electrical systems are comprised of two separate branches capable of supplying a limited amount of lighting and power service that is considered essential for the protection of life and safety and effective operation of the institution during the time normal electrical service is interrupted for any reason. These two separate branches are the life safety and equipment branches. The number of transfer switches to be used should be based upon reliability, design, and load considerations. Each branch of the essential electrical system should have one or more transfer switches. One transfer switch should be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA (120 kW). [**99:**A.6.7.6.2.1]

(B) Type 1 Essential Electrical Systems.

Category 1 (critical care) spaces shall be served by a Type 1 essential electrical system. [**99:**6.4.1]

Category 1 spaces shall not be served by a Type 2 EES. [**99:**6.4.2]

Additional Proposed Changes

File Name	Description	Approved
CN_122.pdf	70_CN 122	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 122 in the First Draft Report on First Revision No. 8714.

The Correlating Committee directs that this First Revision be reviewed for compliance with the section 3.1.3 of the NEC Style Manual. Informational Notes shall be located directly after the rule they apply to. Informational Note 4 should be relocated to follow the requirement to which it applies.

This action will be considered a public comment.

Related Item

• FR 8714

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:

City:
State:
Zip:
Submittal Date: Wed Aug 22 11:54:29 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7922-NFPA 70-2018
Statement: Informational note for Type 1 EES was relocated to the main section. Informational note No. 4 was relocated to 517.40.

Correlating Committee Note No. 122-NFPA 70-2018 [Section No. 517.29]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:30:25 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that this First Revision be reviewed for compliance with the section 3.1.3 of the NEC Style Manual. Informational Notes shall be located directly after the rule they apply to. Informational Note 4 should be relocated to follow the requirement to which it applies.

This action will be considered a public comment.

First Revision No. 8714-NFPA 70-2018 [Section No. 517.29]

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 361-NFPA 70-2018 [Section No. 517.29]

517.29 Type 1 Essential Electrical Systems.

Informational Note: 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. [**99:** A.6.7.2.3]

(A) Applicability.

The requirements of Part III, 517.29 through 517.35, shall apply to Type 1 essential electrical systems. Type 1 systems shall be required for Category 1 (critical care) spaces. Type 1 systems shall be permitted to serve Category 2 (general care), Category 3 (basic care), and Category 4 (support) spaces.

Informational Note No. 1: For performance, maintenance, and testing requirements of essential electrical systems in hospitals, see NFPA 99-2018, *Health Care Facilities Code*. For installation of centrifugal fire pumps, see NFPA 20-2016, *Standard for the Installation of Stationary Pumps for Fire Protection*.

Informational Note No. 2: For additional information on Type 1 and Type 2 essential electrical systems, see NFPA 99-2018, *Health Care Facilities Code*, 6.7.5 and 6.7.6.

~~Informational Note No. 3: 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. [**99:** A.6.7.2.3]~~

~~Informational Note No. 4: Type 2 essential electrical systems are comprised of two separate branches capable of supplying a limited amount of lighting and power service that is considered essential for the protection of life and safety and effective operation of the institution during the time normal electrical service is interrupted for any reason. These two separate branches are the life safety and equipment branches. The number of transfer switches to be used should be based upon reliability, design, and load considerations. Each branch of the essential electrical system should have one or more transfer switches. One transfer switch should be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA~~

~~(~~

~~120 kW). [**99:** A.6.7.6.2.1]~~

~~(~~**B)** Type 1 Essential Electrical Systems.

Category 1 (critical care) spaces shall be served by a Type 1 essential electrical system. [**99:**6.4.1]

Category 1 spaces shall not be served by a Type 2 EES. [**99:**6.4.2]

Statement of Problem and Substantiation for Public Comment

• In accordance with Correlating Committee Note No. 122-NFPA 70-2018 to Section 517.29(A), new Informational Note No. 4 added in FR-8714 is relocated as new Informational Note No. 2 to 517.40 for Type 2 EES (Level 2 EES).

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• For readability and for editorial consistency with PC-359, new Informational Note No. 3 to 517.29(A) added in FR-8714 is relocated as a new Informational Note to 517.29 for Type 1 EES (Level 1 EES).

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 359-NFPA 70-2018 [Section No. 517.40]	To address Correlating Committee Note No. 122-NFPA 70-2018 to Section 517.29(A)
Public Comment No. 359-NFPA 70-2018 [Section No. 517.40]	

Related Item

• First Revision No. 8714-NFPA 70-2018 [Section No. 517.29]

• Correlating Committee Note No. 122-NFPA 70-2018 [Section No. 517.29]

Submitter Information Verification

Submitter Full Name: Brian Rock
Organization: Hubbell Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 02 17:31:17 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7922-NFPA 70-2018
Statement: Informational note for Type 1 EES was relocated to the main section. Informational note No. 4 was relocated to 517.40.

Public Comment No. 275-NFPA 70-2018 [Section No. 517.29(A)]

(A) Applicability.

The requirements of Part III, 517.29 through 517.35, shall apply to Type 1 essential electrical systems. Type 1 systems shall be required for Category 1 (critical care) spaces. Type 1 systems shall be permitted to serve Category 2 (general care), Category 3 (basic care), and Category 4 (support) spaces.

Informational Note No. 1: For performance, maintenance, and testing requirements of essential electrical systems in hospitals, see NFPA 99-2018, *Health Care Facilities Code*. For installation of centrifugal fire pumps, see NFPA 20-2016, *Standard for the Installation of Stationary Pumps for Fire Protection*.

Informational Note No. 2: For additional information on Type 1 and Type 2 essential electrical systems, see NFPA 99-2018, *Health Care Facilities Code*, 6.7.5 and 6.7.6.

Informational Note No. 3: 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. [**99:**A.6.7.2.3]

~~Informational Note No. 4: Type 2 essential electrical systems are comprised of two separate branches capable of supplying a limited amount of lighting and power service that is considered essential for the protection of life and safety and effective operation of the institution during the time normal electrical service is interrupted for any reason. These two separate branches are the life safety and equipment branches. The number of transfer switches to be used should be based upon reliability, design, and load considerations. Each branch of the essential electrical system should have one or more transfer switches. One transfer switch should be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA (120 kW). [**99:** A.6.7.6.2.1]~~

Statement of Problem and Substantiation for Public Comment

Informational Note No. 4 has been relocated to 517.40 as new informational note No. 2 as requested by CNN 122 Correlating Committee.

Related Item

• FR 8714

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 15:14:38 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7922-NFPA 70-2018
Statement: Informational note for Type 1 EES was relocated to the main section. Informational note No. 4 was relocated to 517.40.

Public Comment No. 1421-NFPA 70-2018 [Section No. 517.30(B)(3)]

(3) Battery and Energy Storage Systems.

Battery or energy storage systems shall be permitted to serve as the alternate source for all or part of an essential electrical system.

Informational ~~Note~~ Notes : For information on installation of battery systems, see NFPA 111-2016, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*. For information on installation of energy storage systems, see Article 706.

Statement of Problem and Substantiation for Public Comment

Section 517.30 (B) provides for three types of power sources (generating, fuel cell and battery systems). Energy storage systems, as covered in Article 706, provide a fourth independent power source option. The distinction between batteries and energy storage systems is borne out in the NEC as evidenced by Article 480 on batteries and Article 706 on energy storage systems. Another reason for the distinction is that all battery systems are not energy storage systems by definition BUT energy storage systems can include batteries but need not include them as in the case of a flywheel. Energy storage systems are a viable and reliable independent power source, are recognized in the NEC already and should be included in Section 517.30 (B).

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 1423-NFPA 70-2018 [Section No. 517.40(A)]	

Related Item

- 8719-NFPA 70-2018

Submitter Information Verification

Submitter Full Name: David Conover
Organization: Pacific Northwest National Lab
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 28 12:11:55 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Article 706 addresses stored energy components, which are used in some degree in health care facilities. It has been established by the NFPA Standards Council that NFPA 99 has jurisdiction over performance requirements for electrical systems in health care facilities while NFPA 70 has jurisdiction over the installation requirements. Any conflicting correlation issues in Article 706 should be addressed by NFPA 99.

Public Comment No. 228-NFPA 70-2018 [Sections 517.31, 517.32, 517.33, 517.34, 517.35]

Sections 517.31, 517.32, 517.33, 517.34, 517.35

517.31 Requirements for the Essential Electrical System.

(A) Separate Branches.

Type 1 essential electrical systems shall be 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 hospital operation during the time the normal electrical service is interrupted for any reason. The three branches are life safety, critical, and equipment.

The division between the branches shall occur at transfer switches where more than one transfer switch is required. [**99:**6.7.2.3.1]

(B) Transfer Switches.

The number of transfer switches to be used shall be based on reliability and design. Each branch of the essential electrical system shall have one or more transfer switches.

One transfer switch and downstream distribution system shall be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA.

Informational Note No. 1: See NFPA 99-2018, *Health Care Facilities Code*, 6.7.3.1, Transfer Switches; 6.7.2.2.5, Automatic Transfer Switch Features; 6.7.2.2.5.15, Nonautomatic Transfer Switch Features; and 6.7.2.2.7, Nonautomatic Transfer Device Features.

Informational Note No. 2: See Informational Note Figure 517.31(a).

Informational Note No. 3: See Informational Note Figure 517.31(b).

Figure Informational Note Figure 517.31(a) Type 1 Essential Electrical System — Minimum Requirement (greater than 150 kVA) for Transfer Switch Arrangement.

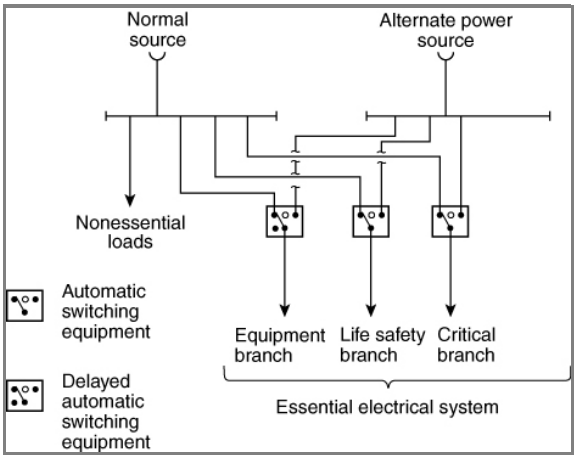
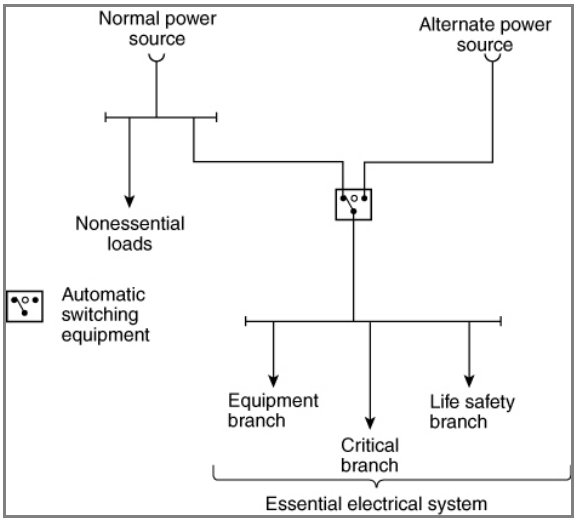


Figure Informational Note Figure 517.31(b) Type 1 Essential Electrical System — Minimum Requirement (150 kVA or less) for Transfer Switch Arrangement.



(1) Optional Loads.

Loads served by the generating equipment not specifically named in Article 517 shall be served by their own transfer switches such that the following conditions apply:

(1) These loads shall not be transferred if the transfer will overload the generating equipment.

(2) These loads shall be automatically shed upon generating equipment overloading.

(2) Contiguous Facilities.

Hospital power sources and alternate power sources shall be permitted to serve the essential electrical systems of contiguous or same site facilities.

(C) Wiring Requirements.

(1) Separation from Other Circuits.

The life safety branch and critical branch of the essential electrical system shall be kept entirely independent of all other wiring and equipment. [**99:**6.7.5.2.1]

(a) Conductors of the life safety branch or critical branch shall not enter the same raceways, boxes, or cabinets with each other or any other wiring system. It shall be permitted for the branch conductors to occupy common equipment, raceways, boxes, or cabinets of other circuits not part of the life safety branch and critical branch where such wiring complies with one of the following:

(1) Is in transfer equipment enclosures

(2) Is in exit or emergency luminaires supplied from two sources

(3) Is in a common junction box attached to exit or emergency luminaires supplied from two sources

(4) Is for two or more circuits supplied from the same branch and same transfer switch

(b) The wiring of the equipment branch shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits that are not part of the essential electrical system.

(c) Where Category 2 (general care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.18(A), Exception No. 3, the Category 2 (general care) circuits from the two separate systems shall be kept independent of each other.

(d) Where Category 1 (critical care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.19(A), Exception No. 2, the critical care circuits from the two separate systems shall be kept independent of each other.

(2) Isolated Power Systems.

Where isolated power systems are installed in any of the areas in 517.34(A)(1) and (A)(2), each system shall be supplied by an individual circuit serving no other load.

(3) Mechanical Protection of the Essential Electrical System.

The wiring of the life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care spaces, the installation shall comply with the requirements of 517.13(A) and (B). Only the following wiring methods shall be permitted:

(1) Nonflexible metal raceways, Type MI cable, Type RTRC marked with the suffix –XW, or Schedule 80 PVC conduit. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(2) Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 PVC conduit, flexible nonmetallic or jacketed metallic raceways, or jacketed metallic cable assemblies listed for installation in concrete. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(3) Listed flexible metal raceways and listed metal sheathed cable assemblies in any of the following:

a. Where used in listed prefabricated medical headwalls

b. In listed office furnishings

c. Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage

d. Where necessary for flexible connection to equipment

e. For equipment that requires a flexible connection due to movement, vibration, or operation

f. Luminaires installed in ceiling structures where connected with flexible steel metal raceways

(4) Flexible power cords of appliances or other utilization equipment connected to the emergency system.

(5) Cables for Class 2 or Class 3 systems permitted by Part VI of this article, with or without raceways.

Informational Note: See 517.13 for additional grounding requirements in patient care areas.

(D) Capacity of Systems.

The essential electrical system shall have the capacity and rating to meet the maximum actual demand likely to be produced by the connected load.

Feeders shall be sized in accordance with 215.2 and Part III of Article 220. The alternate source shall have the capacity and rating to meet the demand produced by the load at any given time.

Demand calculations for sizing of the alternate source(s) shall be based on any of the following:

(1) Prudent demand factors and historical data

(2) Connected load

(3) Feeder calculation procedures described in Article 220

(4) Any combination of the above

The sizing requirements in 700.4 and 701.4 shall not apply to alternate source(s).

(E) Receptacle Identification.

The cover plates for the electrical receptacles supplied from the life safety and critical branches shall have a distinctive color or marking so as to be readily identifiable. [**99:**6.7.2.3.5(B)]

(F) Feeders from Alternate Power Source.

A single feeder supplied by a local or remote alternate source shall be permitted to supply the essential electrical system to the point at which the life safety, critical, and equipment branches are separated. Installation of the transfer equipment shall be permitted at other than the location of the alternate power source.

(G) Coordination.

Overcurrent protective devices serving the essential electrical system shall be coordinated for the period of time that a fault's duration extends beyond 0.1 second.

Exception No. 1: Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

Exception No. 2: Between overcurrent protective devices of the same size (ampere rating) in series.

Informational Note: The terms *coordination* and *coordinated* as used in this section do not cover the full range of overcurrent conditions.

517.32 Branches Requiring Automatic Connection.

(A)

Those functions of patient care depending on lighting or appliances that are connected to the essential electrical system shall be divided into the life safety branch and the critical branch, as described in 517.33 and 517.34.

(B)

The life safety and critical branches shall be installed and connected to the alternate power source specified in 517.41(A) and (B) so that all functions specified herein for the life safety and critical branches are automatically restored to operation within 10 seconds after interruption of the normal source. [**99:**6.7.5.3.1]

517.33 Life Safety Branch.

The life safety branch shall be limited to circuits essential to life safety. [**99:**6.7.5.1.2.3]

No functions other than those listed in 517.33(A) through (H) shall be connected to the life safety branch. The life safety branch shall supply power as follows:

(A) Illumination of Means of Egress.

Illumination of means of egress such as lighting required for corridors, passageways, stairways, and landings at exit doors, and all necessary ways of approach to exits. Switching arrangements to transfer patient corridor lighting in hospitals from general illumination circuits to night illumination circuits shall be permitted, provided only one of two circuits can be selected and both circuits cannot be extinguished at the same time.

Informational Note: See NFPA *101*-2018, *Life Safety Code*, Sections 7.8 and 7.9.

(B) Exit Signs.

Exit signs and exit directional signs.

Informational Note: See NFPA *101*-2018, *Life Safety Code*, Section 7.10.

(C) Alarm and Alerting Systems.

Alarm and alerting systems including the following:

(1) Fire alarm systems

(2) Alarm and alerting systems (other than fire alarm systems) shall be connected to the life safety branch or critical branch. [**99:**6.7.5.1.2.5]

(3) Alarms for systems used for the piping of nonflammable medical gases

(4) Mechanical, control, and other accessories required for effective life safety systems operation shall be permitted to be connected to the life safety branch.

(D) Communications Systems.

Hospital communications systems, where used for issuing instructions during emergency conditions. [**99:**6.7.5.1.2.4(3)]

(E) Generator Set Locations.

Generator set locations as follows:

(1) Task illumination

(2) Battery charger for emergency battery-powered lighting unit(s)

(3) Select receptacles at the generator set location and essential electrical system transfer switch locations

[**99:**6.7.5.1.2.4(4)]

(F) Generator Set Accessories.

Loads dedicated to a specific generator, including the fuel transfer pump(s), ventilation fans, electrically operated louvers, controls, cooling system, and other generator accessories essential for generator operation, shall be connected to the life safety branch or to the output terminals of the generator with overcurrent protective devices. [**99:**6.7.5.1.2.6]

(G) Elevators.

Elevator cab lighting, control, communications, and signal systems. [**99:**6.7.5.1.2.4(5)]

(H) Automatic Doors.

Electrically powered doors used for building egress. [**99:**6.7.5.1.2.4(6)]

517.34 Critical Branch.

(A) Task Illumination, Fixed Equipment, and Selected Receptacles.

The critical branch, or a dual-fed scheme including the critical branch, shall supply power for task illumination, fixed equipment, select receptacles, and select power circuits serving the following spaces and functions related to patient care:

(1) Category 1(critical care) spaces where deep sedation or general anesthesia is administered, task illumination, selected receptacles, and fixed equipment

(2) Task illumination, and select receptacles in the following:

a. Patient care spaces, including infant nurseries, select acute nursing areas, psychiatric bed areas (omit receptacles), and ward treatment rooms

b. Medication preparation spaces

c. Pharmacy dispensing spaces

d. Nurses' stations — unless adequately lighted by corridor luminaires

(3) Additional specialized patient care task illumination and receptacles, where needed

(4) Nurse call systems

(5) Blood, bone, and tissue banks

(6) Telecommunications entrance facility, telecommunications equipment rooms, and telecommunications rooms and equipment in these rooms

(7) Task illumination, select receptacles, and select power circuits for the following areas:

a. Category 1 (critical care) or 2 (general care) spaces with at least one duplex receptacle per patient bed location, and task illumination as required by the governing body of the health care facility

b. Angiographic labs

c. Cardiac catheterization labs

d. Coronary care units

e. Hemodialysis rooms or areas

f. Emergency room treatment areas (select)

g. Human physiology labs

h. Intensive care units

i. Postoperative recovery rooms (select)

(8) Clinical IT-network equipment

(9) Wireless phone and paging equipment for clinical staff communications

(10) Additional task illumination, receptacles, and select power circuits needed for effective facility operation, including single-phase fractional horsepower motors, which are permitted to be connected to the critical branch.

[**99:**6.7.5.1.3.2]

(B) Switching.

It shall be permitted to control task illumination on the critical branch.

(C) Subdivision of the Critical Branch.

The critical branch shall be permitted to be subdivided into two or more branches. [**99:**6.7.5.1.3.1]

Informational Note: It is important to analyze the consequences of supplying an area with only critical care branch power when failure occurs between the area and the transfer switch. Some proportion of normal and critical power or critical power from separate transfer switches may be appropriate.

517.35 Equipment Branch Connection to Alternate Power Source.

The equipment branch shall be installed and connected to the alternate power source such that the equipment described in 517.35(A) is automatically restored to operation at appropriate time-lag intervals following the energizing of the life safety and critical branches. [**99:**6.7.5.1.4.2(A)]

The arrangement of the connection to the alternate power source shall also provide for the subsequent connection of equipment described in 517.35(B). [**99:**6.7.5.1.4.2(B)]

Exception: For essential electrical systems under 150 kVA, deletion of the time-lag intervals feature for delayed automatic connection to the equipment system shall be permitted.

(A) Equipment for Delayed Automatic Connection.

The following equipment shall be permitted to be arranged for delayed automatic connection to the alternate power source:

(1) Central suction systems serving medical and surgical functions, including controls, with such suction systems permitted to be placed on the critical branch

(2) Sump pumps and other equipment required to operate for the safety of major apparatus, including associated control systems and alarms

(3) Compressed air systems serving medical and surgical functions, including controls with such air systems permitted to be placed on the critical branch

(4) Smoke control and stair pressurization systems

(5) Kitchen hood supply or exhaust systems, or both, if required to operate during a fire in or under the hood

(6) Supply, return, and exhaust ventilating systems for the following:

a. Airborne infectious/isolation rooms

b. Protective environment rooms

c. Exhaust fans for laboratory fume hoods

d. Nuclear medicine areas where radioactive material is used

e. Ethylene oxide evacuation

f. Anesthetic evacuation

[99:6.7.5.1.4.3(A)]

Where delayed automatic connection is not appropriate, the ventilation systems specified in 517.35(A)(6) shall be permitted to be placed on the critical branch. [**99:**6.7.5.1.4.3(B)]

(7) Supply, return, and exhaust ventilating systems for operating and delivery rooms

(8) Supply, return, exhaust ventilating systems and/or air-conditioning systems serving telephone equipment rooms and closets and data equipment rooms and closets

Exception: Sequential delayed automatic connection to the alternate power source to prevent overloading the generator shall be permitted where engineering studies indicate it is necessary.

(B) Equipment for Delayed Automatic or Manual Connection.

The following equipment shall be permitted to be arranged for either delayed automatic or manual connection to the alternate power source:

(1) Heating equipment to provide heating for operating, delivery, labor, recovery, intensive care, coronary care, nurseries, infection/isolation rooms, emergency treatment spaces, and general patient rooms and pressure maintenance (jockey or make-up) pump(s) for water-based fire protection systems

Exception: Heating of general patient rooms and infection/isolation rooms during disruption of the normal source shall not be required under any of the following conditions:

(1) The outside design temperature is higher than −6.7°C (20°F).

(2) The outside design temperature is lower than −6.7°C (20°F), and where a selected room(s) is provided for the needs of all confined patients, only such room(s) need be heated.

(3) The facility is served by a dual source of normal power.

Informational Note No. 1: The design temperature is based on the 97.5 percent design value as shown in Chapter 24 of the ASHRAE *Handbook of Fundamentals* (2013).

Informational Note No. 2: For a description of a dual source of normal power, see 517.30(C).

(2) An elevator(s) selected to provide service to patient, surgical, obstetrical, and ground floors during interruption of normal power. In instances where interruption of normal power would result in other elevators stopping between floors, throw-over facilities shall be provided to allow the temporary operation of any elevator for the release of patients or other persons who may be confined between floors.

(3) Hyperbaric facilities.

(4) Hypobaric facilities.

(5) Automatically operated doors.

(6) Minimal electrically heated autoclaving equipment shall be permitted to be arranged for either automatic or manual connection to the alternate source.

(7) Controls for equipment listed in 517.35.

(8) Other selected equipment shall be permitted to be served by the equipment system. [**99:**6.7.5.1.4.4]

Statement of Problem and Substantiation for Public Comment

The requirements of 517.31 through 517.35 do not apply to "Essential Electrical Systems for Other Health Care Facilities" where electrical life support equipment is present and for Critical Care patient care spaces. 517.45(B) and 517.45(C) only require the electrical life support equipment and critical care patient care spaces to meet the requirements of 517.29 and 517.30.

517.45(B) should read:
(B) Electrical Life Support Equipment.
Where electrical life support equipment is required, the essential electrical distribution system shall be as described in 517.29 through 517.35.

517.45(C) should read:
(C) Critical Care (Category 1) Patient Care Spaces.
Where critical patient care (Category 1) spaces are present, the essential electrical distribution system shall be as described in 517.29 through 517.35.

The proposed change would ensure that where electrical life support equipment and critical care patient care spaces are present in "Other Health Care Facilities" the Essential Electrical systems for electrical life support equipment and critical care patient care spaces meets the conditions in 517.31 through 517.35.

Related Item

• Essential electrical systems

Submitter Information Verification

Submitter Full Name: Craig Mulder

Organization: [Not Specified]

Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 17 15:43:38 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Submitter did not provide a clear action to be taken on the comment, as required by 4.4.4.3(c) of the Regulations.

Public Comment No. 602-NFPA 70-2018 [Section No. 517.31(B)]

(B) Transfer Switches.

(1) The number of transfer switches to be used shall be based on reliability and design. Each branch of the essential electrical system shall have one or more transfer switches.

(2) One transfer switch ~~and downstream distribution system~~ shall be permitted to serve one or more branches in a facility with a ~~maximum demand~~ continuous load on the ~~essential electrical system of 150 kVA.~~ switch of 150kVA or less. [99:6.72.3.3.2] Division into separate branches shall not be required for systems 150kVA or less that are permitted to be fed from a single transfere switch.

Informational Note No. 1: See NFPA 99-2018, *Health Care Facilities Code*, 6.7.3.1, Transfer Switches; 6.7.2.2.5, Automatic Transfer Switch Features; 6.7.2.2.5.15, Nonautomatic Transfer Switch Features; and 6.7.2.2.7, Nonautomatic Transfer Device Features.

Informational Note No. 2: See Informational Note Figure 517.31(a).

Informational Note No. 3: See Informational Note Figure 517.31(b).

Figure Informational Note Figure 517.31(a) Type 1 Essential Electrical System — Minimum Requirement (greater than 150 kVA) for Transfer Switch Arrangement.

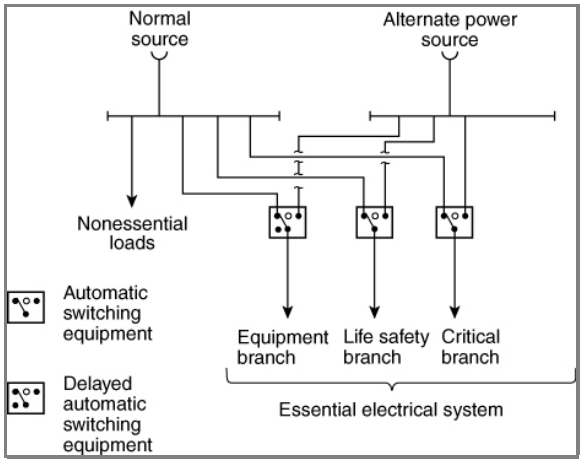
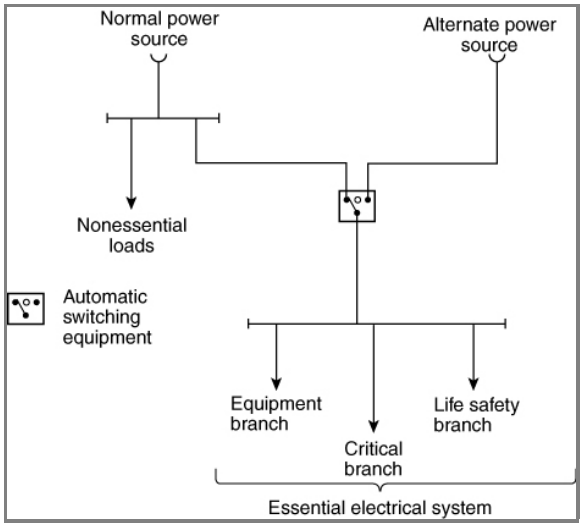


Figure Informational Note Figure 517.31(b) Type 1 Essential Electrical System — Minimum Requirement (150 kVA or less) for Transfer Switch Arrangement.



(1) Optional Loads.

Loads served by the generating equipment not specifically named in Article 517 shall be served by their own transfer switches such that the following conditions apply:

(1) These loads shall not be transferred if the transfer will overload the generating equipment.

(2) These loads shall be automatically shed upon generating equipment overloading.

(2) Contiguous Facilities.

Hospital power sources and alternate power sources shall be permitted to serve the essential electrical systems of contiguous or same site facilities.

Statement of Problem and Substantiation for Public Comment

CMP 15 resolved PI 3829. The committee is asked to consider the proposed comment which will add extracted material based on the chair report from the first draft to include language extracted from NFPA 99-2018. Also the committee is asked to consider revised language from PI 3819. This comment should clarify the original intent of the submitter and solve an ongoing problem of interpretation of the code.

Related Item

• PI 3829

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 13 17:19:28 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7931-NFPA 70-2018 The proposed text regarding division of branches was not accepted as this section covers transfer switches.

Statement: The requirements were reformatted as a numbered list to clarify that these are separate options, based on the system load.

Item 2 of the list was updated as an extract from NFPA 99 to improve coordination.

Public Comment No. 1701-NFPA 70-2018 [Section No. 517.31(C)(1)]

(1) Separation from Other Circuits.

The life safety branch and critical branch of the essential electrical system shall be kept entirely independent of all other wiring and equipment. [**99:** 6.7.5.2.1]

(a) Raceways, cables, or enclosures of the life safety and critical branch shall be readily identified as a component of the essential electrical system (EES). Boxes and enclosures (including transfer switches, generators, and power panels) shall be permanently identified as a component of the EES. Raceways and cables shall be permanently marked as a component of the EES at intervals not to exceed 7.6 m (25 ft).

(a) Conductors of the life safety branch or critical branch shall not enter the same raceways, boxes, or cabinets with each other or any other wiring system. It shall be permitted for the branch conductors to occupy common equipment, raceways, boxes, or cabinets of other circuits not part of the life safety branch and critical branch where such wiring complies with one of the following:

(2) Is in transfer equipment enclosures

(3) Is in exit or emergency luminaires supplied from two sources

(4) Is in a common junction box attached to exit or emergency luminaires supplied from two sources

(5) Is for two or more circuits supplied from the same branch and same transfer switch

(f) The wiring of the equipment branch shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits that are not part of the essential electrical system.

(g) Where Category 2 (general care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.18(A), Exception No. 3, the Category 2 (general care) circuits from the two separate systems shall be kept independent of each other.

(h) Where Category 1 (critical care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.19(A), Exception No. 2, the critical care circuits from the two separate systems shall be kept independent of each other.

Statement of Problem and Substantiation for Public Comment

With the revision to the 2014 Edition of the NEC to identify the critical and life-safety branches as not included in emergency systems, the requirement for identification of the critical and life-safety branches was lost. It is critical to maintain separation of these systems from other wiring, but without a way to readily identify these systems throughout the facility, it is possible that the systems could be compromised. PI 242-NFPA 70-2017 would address this issue, but was resolved. The Committee should reconsider this Input and include the identification requirement for the Critical and Life-Safety branches into the second draft.

Related Item

• PI 242

Submitter Information Verification

Submitter Full Name: Dale Crawford
Organization: Steel Tube Institute
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 29 17:08:04 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action:	Rejected but see related SR
Resolution:	SR-7941-NFPA 70-2018
Statement:	Identification of emergency circuits, in accordance with 700.10(A), is applicable in Article 517 for EES and permits various methods to be used.

Public Comment No. 292-NFPA 70-2018 [Section No. 517.31(C)(1)]

(1) Separation from Other Circuits.

The life safety branch and critical branch of the essential electrical system shall be kept entirely independent of all other wiring and equipment. [**99:** 6.7.5.2.1]

(a) Raceways, cables, or enclosures of the life safety and critical branch shall be readily identified as a component of the essential electrical system (EES). Boxes and enclosures (including transfer switches, generators, and power panels) shall be permanently identified as a component of the EES. Raceways and cables shall be permanently marked as a component of the EES at intervals not to exceed 7.6 m (25 ft).

(a) Conductors of the life safety branch or critical branch shall not enter the same raceways, boxes, or cabinets with each other or any other wiring system. It shall be permitted for the branch conductors to occupy common equipment, raceways, boxes, or cabinets of other circuits not part of the life safety branch and critical branch where such wiring complies with one of the following:

(2) Is in transfer equipment enclosures

(3) Is in exit or emergency luminaires supplied from two sources

(4) Is in a common junction box attached to exit or emergency luminaires supplied from two sources

(5) Is for two or more circuits supplied from the same branch and same transfer switch

(f) The wiring of the equipment branch shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits that are not part of the essential electrical system.

(g) Where Category 2 (general care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.18(A), Exception No. 3, the Category 2 (general care) circuits from the two separate systems shall be kept independent of each other.

(h) Where Category 1 (critical care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.19(A), Exception No. 2, the critical care circuits from the two separate systems shall be kept independent of each other.

Statement of Problem and Substantiation for Public Comment

Terra did not allow for the edit and reordering of the subsection numbers. This change will need to be accomplished in the second draft meeting if this comment is accepted by the committee.

PI 242-NFPA 70-2017 was resolved by CMP-15. This issue should be reconsidered by CMP-15 in the second draft. Prior to the 2014 edition of the NEC when the critical branch and life safety branch were part of the emergency system, Article 700.10(A) applied for the identification of the wiring systems for emergency systems. When CMP 15 changed the name of the emergency system to the essential electrical system to coordinate with NFPA 99 several installers now believe separate marking and identification of the critical branch and life safety branch is no longer required. This section now clarifies the rules for separate identification of these systems is still a Code requirement and not a choice. Several inspectors and maintenance personnel have indicated that it is difficult to identify the EES raceways, boxes, and enclosure and it is extremely important to continue to have the separate identification of these systems in conjunction with the requirements of 700.10(A). Implementing this language in 517 will clear up any misconceptions about separate identification.

Related Item

• PI 242 Resolved by CMP 15

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:

City:
State:
Zip:
Submittal Date: Wed Jul 25 12:06:08 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7941-NFPA 70-2018
Statement: Identification of emergency circuits, in accordance with 700.10(A), is applicable in Article 517 for EES and permits various methods to be used.

Public Comment No. 459-NFPA 70-2018 [Section No. 517.31(C)(1)]

(1) Separation from Other Circuits.

(A)(1) Identification.
Raceways, cables or enclosures of the essential circuit system shall be permanantly marked so they will be readily identified a component of an essential circuit or system The life safety branch and critical branch of the essential electrical system shall be kept entirely independent of all other wiring and equipment. [**99:** 6.7.5.2.1]

(a) Conductors of the life safety branch or critical branch shall not enter the same raceways, boxes, or cabinets with each other or any other wiring system. It shall be permitted for the branch conductors to occupy common equipment, raceways, boxes, or cabinets of other circuits not part of the life safety branch and critical branch where such wiring complies with one of the following:

(2) Is in transfer equipment enclosures

(3) Is in exit or emergency luminaires supplied from two sources

(4) Is in a common junction box attached to exit or emergency luminaires supplied from two sources

(5) Is for two or more circuits supplied from the same branch and same transfer switch

(f) The wiring of the equipment branch shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits that are not part of the essential electrical system.

(g) Where Category 2 (general care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.18(A), Exception No. 3, the Category 2 (general care) circuits from the two separate systems shall be kept independent of each other.

(h) Where Category 1 (critical care) locations are served from two separate transfer switches on the essential electrical system in accordance with 517.19(A), Exception No. 2, the critical care circuits from the two separate systems shall be kept independent of each other.

Statement of Problem and Substantiation for Public Comment

I believe the original change would have been better placed in 517.31(C) Please understand that this change only reinstates what has been required for previous cycles. In 2014, CMP 15 removed both life safety & critical branch out of the emergency system and lumped all 3 branches into “essential electrical systems.” The unintended consequence of this change greatly impacts the ability to require identifications which importantly distinguishes these systems.
Health care facilities are overrun with conduits, both power and low voltage, making it very difficult to distinguish them for installers, inspectors & hospital maintenance. Placing this section in 517.33(C) would give needed direction. I have inspected 2 hospitals under the 2014 NEC and plead with you to take this under consideration. Thank you

Related Item

• PI # 242

Submitter Information Verification

Submitter Full Name: James Dorsey
Organization: Douglas County Electrical Insp
Street Address:
City:
State:
Zip:

Submittal Date: Wed Aug 08 10:09:42 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7941-NFPA 70-2018
Statement: Identification of emergency circuits, in accordance with 700.10(A), is applicable in Article 517 for EES and permits various methods to be used.

Public Comment No. 1342-NFPA 70-2018 [Section No. 517.31(C)(3)]

(3) Mechanical Protection of the Essential Electrical System.

The wiring of the life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care spaces, the installation shall comply with the requirements of 517.13(A) and (B). Only the following wiring methods shall be permitted:

(1) Nonflexible metal raceways, Type MI cable, Type RTRC marked with the suffix –XW, or Schedule 80 PVC conduit. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(2) Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 PVC conduit, flexible nonmetallic or jacketed metallic raceways, or jacketed metallic cable assemblies listed for installation in concrete. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(3) Listed flexible metal raceways and listed metal sheathed cable assemblies in any of the following:

(4) Where used in listed prefabricated medical headwalls

(5) In listed office furnishings

(6) Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage

(7) Where necessary for flexible connection to equipment

(8) For equipment that requires a flexible connection due to movement, vibration, or operation

(9) Luminaires installed in ceiling structures where connected with flexible steel metal raceways or steel sheathed cable assemblies.

(10) Flexible power cords of appliances or other utilization equipment connected to the emergency system.

(11) Cables for Class 2 or Class 3 systems permitted by Part VI of this article, with or without raceways.

Informational Note: See 517.13 for additional grounding requirements in patient care areas.

Statement of Problem and Substantiation for Public Comment

Flexible steel metal raceways and steel metal sheathed cable assemblies all provide the mechanical protection and flexibility needed for replacement or maintenance. FR 8748 should be revised to include steel metal sheathed cable assemblies.

Related Item

• FR 8748

Submitter Information Verification

Submitter Full Name: Vince Baclawski
Organization: Nema
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 27 11:32:29 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7957-NFPA 70-2018

Statement: The first sentence was updated as an extract from NFPA 99-2018 to improve coordination.

The reference to steel flexible metal conduit in (3)(f) was deleted to permit the use of metal sheathed cable.

To comply with 517.13(A), flexible metal conduit must be installed in accordance with 250.118(5)(d).

Public Comment No. 1705-NFPA 70-2018 [Section No. 517.31(C)(3)]

(3) Mechanical Protection of the Essential Electrical System.

The wiring of the life safety and critical branches shall be mechanically protected by raceways as defined in this code . [99:6.7.5.2.2] Where installed as branch circuits in patient care spaces, the installation shall comply with the requirements of 517.13(A) and (B). Only the following wiring methods shall be permitted:

(1) Nonflexible metal raceways, Type MI cable, Type RTRC marked with the suffix –XW, or Schedule 80 PVC conduit. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(2) Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 PVC conduit, flexible nonmetallic or jacketed metallic raceways, or jacketed metallic cable assemblies listed for installation in concrete. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(3) Listed flexible metal raceways ~~and~~ in lengths not to exceed 1.8 m (6 ft) and listed metal sheathed cable assemblies in any of the following:

(4) Where used in listed prefabricated medical headwalls

(5) In listed office furnishings

(6) Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage

(7) Where necessary for flexible connection to equipment

(8) For equipment that requires a flexible connection due to movement, vibration, or operation

(9) Luminaires installed in ceiling structures where connected with flexible steel metal raceways

(10) Flexible power cords of appliances or other utilization equipment connected to the ~~emergency system.~~ life safety and critical branches shall not be required to be enclosed in raceways. [99:6.7.5.2.3]

(11) Cables for Class 2 or Class 3 systems permitted by Part VI of this article, with or without raceways.

Informational Note: See 517.13 for additional grounding requirements in patient care areas.

Statement of Problem and Substantiation for Public Comment

The requirement for raceways is extracted from the current language in NFPA 99. This comment brings the two documents into conformance with each other and will minimize conflicts in installations and enforcement.

Flexible metallic wiring methods are limited to a maximum of six feet in the entire fault current return path where used as an equipment grounding means. It is critical to make sure the fault current path is not compromised. Restricting the length to six feet will help insure that the provisions of 517.13 and 250.118 are considered.

Changing the language in (4) makes it consistent with the changes made in the 2014 Edition of the NEC and aids in consistency of enforcement.

Related Item

• PI 3718

Submitter Information Verification

Submitter Full Name: Dale Crawford
Organization: Steel Tube Institute
Street Address:
City:
State:
Zip:

Submittal Date: Wed Aug 29 17:12:21 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7957-NFPA 70-2018
Statement: The first sentence was updated as an extract from NFPA 99-2018 to improve coordination.

The reference to steel flexible metal conduit in (3)(f) was deleted to permit the use of metal sheathed cable.

To comply with 517.13(A), flexible metal conduit must be installed in accordance with 250.118(5)(d).

Public Comment No. 1830-NFPA 70-2018 [Section No. 517.31(C)(3)]

(3) ~~Mechanical Protection of~~ Protection from Physical Damage of the Essential Electrical System.

The wiring of the life safety and critical branches shall be ~~mechanically~~ protected from physical damage . Where installed as branch circuits in patient care spaces, the installation shall comply with the requirements of 517.13(A) and (B). Only the following wiring methods shall be permitted:

(1) Nonflexible metal raceways, Type MI cable, Type RTRC marked with the suffix –XW, or Schedule 80 PVC conduit. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(2) Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 PVC conduit, flexible nonmetallic or jacketed metallic raceways, or jacketed metallic cable assemblies listed for installation in concrete. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(3) Listed flexible metal raceways and listed metal sheathed cable assemblies in any of the following:

(4) Where used in listed prefabricated medical headwalls

(5) In listed office furnishings

(6) Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage

(7) Where necessary for flexible connection to equipment

(8) For equipment that requires a flexible connection due to movement, vibration, or operation

(9) Luminaires installed in ceiling structures where connected with flexible steel metal raceways

(10) Flexible power cords of appliances or other utilization equipment connected to the emergency system.

(11) Cables for Class 2 or Class 3 systems permitted by Part VI of this article, with or without raceways.

Informational Note: See 517.13 for additional grounding requirements in patient care areas.

Statement of Problem and Substantiation for Public Comment

FR 8748, shows that PI 3718 was part of the consideration of the changes made at the First Draft. No reference to it is found in the committee statement or the Panels resulting First Revision work. Please reconsider the PI 3718 language and substantiation per the NEC Style Manual below.
PI 3718
The term ‘mechanical protection’ is not defined in the NEC Article 100 Definitions. The NEC Style Manual prefers use of the standardized term ‘protection against physical damage’ rather than ‘mechanical protection’. An example would be Article 230.50. The revised title of 517.30(C)(3) will provide a clearer intent over the current wording. Additionally a Informational Note per 90.5(C) could be included to explain the intent and importance of the limitation on wiring methods permitted for these systems. NEC Style Manual 3.2.5.5 Provisions on Protection Against Physical Damage. If protection against physical damage is to be one of the requirements, this can be standardized by the use of this terminology instead of using the phrase provided with mechanical protection to mean the same thing. In many cases, one or two acceptable methods of providing the intended protection can be stated as examples for better understanding without restricting the rule to a specification-type requirement. There have been some cases, such as in the instance of grounding electrode conductors, where the means provided by the installer for protection against physical damage has impaired the electrical function of the conductor or equipment. This can be largely avoided by an explanatory note if the intent cannot be otherwise made sufficiently clear.

Related Item

• PI 3718

Submitter Information Verification

Submitter Full Name: Michael Farrell III
Organization: Lucas County Building Regulati
Street Address:

City:
State:
Zip:
Submittal Date: Thu Aug 30 09:26:47 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7957-NFPA 70-2018

Statement: The first sentence was updated as an extract from NFPA 99-2018 to improve coordination.

The reference to steel flexible metal conduit in (3)(f) was deleted to permit the use of metal sheathed cable.

To comply with 517.13(A), flexible metal conduit must be installed in accordance with 250.118(5)(d).

Public Comment No. 443-NFPA 70-2018 [Section No. 517.31(C)(3)]

(3) Mechanical Protection of the Essential Electrical System.

The wiring of the life safety and critical branches shall be mechanically protected by raceways as defined in this code . [99:6.7.5.2.2] Where installed as branch circuits in patient care spaces, the installation shall comply with the requirements of 517.13(A) and (B). Only the following wiring methods shall be permitted:

(1) Nonflexible metal raceways, Type MI cable, Type RTRC marked with the suffix –XW, or Schedule 80 PVC conduit. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(2) Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 PVC conduit, flexible nonmetallic or jacketed metallic raceways, or jacketed metallic cable assemblies listed for installation in concrete. Nonmetallic raceways shall not be used for branch circuits that supply patient care areas.

(3) Listed flexible metal raceways in lengths not to exceed 1.8 m (6 ft) with fitting listed for grounding and bonding or listed metal sheathed cable assemblies shall be permitted to by used in any of the following:

(4) Where used in listed prefabricated medical headwalls .

(5) In listed office furnishings .

(6) Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage . If subject to physical damage metallic raceways or flexible steel metal raceways shall be used.

(7) Where necessary for flexible connection to equipment flexable steel metal raceways shall be used.

(8) For equipment that requires a flexible connection due to movement, vibration, or operation flexable steel metal raceways shall be used.

(9) Luminaires installed in ceiling structures where connected with flexible steel metal raceways

(10) Flexible power cords of appliances or other utilization equipment connected to the emergency system.

(11) Cables for Class 2 or Class 3 systems permitted by Part VI of this article, with or without raceways.

Informational Note: See 517.13 for additional grounding requirements in patient care areas.

Statement of Problem and Substantiation for Public Comment

CMP 15 chair report directed the committee to address items that are in NFPA 99-2018 edition to be included in the second draft missed in the first draft stage. NFPA 99-2018 6.7.5.2.2 is included in this section for correlation between the documents.

FR 8748 by CMP 15 included language to use flexible steel conduit for the connection of luminaires (see (f) but did not consider 517.13(A) or 250.118 (5), (6) or (7) limiting the length of flexible steel conduit to 1.8 m (6 ft) for using the outer sheath as an equipment grounding conductor. Because of the increased grounding and bonding requirements of 517 the connectors for the steel flex must be listed for grounding and bonding and are included in this change. Code users should be reminded in this section that when using flexible metal conduit can only be used up to 6 ft lengths to comply with 517.13(A). Other used of flexible connections in this section need to be changed to indicate that only flexible steel metal conduit be used for connections.

Related Item

• FR 8748

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:

City:
State:
Zip:
Submittal Date: Tue Aug 07 11:45:21 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7957-NFPA 70-2018

Statement: The first sentence was updated as an extract from NFPA 99-2018 to improve coordination.

The reference to steel flexible metal conduit in (3)(f) was deleted to permit the use of metal sheathed cable.

To comply with 517.13(A), flexible metal conduit must be installed in accordance with 250.118(5)(d).

Public Comment No. 1060-NFPA 70-2018 [Section No. 517.31(D)]

(D) Capacity of Systems.

The essential electrical system shall have the capacity and rating to meet the maximum actual demand likely to be produced by the connected load.

Feeders shall be sized in accordance with 215.2 and Part III of Article 220. The alternate source shall have the capacity and rating to meet the demand produced by the load at any given time.

Demand calculations for sizing of the alternate source(s) shall be based on any of the following:

(1) Prudent demand factors and historical data

(2) Connected load

(3) Feeder calculation procedures described in Article 220

(4) Any combination of the above

The sizing requirements in 700.4 and 701.4 shall not apply to alternate source(s).

Additional Proposed Changes

File Name	Description	Approved
CN_119.pdf	70_CN 119	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 119 in the First Draft Report on First Revision No. 8773.

The Correlating Committee directs that First Revision be reviewed for compliance of the NEC Style Manual section 3.3.3 regarding the terms “alternate source” and "alternate source(s)".

This action shall be considered as a public comment.

Related Item

• FR 8773

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 22 11:58:01 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7964-NFPA 70-2018
Statement: The text revised to use the correct terminology.

Correlating Committee Note No. 119-NFPA 70-2018 [Section No. 517.31(D)]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:19:23 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that First Revision be reviewed for compliance of the NEC Style Manual section 3.3.3 regarding the terms “alternate source” and "alternate source(s)".

This action shall be considered as a public comment.

First Revision No. 8773-NFPA 70-2018 [Section No. 517.31(D)]

Ballot Results

✔ **This item has passed ballot**

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 274-NFPA 70-2018 [Section No. 517.31(D)]

(D) Capacity of Systems.

The essential electrical system shall have the capacity and rating to meet the maximum actual demand likely to be produced by the connected load.

Feeders shall be sized in accordance with 215.2 and Part III of Article 220. The alternate power source(s) required in 517.30 shall have the capacity and rating to meet the demand produced by the load at any given time.

Demand calculations for sizing of the alternate power source(s) required in 517.30 shall be based on any of the following:

(1) Prudent demand factors and historical data

(2) Connected load

(3) Feeder calculation procedures described in Article 220

(4) Any combination of the above

The sizing requirements in 700.4 and 701.4 shall not apply to alternate power source(s) required in 517 .30.

Statement of Problem and Substantiation for Public Comment

CMP 15 revises the language of the section which meets the intent of CCN 119 from the Correlation Committee.

Related Item

• FR 8773

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 15:09:12 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7964-NFPA 70-2018
Statement: The text revised to use the correct terminology.

Public Comment No. 1558-NFPA 70-2018 [Section No. 517.31(G)]

(G) Coordination.

Overcurrent protective devices serving the essential electrical system shall be coordinated, at the very minimum, for all values of available fault current, for the period of time that a fault's duration extends beyond 0.1 second.

Exception No. 1: Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

Exception No. 2: Between overcurrent protective devices of the same size (ampere rating) in series.

Informational Note: The terms *coordination* and *coordinated* as used in this section do not cover the full range of overcurrent conditions.

Statement of Problem and Substantiation for Public Comment

Public Input 1316 brings up a good point. Many engineers and designers do not fully understand the requirements in 517.31(G). They do not understand that, as written in the 2017 NEC®, 517.31(G) is a minimum requirement. They do not understand that they must at least coordinate the essential electrical system for 0.1 seconds (overloads). Nor do they understand that they must consider all available fault currents, whether they are phase-to-phase, phase-to-neutral, phase-to-ground, phase-to-phase-to-phase, or any combination of these types of faults.

This change provides clarity for those designing and specifying systems for these applications without changing the existing requirements nor conflicting with performance requirements found in 6.3.2.5 of NFPA 99. Finally, this change does not add to or modify the performance requirements that are within the purview of NFPA 99. It is fully within the purview of CMP 15.

Related Item

• PI 1316

Submitter Information Verification

Submitter Full Name: Vincent Saporita
Organization: Eaton's Bussmann Business
Affiliation: Eaton's Bussmann Business
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 29 11:45:06 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Any changes to the material in the National Electrical Code relating to extracted material from NFPA 99 needs to be changed in that document before a corresponding change can be implemented in the NEC as per Standard Council protocol. The panel suggests the submitter of this public input pursue changing NFPA 99 in the next cycle and then if successful, resubmit this public input to the NEC.

Public Comment No. 1566-NFPA 70-2018 [Section No. 517.31(G)]

(G) Coordination.

Overcurrent protective devices serving the essential electrical system shall be coordinated for the period of time that a fault's duration extends beyond 0.1 second.

Exception No. 1: Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

Exception No. 2: Between overcurrent protective devices of the same size (ampere rating) in series.

Informational Note No. 1 : The terms *coordination* and *coordinated* as used in this section do not cover the full range of overcurrent conditions.

Informational Note No. 2: See 517.17(C) for information on requirements for coordination of ground fault protection, consisting of overcurrent devices and current transformers or other equivalent protective equipment, for all levels of ground faults on the load side of the feeder device.

Statement of Problem and Substantiation for Public Comment

Public Input 1316 has raised this contentious issue once again. However, after a thorough review of the existing requirements in both the NEC® and NFPA 99, it becomes clear that Pubic Input 1316 has some merit.

517.17(C) requires that service and feeder ground fault protection be fully selective for all ground faults on the load side of the feeder device. It does not require selective coordination for line-to-line or line-to-neutral faults. There is no time limit on the duration of the ground fault as is given in 517.31(G). This presents a conflict between what is written in 517.31(G) and what is written in 517.17(C) as the requirements of 517.31(G) do not require coordination to any value of fault current while the requirements of 517.17(C) require 100% coordination for all ground fault currents on the load side of the feeder device. The new informational note provides guidance to those designing and specifying systems for these applications without changing the existing requirements nor conflicting with performance requirements found in 6.3.2.5 of NFPA 99.

Unfortunately, engineers and designers often focus on the controversial requirements in 517.31(G) and forget about the requirements for fully coordinated ground fault protection on the line side of the essential electrical system transfer switch. They also often miss the fact, as provided in 517.17(B), that ground fault protection consists of the combination of the phase overcurrent protective device and current transformers or other equivalent protective equipment. They simply look at the ground fault relay curves, making sure that there is the required separation. That is a serious mistake, because the phase overcurrent protective device is part of the required ground fault protection (517.17(B)). If the ground fault current is of sufficient magnitude, the phase overcurrent protective device may provide the opening and not the ground fault relay. When this occurs the system performance violates the 517.17(C) requirement.

This Informational Note simply reminds engineers and designers that there are requirements in 517.17(C) that must not be overlooked. Hopefully it will help them avoid a serious and possibly costly design error.

Finally, this Informational Note does not add to or modify the performance requirements that are within the purview of NFPA 99. It is within the purview of CMP 15.

Related Item

• PI 1316

Submitter Information Verification

Submitter Full Name: Vincent Saporita
Organization: Eaton's Bussmann Business
Affiliation: Eaton's Bussmann Business
Street Address:
City:

State:
Zip:
Submittal Date: Wed Aug 29 11:55:44 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7968-NFPA 70-2018 Any changes to the material in the National Electrical Code relating to extracted material from NFPA 99 needs to be changed in that document before a corresponding change can be implemented in the NEC as per Standard Council protocol. The panel suggests the submitter of this public input pursue changing NFPA 99 in the next cycle and then if successful, resubmit this public input to the NEC.

Statement: The inclusion of the informational note material will help code users identify the need for proper settings on ground fault protection equipment.

Public Comment No. 265-NFPA 70-2018 [Section No. 517.31(G)]

(G) Coordination.

Overcurrent protective devices serving the essential electrical system shall be ~~coordinated for the period of time that a fault's duration extends beyond 0.1 second.~~ selectively coordinated.

Exception No. 1: Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

Exception No. 2: Between overcurrent protective devices of the same size (ampere rating) in series.

~~Informational Note: The terms *coordination* and *coordinated* as used in this section do not cover the full range of overcurrent conditions.~~

Additional Proposed Changes

File Name	Description	Approved
Letter_to_NFPA_517.31_G.pdf	Letter to provide technical backup to my proposal	

Statement of Problem and Substantiation for Public Comment

As I explained in my letter, the 0.1 sec is NOT achieving selective coordination and this should be removed because its misleading to the industry, instead the code should allow one to either use manufacturers published data or engineering supervision who will analyze the system to determine whether selective coordination exists or not.

I understand that in parts of the country and in the NFPA 99 there also have this rule of 0.1 sec but its not correct and all the industry experts will agree with me on this matter.

Unfortunately, if the code would demand the selective coordination of the healthcare EES systems it will make it very expensive, but if we are going to invest money in the electrical infrastructure but not do it in the healthcare, then why do we have a code? Why do we spend millions of dollars in hospitals for all other systems and medicine and care for the patient but now we are cheap?

Related Item

• Selective Coordination

Submitter Information Verification

Submitter Full Name: Joel Sandel
Organization: JRS Consulting Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 09:14:41 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Any changes to the material in the National Electrical Code relating to extracted material from NFPA 99 needs to be changed in that document before a corresponding change can be implemented in the NEC as per Standard Council protocol. The panel suggests the submitter of this public input

pursue changing NFPA 99 in the next cycle and then if successful, resubmit this public input to the NEC.

August 23, 2018

To: NFPA Code Making Panel No.15

Re: NFPA 70, Article 517.31 (G) Proposed Change

To whom it may concern.

The 0.1 seconds of coordination that the code mentions, archives absolutely nothing because in the event of a fault in a power system the device will clear based on the amount of fault current over a given time which the OCPD will see and based on its characteristics which are published by the manufacturer's.

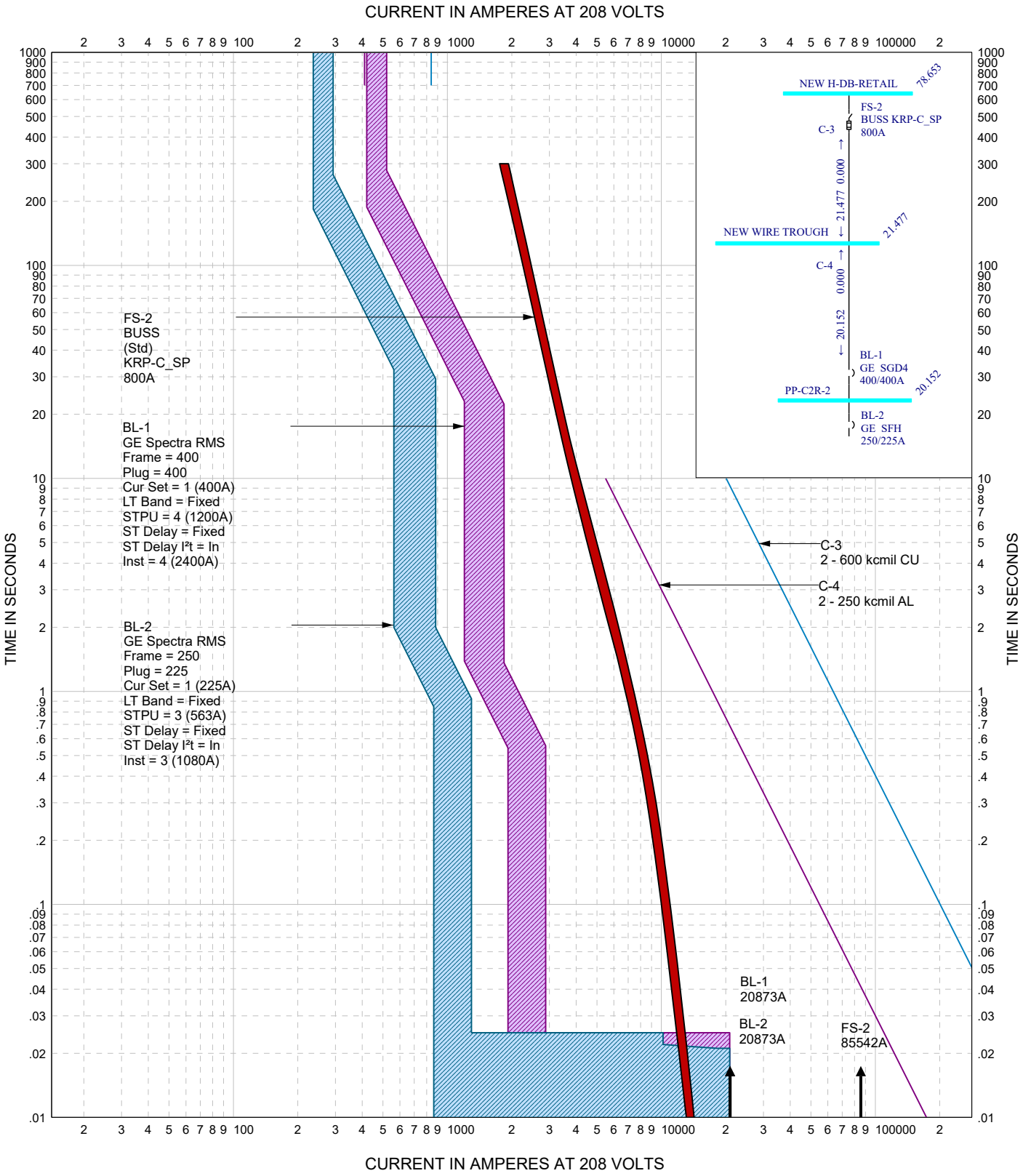
For example, I am showing a few TCC plot's on the next few sheet, and although they appear to have selective coordination below 0.1 seconds, they will in fact in some cases not selectively coordinate if the fault current is greater than the upstream device's instantaneous range, and the whole purpose of adding such requirement of 0.1 sec in the code is a waist and achieves nothing and is misleading to the industry.

According to IEEE papers and many industry experts, the line to ground fault is approximately 50% of the three phase bolted fault current value, and the arching current is approximately 10% and using those rules of thumbs you can see that in the case of TCC plot labeled PP-C2R-2 one may analyze this and considering all the information may determine that selective coordination has been achieved. However, in the case of TCC plot labeled PP-B although to the average person this may seem to have perfect coordination, its quite the opposite. If a line to ground fault will accrue at the load side of the 125A breaker then it will be approximately Isc=21kA which will cause the upstream 250A breaker to open, which is proven by the manufacturers published TCC plot) thus you will not have selective coordination between them.

If the code making panel believes that selective coordination is absolutely essential to have on these healthcare power systems, then it should be done correctly, either by using the manufacturers published data which indicates selective coordination, or by engineering and analyzing the fault current that may accrue and determine if the downstream device will clear the fault before the upstream device or not.

Very truly yours.

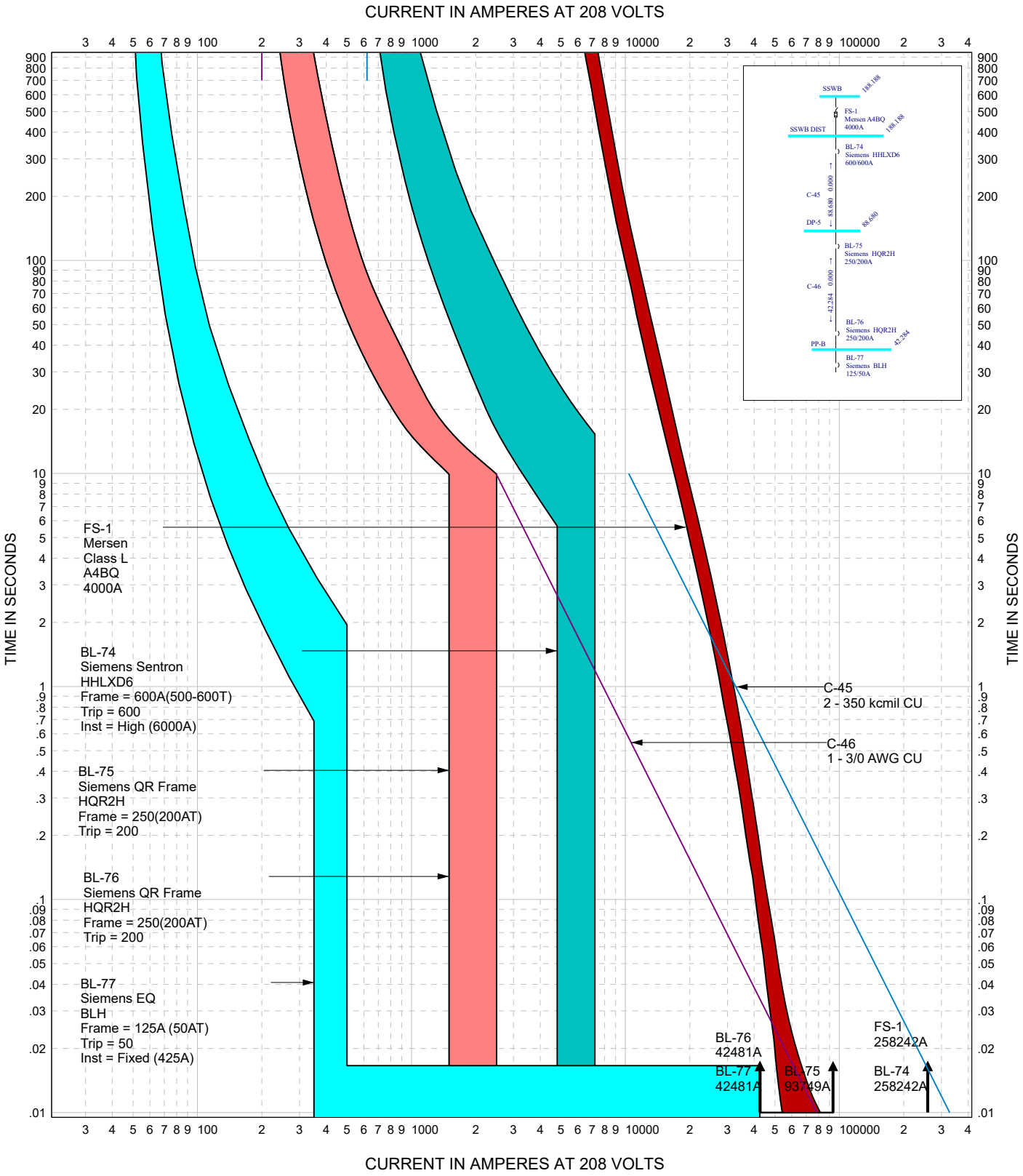
Joel Sandel
NYC Licensed Master Electrician No.12745
NYS Licensed Electrical Instructor
OSHA Authorized Safety Instructor
NYC Electrical Code Committee Member
IEEE Member of PES, IAS & SCC18



JRS Consulting Inc	***EasyPower*®** **TIME-CURRENT CURVES**	PP-C2R-2

FAULT:
DATE: 5/31/2018
BY: P.P
REVISION:

610 LEXINGTON AVE. ONE LINE



JRS Consulting Inc	***EasyPower*®** **TIME-CURRENT CURVES**	PP-B
		FAULT: DATE: 6/20/2018 BY: Y. K. REVISION:

LASDON HOUSE 420 E 70TH ST SC&PDC STUDY

Public Comment No. 1220-NFPA 70-2018 [Section No. 517.32]

517.32 Branches Requiring Automatic Connection.

(A)

Those functions of patient care depending on lighting or appliances that are connected to the essential electrical system shall be divided into the life safety branch and the critical branch, as described in 517.33 and 517.34.

(B)

The life safety and critical branches shall be installed and connected to the alternate power source specified in 517.41(A) and (B) so that all functions specified herein for the life safety and critical branches are automatically restored to operation within 10 seconds after interruption of the normal source. [**99:**6.7.5.3.1]

Additional Proposed Changes

File Name	Description	Approved
CN_120.pdf	70_CN120	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 120 in the First Draft Report

The Correlating Committee directs that the panel provide first level subdivision titles in 517.32. This action will be considered as a public comment.

Related Item

• Correlating Note No. 120

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Fri Aug 24 13:27:38 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7969-NFPA 70-2018
Statement: Titles were added to comply with the Style Manual.

Correlating Committee Note No. 120-NFPA 70-2018 [Section No. 517.32]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:26:34 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that the panel provide first level subdivision titles in 517.32.

This action will be considered as a public comment.

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 272-NFPA 70-2018 [Section No. 517.32]

517.32 Branches Requiring Automatic Connection.

(A)– Life Safety and Critical Branch Used in a Type 1 Facility

Those functions of patient care depending on lighting or appliances that are connected to the essential electrical system shall be divided into the life safety branch and the critical branch, as described in 517.33 and 517.34.

(B)– Life Safety and Critical Branch Used in a Type 2 Facility

The life safety and critical branches shall be installed and connected to the alternate power source specified in 517.41(A) and (B) so that all functions specified herein for the life safety and critical branches are automatically restored to operation within 10 seconds after interruption of the normal source. [**99:**6.7.5.3.1]

Statement of Problem and Substantiation for Public Comment

CMP 15 has added first level subdivision titles in 517.32 to meet the intent of the Correlation Committee CCN120 and the NEC Style Manual.

Related Item

• Request from Correlating Commttee

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 14:53:40 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7969-NFPA 70-2018
Statement: Titles were added to comply with the Style Manual.

Public Comment No. 1061-NFPA 70-2018 [Section No. 517.34(A)]

(A) Task Illumination, Fixed Equipment, and Selected Receptacles.

The critical branch, or a dual-fed scheme including the critical branch, shall supply power for task illumination, fixed equipment, select receptacles, and select power circuits serving the following spaces and functions related to patient care:

(1) Category 1(critical care) spaces where deep sedation or general anesthesia is administered, task illumination, selected receptacles, and fixed equipment

(2) Task illumination, and select receptacles in the following:

a. Patient care spaces, including infant nurseries, select acute nursing areas, psychiatric bed areas (omit receptacles), and ward treatment rooms

b. Medication preparation spaces

c. Pharmacy dispensing spaces

d. Nurses' stations — unless adequately lighted by corridor luminaires

(3) Additional specialized patient care task illumination and receptacles, where needed

(4) Nurse call systems

(5) Blood, bone, and tissue banks

(6) Telecommunications entrance facility, telecommunications equipment rooms, and telecommunications rooms and equipment in these rooms

(7) Task illumination, select receptacles, and select power circuits for the following areas:

a. Category 1 (critical care) or 2 (general care) spaces with at least one duplex receptacle per patient bed location, and task illumination as required by the governing body of the health care facility

b. Angiographic labs

c. Cardiac catheterization labs

d. Coronary care units

e. Hemodialysis rooms or areas

f. Emergency room treatment areas (select)

g. Human physiology labs

h. Intensive care units

i. Postoperative recovery rooms (select)

(8) Clinical IT-network equipment

(9) Wireless phone and paging equipment for clinical staff communications

(10) Additional task illumination, receptacles, and select power circuits needed for effective facility operation, including single-phase fractional horsepower motors, which are permitted to be connected to the critical branch.

[**99:**6.7.5.1.3.2]

Additional Proposed Changes

File Name	Description	Approved
CN_121.pdf	70_CN 121	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 121 in the First Draft Report on First Revision No. 8774.

The Correlating Committee directs that this First Revision be reviewed for clarity. The term “dual-fed scheme” is unclear.

This action shall be considered as a public comment.

Related Item

• FR 8774

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 22 12:51:30 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7971-NFPA 70-2018
Statement: The deleted text used an undefined term.

Correlating Committee Note No. 121-NFPA 70-2018 [Section No. 517.34(A)]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:28:20 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that this First Revision be reviewed for clarity. The term “dual-fed scheme” is unclear.

This action shall be considered as a public comment.

First Revision No. 8774-NFPA 70-2018 [Section No. 517.34(A)]

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 273-NFPA 70-2018 [Section No. 517.34(A)]

(A) Task Illumination, Fixed Equipment, and Selected Receptacles.

The critical branch ~~, or a dual-fed scheme including the critical branch,~~ shall supply power for task illumination, fixed equipment, select receptacles, and select power circuits serving the following spaces and functions related to patient care:

(1) Category 1(critical care) spaces where deep sedation or general anesthesia is administered, task illumination, selected receptacles, and fixed equipment

(2) Task illumination, and select receptacles in the following:

(3) Patient care spaces, including infant nurseries, select acute nursing areas, psychiatric bed areas (omit receptacles), and ward treatment rooms

(4) Medication preparation spaces

(5) Pharmacy dispensing spaces

(6) Nurses' stations — unless adequately lighted by corridor luminaires

(7) Additional specialized patient care task illumination and receptacles, where needed

(8) Nurse call systems

(9) Blood, bone, and tissue banks

(10) Telecommunications entrance facility, telecommunications equipment rooms, and telecommunications rooms and equipment in these rooms

(11) Task illumination, select receptacles, and select power circuits for the following areas:

(12) Category 1 (critical care) or 2 (general care) spaces with at least one duplex receptacle per patient bed location, and task illumination as required by the governing body of the health care facility

(13) Angiographic labs

(14) Cardiac catheterization labs

(15) Coronary care units

(16) Hemodialysis rooms or areas

(17) Emergency room treatment areas (select)

(18) Human physiology labs

(19) Intensive care units

(20) Postoperative recovery rooms (select)

(21) Clinical IT-network equipment

(22) Wireless phone and paging equipment for clinical staff communications

(23) Additional task illumination, receptacles, and select power circuits needed for effective facility operation, including single-phase fractional horsepower motors, which are permitted to be connected to the critical branch.

[**99:**6.7.5.1.3.2]

Statement of Problem and Substantiation for Public Comment

This comment addressed CCN 121 from the correlating committee. The section is revised for clarity. The sentence using the word "duel-fed scheme" is unclear and has been deleted. The changes indicate a more accurate description of the critical branch dual feed power distribution system description.

Related Item

• FR 8774

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 15:03:24 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7971-NFPA 70-2018
Statement: The deleted text used an undefined term.

Public Comment No. 359-NFPA 70-2018 [Section No. 517.40]

517.40 Type 2 Essential Electrical Systems.

Informational Note No. 1 : Nursing homes and other limited care facilities can contain Category 1 (critical care) spaces and/or Category 2 (general care) patient care spaces depending on the design and type of care administered in the facility. For Category 1 (critical care) spaces, see 517.29 through 517.35. For Category 2 (general care) spaces not served by Type 1 essential electrical systems, see 517.40 through 517.44.

Informational Note No. 2: Type 2 essential electrical systems are comprised of two separate branches capable of supplying a limited amount of lighting and power service that is considered essential for the protection of life and safety and effective operation of the institution during the time normal electrical service is interrupted for any reason. These two separate branches are the life safety and equipment branches. The number of transfer switches to be used should be based upon reliability, design, and load considerations. Each branch of the essential electrical system should have one or more transfer switches. One transfer switch should be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA (120 kW). [**99:** A .6.7.6.2.1]

(A) Applicability.

The requirements of Part III, 517.40(C) through 517.44, shall apply to Category 2 (general care) spaces.

Exception: The requirements of Part III, 517.40(C) through 517.44, shall not apply to freestanding buildings used as nursing homes and limited care facilities, provided that the following apply:

(1) Admitting and discharge policies are maintained that preclude the provision of care for any patient or resident who may need to be sustained by electrical life-support equipment.

(2) No surgical treatment requiring general anesthesia is offered.

(3) An automatic battery-operated system(s) or equipment shall be effective for at least 1½ hours and is otherwise in accordance with 700.12 and that shall be capable of supplying lighting for exit lights, exit corridors, stairways, nursing stations, medical preparation areas, boiler rooms, and communications areas. This system shall also supply power to operate all alarm systems.

Informational Note: See NFPA *101*-2018, *Life Safety Code*.

(B) Category 1 (Critical Care) Spaces, Inpatient Hospital Care Facilities.

For those nursing homes and limited care facilities that admit patients who need to be sustained by electrical life-support equipment, the essential electrical system from the source to the portion of the facility where such patients are treated shall comply with the requirements of Part III, 517.29 through 517.35.

(C) Facilities Contiguous or Located on the Same Site with Hospitals.

Nursing homes and limited care facilities that are contiguous or located on the same site with a hospital shall be permitted to have their essential electrical systems supplied by the hospital.

Informational Note No. 1: For performance, maintenance, and testing requirements of essential electrical systems in nursing homes and limited care facilities, see NFPA 99-2018, *Health Care Facilities Code*.

Informational Note No. 2: Where optional loads include contiguous or same-site facilities not covered in this *Code*, see the requirements of Article 700 of this *Code*; NFPA *101*-2018, *Life Safety Code*; and other applicable NFPA requirements for emergency egress under loadshed conditions.

Statement of Problem and Substantiation for Public Comment

• In accordance with Correlating Committee Note No. 122-NFPA 70-2018 to Section 517.29(A), new Informational Note No. 4 added in FR-8714 is relocated as new Informational Note No. 2 to 517.40.

.

• The existing Informational Note to 517.40 is redesignated as Informational Note No. 1.

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 361-NFPA 70-2018 [Section No. 517.29]	To address Correlating Committee Note No. 122-NFPA 70-2018 to Section 517.29(A)
Public Comment No. 361-NFPA 70-2018 [Section No. 517.29]	

Related Item

- First Revision No. 8714-NFPA 70-2018 [Section No. 517.29]
- Correlating Committee Note No. 122-NFPA 70-2018 [Section No. 517.29]
- First Revision No. 8710-NFPA 70-2018 [Section No. 517.40]

Submitter Information Verification

Submitter Full Name: Brian Rock
Organization: Hubbell Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 02 17:28:42 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7972-NFPA 70-2018
Statement: The new informational note is moved from 517.29(A) to locate it directly with the text that it references.

Public Comment No. 1423-NFPA 70-2018 [Section No. 517.40(A)]

(A) Applicability.

The requirements of Part III, 517.40(C) through 517.44, shall apply to Category 2 (general care) spaces.

Exception: The requirements of Part III, 517.40(C) through 517.44, shall not apply to freestanding buildings used as nursing homes and limited care facilities, provided that the following apply:

(1) Admitting and discharge policies are maintained that preclude the provision of care for any patient or resident who may need to be sustained by electrical life-support equipment.

(2) No surgical treatment requiring general anesthesia is offered.

(3) An automatic battery-operated or energy storage system(s) or equipment shall ~~be effective for~~ be be capable of providing the required power for at least 1½ hours and is otherwise in accordance with 700.12 ~~and that shall be capable of supplying lighting~~ for luminaires for exit lights, exit corridors, stairways, nursing stations, medical preparation areas, boiler rooms, and communications areas ~~. This system shall also supply power~~ as well as power needed to operate all alarm systems.

Informational Note: See NFPA *101*-2018, *Life Safety Code*.

Statement of Problem and Substantiation for Public Comment

See Comment No. 1421. Section 517.40 (A) provides for battery systems or equipment. Energy storage systems, as covered in Article 706, provide a power source option. The distinction between batteries and energy storage systems is borne out in the NEC as evidenced by Article 480 on batteries and Article 706 on energy storage systems. Another reason for the distinction is that all battery systems are not energy storage systems by definition BUT energy storage systems can include batteries but need not include them as in the case of a flywheel. Energy storage systems are a viable and reliable independent power source, are recognized in the NEC already and should be included in Section 517.40 (A). Additional editorial changes are provided to enhance the clarity of the text and to include the requirements in one sentence, which is preferred in NFPA standards.

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 1421-NFPA 70-2018 [Section No. 517.30(B)(3)]	

Related Item

• 8710-NFPA 70-2018

Submitter Information Verification

Submitter Full Name: David Conover
Organization: Pacific Northwest National Lab
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 28 12:33:27 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: Article 706 addresses stored energy components, which are used in some degree in health care facilities. It has been established by the NFPA Standards Council that NFPA 99 has jurisdiction over performance requirements for electrical systems in health care facilities while NFPA 70 has jurisdiction over the installation requirements. Any conflicting correlation issues in Article 706 should be addressed by NFPA 99.

Public Comment No. 276-NFPA 70-2018 [Section No. 517.40 [Excluding any Sub-Sections]]

Informational Note No. 1 : Nursing homes and other limited care facilities can contain Category 1 (critical care) spaces and/or Category 2 (general care) patient care spaces depending on the design and type of care administered in the facility. For Category 1 (critical care) spaces, see 517.29 through 517.35. For Category 2 (general care) spaces not served by Type 1 essential electrical systems, see 517.40 through 517.44.

Informational Note No. 2: Type 2 essential electrical systems are comprised of two separate branches capable of supplying a limited amount of lighting and power service that is considered essential for the protection of life and safety and effective operation of the institution during the time normal electrical service is interrupted for any reason. These two separate branches are the life safety and equipment branches. The number of transfer switches to be used should be based upon reliability, design, and load considerations. Each branch of the essential electrical system should have one or more transfer switches. One transfer switch should be permitted to serve one or more branches in a facility with a maximum demand on the essential electrical system of 150 kVA (120 kW). [**99:** A.6.7.6.2.1]

Statement of Problem and Substantiation for Public Comment

Informational Note No.2 was relocated from 517.29 as shown in first draft by request from the Correlating Committee CNN 122.

Related Item

• FR 8714

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 23 15:16:43 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7972-NFPA 70-2018
Statement: The new informational note is moved from 517.29(A) to locate it directly with the text that it references.

Public Comment No. 603-NFPA 70-2018 [Section No. 517.42(B)]

(B) Transfer Switches.

The number of transfer switches to be used shall be based on reliability, design, and load considerations. [**99:**6.7.2.3.3]

(1) Each branch of the essential electrical system shall have one or more transfer switches. [**99:**6.7.2.3.3.1]

(2) One transfer switch shall be permitted to serve one or more branches or systems in a facility with a continuous load on the switch of 150 kVA (120 kW) or less. [**99:**6.7.2.3.3.2] Division into separate branches shall not be required for systems 150kVA or less that are permitted to be fed from a single transfer switch.

Informational Note No. 1: See NFPA 99-2018, *Health Care Facilities Code*, 6.7.2.2.4, Transfer Switches; 6.7.2.2.5, Automatic Transfer Switch Features; 6.7.2.2.5.15, Non-Automatic Transfer Switch Features; and 6.7.2.2.7, Nonautomatic Transfer Device Features.

Informational Note No. 2: See Informational Note Figure 517.42(a).

Informational Note No. 3: See Informational Note Figure 517.42(b).

Figure Informational Note Figure 517.42(a) Type 2 Essential Electrical Systems (Nursing Home and Limited Health Care Facilities) — Minimum Requirement (greater than 150 kVA) for Transfer Switch Arrangement.

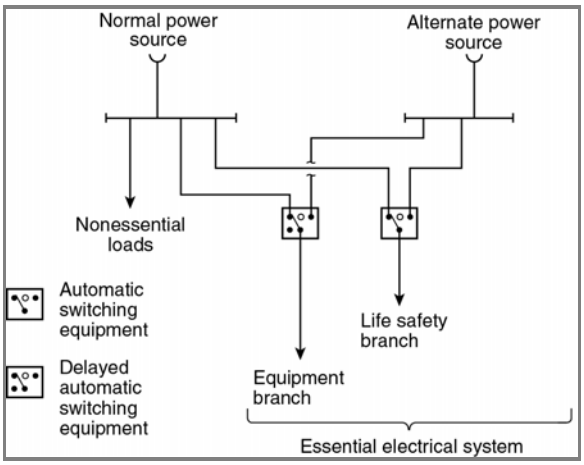
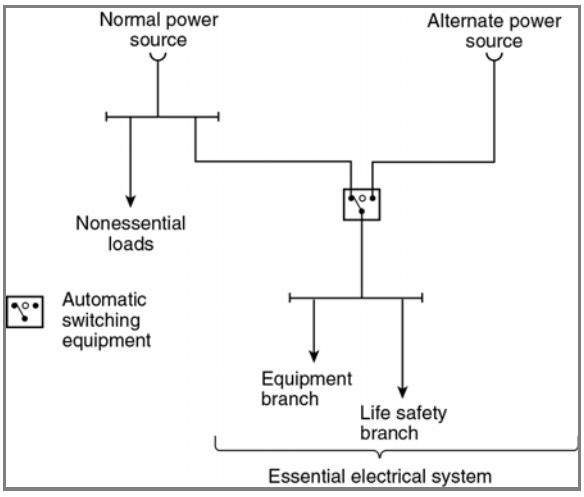


Figure Informational Note Figure 517.42(b) Type 2 Essential Electrical Systems (Nursing Home and Limited Health Care Facilities) — Minimum Requirement (150 kVA or less) for Transfer Switch Arrangement.



Statement of Problem and Substantiation for Public Comment

This comment is a accompanying the comment submitted for 517.31(B) clarifying 150kVA and less transfer switch connections. CMP 15 resolved PI 3829. The committee is asked to consider the proposed comment which will add extracted material based on the chair report from the first draft to include language extracted from NFPA 99-2018. Also, the committee is asked to consider revised language from PI 3819. This comment should clarify the original intent of the submitter and solve an ongoing problem of interpretation of the code.

Related Item

• PI 3829

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 13 17:37:58 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7940-NFPA 70-2018 The proposed text regarding division of branches was not accepted as this section covers transfer switches.

Statement: A lead-in sentence for the numbered list was added to clarify that these are separate options, based on the system load.

Public Comment No. 1991-NFPA 70-2018 [Section No. 518.4(C)]

(C) Spaces with Finish Rating.

Electrical nonmetallic tubing ~~and~~ , rigid nonmetallic conduit, and nonmetallic-sheathed cable shall be permitted to be installed in club rooms, conference and meeting rooms in hotels or motels, courtrooms, dining facilities, restaurants, mortuary chapels, museums, libraries, and places of religious worship where the following apply:

(1) The ~~electrical nonmetallic tubing or rigid nonmetallic conduit~~ wiring method is installed concealed within walls, floors, and ceilings where the walls, floors, and ceilings provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

(2) The ~~electrical nonmetallic tubing or rigid nonmetallic conduit~~ wiring method is installed above suspended ceilings where the suspended ceilings provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

Electrical nonmetallic tubing and rigid nonmetallic conduit are not recognized for use in other space used for environmental air in accordance with 300.22(C).

Informational Note: A finish rating is established for assemblies containing combustible (wood) supports. The finish rating is defined as the time at which the wood stud or wood joist reaches an average temperature rise of 121°C (250°F) or an individual temperature rise of 163°C (325°F) as measured on the plane of the wood nearest the fire. A finish rating is not intended to represent a rating for a membrane ceiling.

Statement of Problem and Substantiation for Public Comment

The committee statement in response to PI 3102 indicated that spaces with finish ratings in Article 518 have a requirement for physical protection of wiring methods that is provided by existing requirements. However, the nonmetallic wiring methods presently allowed are prohibited from being installed where subject to physical damage in 362.12(8) and 352.12(C). Nonmetallic sheathed cable is an equivalent wiring method that is recognized for use in structures of Type III, IV or V construction when concealed within walls, floors, or ceilings that provide at least a 15-minute finish rating per 334.10(3).

Related Item

• PI 3102

Submitter Information Verification

Submitter Full Name: Christel Hunter
Organization: Cerro Wire
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 30 13:51:57 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: The submitter asserts that nonmetallic sheathed cable is equivalent to the wiring methods currently allowed by this section. However, no technical substantiation was provided for this statement, especially with regard to the physical robustness and protection properties that are critical for safe installations in Article 518 occupancies.

Public Comment No. 1534-NFPA 70-2018 [Section No. 520.9]

520.9 Branch Circuits.

A branch circuit of any size supplying one or more receptacles shall be permitted to supply stage set lighting. The voltage rating of the receptacles shall be not less than the circuit voltage. Receptacle ampere ratings and branch-circuit conductor ampacity shall be not less than the branch-circuit overcurrent device ampere rating. Table 210.21(B)(2) and 210.23 shall not apply. The ~~application of~~ requirements in 210.8(B) , other than 210.8 (B)(4) shall ~~not be required~~ apply .

Statement of Problem and Substantiation for Public Comment

This Public Comment is the work of an NEC Correlating Committee task group directed to develop standardized text to improve correlation, clarity and usability of the NEC. This effort identified GFCI requirements that supplement or modify the general requirements of 210.8. The present GFCI requirements throughout the NEC were developed by various Technical Committees when the general GFCI requirements in 210.8 were limited to dwelling units. The consequences of time and various committees working to enhance safety have created significant correlation issues with the general requirements in 210.8. The arrangement of the NEC, as detailed in 90.3 clarifies that the general requirements of Chapters 1 through 4 apply “generally to all electrical installations.” The work of this Task Group resulted in 41 public comments to provide necessary correlation, clarity and usability. The task group’s work was identified in and based upon Correlating Committee Note 152 to the 2020 First Revisions. The Task Group members consisted of Jim Dollard, Chair, Steve Campolo, Donny Cook, Tom Domitrovich, Mark Hilbert, Keith Lofland, Alan Manche and Steve Rood.

Related Item

• CCN 152

Submitter Information Verification

Submitter Full Name: James Dollard
Organization: IBEW Local Union 98
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 29 10:41:52 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7982-NFPA 70-2018
Statement: The revised text improves correlation and clarity.

Public Comment No. 820-NFPA 70-2018 [Section No. 520.44(C)(3)]

(3) Identification of Conductors in Multiconductor Extra-Hard-Usage Cords and Cables.

~~Grounded neutral~~ neutral conductors shall be white without stripe or shall be identified by a distinctive white marking at their terminations. Equipment grounding conductors shall be green with or without yellow stripe or shall be identified by a distinctive green marking at their terminations.

Table 520.44(C)(3) Ampacity Adjustment Factors for More Than Three Current-Carrying Conductors in a Cord or Cable Where Load Diversity Is 50% or Less

Number of Conductors	Percent of Ampacity Value in Table 520.44(C)(3)
4–6	80
7–24	70
25–42	60
43 and above	50

Note: Ultimate insulation temperature. In no case shall conductors be associated together in such a way with respect to the kind of circuit, the wiring method used, or the number of conductors such that the temperature limit of the conductors is exceeded.

A neutral conductor that carries only the unbalanced current from other conductors of the same circuit need not be considered as a current-carrying conductor.

In a 3-wire circuit consisting of two-phase conductors and the neutral conductor of a 4-wire, 3-phase, wye-connected system, the neutral conductor carries approximately the same current as the line-to-neutral currents of the other conductors and shall be considered to be a current-carrying conductor.

On a 4-wire, 3-phase wye circuit where the major portion of the load consists of nonlinear loads, there are harmonic currents in the neutral conductor. Therefore, the neutral conductor shall be considered to be a current-carrying conductor.

Informational Note: For the purposes of Table 520.44(C)(3), load diversity is the percentage of the total current of all simultaneously energized circuits fed by the cable to the sum of the ampacity of all circuits in that cable.

Statement of Problem and Substantiation for Public Comment

This article uses the terms "grounded", "neutral" and "grounded neutral" to describe the same conductor. The terms need to be used in a consistent manner, and it appears that the most common term used in this article is "neutral"

Related Item

• Public Input No. 2013-NFPA 70-2017

Submitter Information Verification

Submitter Full Name: Don Ganiere
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 19 17:46:14 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action:	Accepted
Resolution:	SR-7983-NFPA 70-2018
Statement:	The word “grounded” is removed for consistency and clarity.

Public Comment No. 895-NFPA 70-2018 [Section No. 525.11]

525.11 Multiple Sources of Supply.

Where multiple services or separately derived systems, or both, supply portable structures, the equipment grounding conductors of all the sources of supply that serve such structures separated by less than 3.7 m (12 ft) shall be bonded together at the portable structures. The bonding conductor shall be copper and sized in accordance with Table 250.122 based on the largest overcurrent device supplying the portable structures, but not smaller than 6 AWG.

Additional Proposed Changes

File Name	Description	Approved
CN_242.pdf	70_CN 242	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 242 in the First Draft Report on First Revision No. 8114.

The Correlating Committee directs Code-Making Panel 5 to correlate FR 8114 with 250.102(D), 250.104(B), and 250.190(C)(3).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 2 for correlation with Annex D Example D3(a).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 4 for correlation with 690.45.

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 10 for correlation with 215.2(A)(2)(b)(2) and 215.2(B).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 15 for correlation with 525.11.

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 18 for correlation with 600.7(A)(2).

These actions will be considered as public comments.

The Correlating Committee directs that FR 8114 be sent to all panels for information.

Related Item

• FR 8114

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 20 15:06:13 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution:	Table 250.122 was not changed, so no change in 525.11 is necessary.

Correlating Committee Note No. 242-NFPA 70-2018 [Section No. 250.122]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Fri May 11 16:23:39 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs Code-Making Panel 5 to correlate FR 8114 with 250.102(D), 250.104(B), and 250.190(C)(3).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 2 for correlation with Annex D Example D3(a).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 4 for correlation with 690.45.

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 10 for correlation with 215.2(A)(2)(b)(2) and 215.2(B).

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 15 for correlation with 525.11.

The Correlating Committee directs that FR 8114 be referred to Code-Making Panel 18 for correlation with 600.7(A)(2).

These actions will be considered as public comments.

The Correlating Committee directs that FR 8114 be sent to all panels for information.

First Revision No. 8114-NFPA 70-2018 [Section No. 250.122]

Ballot Results

✔ **This item has passed ballot**

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.

Dressman, Kevin L.

Hickman, Palmer L.

Hittinger, David L.

Holub, Richard A.

Johnston, Michael J.

Kovacik, John R.

Manche, Alan

McDaniel, Roger D.

Pierce, James F.

Saporita, Vincent J.

Williams, David A.

Public Comment No. 1062-NFPA 70-2018 [Section No. 525.20(G)]

(G) Protection.

Flexible cords or cables accessible to the public shall be arranged to minimize the tripping hazard and shall be permitted to be covered with nonconductive matting secured to the walkway surface or other approved cable protection method, provided that the matting or other protection method does not constitute a greater tripping hazard than the uncovered cables. It shall be permitted to bury cables. The requirements of 300.5 shall not apply.

Additional Proposed Changes

File Name	Description	Approved
CN_124.pdf	70_CN 124	

Statement of Problem and Substantiation for Public Comment

NOTE: This Public Comment appeared as CC Note No. 124 in the First Draft Report on First Revision No. 8844.

The Correlating Committee directs that CMP 15 consider if a comma is missing between "surface" and "or".

This action will be considered a Public Comment.

Related Item

• FR 8844

Submitter Information Verification

Submitter Full Name: CC on NEC-AAC
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 22 12:54:54 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7987-NFPA 70-2018
Statement: The revised text removes ambiguity.

Correlating Committee Note No. 124-NFPA 70-2018 [Section No. 525.20(G)]

Submitter Information Verification

Submitter Full Name: Sarah Caldwell
Committee:
Submittal Date: Thu May 10 12:46:56 EDT 2018

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee directs that CMP 15 consider if a comma is missing between "surface" and "or". This action will be considered a Public Comment.

First Revision No. 8844-NFPA 70-2018 [Section No. 525.20(G)]

Ballot Results

This item has passed ballot

12 Eligible Voters
0 Not Returned
12 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Affirmative All

Brunssen, James E.
Dressman, Kevin L.
Hickman, Palmer L.
Hittinger, David L.
Holub, Richard A.
Johnston, Michael J.
Kovacik, John R.
Manche, Alan
McDaniel, Roger D.
Pierce, James F.
Saporita, Vincent J.
Williams, David A.

Public Comment No. 324-NFPA 70-2018 [Section No. 525.20(G)]

(G) Protection.

Flexible cords or cables accessible to the public shall be arranged to minimize the tripping hazard and shall be permitted to be covered with nonconductive matting secured to the walkway surface, or other approved cable protection method, provided that the matting or other protection method does not constitute a greater tripping hazard than the uncovered cables. It shall be permitted to bury cables. The requirements of 300.5 shall not apply.

Statement of Problem and Substantiation for Public Comment

There is a critical comma missing from this FR, which totally changes the meaning of the section. The comma should have been between the words "surface" and "or".

Related Item

• FR 8844

Submitter Information Verification

Submitter Full Name: Steven Terry
Organization: Electronic Theatre Controls Inc
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 31 16:33:45 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7987-NFPA 70-2018
Statement: The revised text removes ambiguity.

Public Comment No. 1296-NFPA 70-2018 [Section No. 525.23]

525.23 Ground-Fault Circuit-Interrupter (GFCI) Protection.

Ground-fault circuit-interrupter protection for personnel shall be required as per 210.8 (B).

(A) Where GFCI Protection Is Required.

GFCI protection for personnel shall be provided for the following:

(1) All 125-volt, single-phase, 15- and 20-ampere non-locking-type receptacles used for disassembly and reassembly of equipment or any outlet that is readily accessible to the general public

(2) Equipment that is readily accessible to the general public ~~and supplied from a 125-volt, single-phase, 15- or 20-ampere branch circuit .. The GFCI shall be permitted to be an integral part of the attachment plug or located in the power-supply cord within 300 mm (12 in.) of the attachment plug. Listed cord sets incorporating GFCI for personnel shall be permitted.~~

(B) Where GFCI Protection Is Not Required.

Receptacles that are not accessible from grade level and that only facilitate quick disconnecting and reconnecting of electrical equipment shall not be required to be provided with GFCI protection. These receptacles shall be of the locking type.

(C) Where GFCI Protection Is Not Permitted.

Egress lighting shall not be protected by a GFCI.

(D) Receptacles Supplied by ~~Portable~~ Flexible Cords.

~~Where GFCI protection is provided through the use of GFCI receptacles, and the branch circuits supplying receptacles utilize flexible cord, the GFCI protection shall be~~ Branch circuits that supply receptacles connected by flexible cord shall be GFCI protected by listed, labeled, and identified ~~for portable use~~ devices at the point where they receive their supply.

Statement of Problem and Substantiation for Public Comment

Revised language as per CCN-152 to correlate with 210.8. Three-phase systems outlets must have GFCI protection as per 210.8(B). Portable cords was changed to flexible cords for clarity. Any use of flexible cords are required to have a GFCI device located at it supply.

Related Item

• CCN-152

Submitter Information Verification

Submitter Full Name: Gary Beckstrand
Organization: Utah Electrical JATC
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 26 11:09:19 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected

Resolution: 1. Article 525 occupancies are special occupancies, and thus subject to different GFCI requirements than those covered in 210.8(B) to allow both safe and reliable operation of equipment in these occupancies. 2. It is not practical to require GFCI protection at the source of supply on all branch circuits fed by portable cord at their source of supply, which is why 525.23(D) covers portable GFCI protection listed for portable use. 3. The replacement of “portable” with “flexible” does not add clarity and would substitute a performance description for a well-understood functional description.

Public Comment No. 1535-NFPA 70-2018 [Section No. 525.23]

525.23 Ground-Fault Circuit-Interrupter (GFCI) Protection.

(A) Where GFCI Protection Is Required.

In addition to the requirements in 210.8(B), GFCI protection for personnel shall be provided for the following:

(1) All 125-volt, single-phase, 15- and 20-ampere non-locking-type receptacles used for disassembly and reassembly or readily accessible to the general public

(2) Equipment that is readily accessible to the general public and supplied from a 125-volt, single-phase, 15- or 20-ampere branch circuit

The GFCI shall be permitted to be an integral part of the attachment plug or located in the power-supply cord within 300 mm (12 in.) of the attachment plug. Listed cord sets incorporating GFCI for personnel shall be permitted.

(B) Where GFCI Protection Is Not Required.

Receptacles that are not accessible from grade level and that only facilitate quick disconnecting and reconnecting of electrical equipment shall not be required to be provided with GFCI protection. These receptacles shall be of the locking type.

(C) Where GFCI Protection Is Not Permitted.

Egress lighting shall not be protected by a GFCI.

(D) Receptacles Supplied by Portable Cords.

~~Where~~ In addition to the requirements in 210.8(B), where GFCI protection is provided through the use of GFCI receptacles, and the branch circuits supplying receptacles utilize flexible cord, the GFCI protection shall be listed, labeled, and identified for portable use.

Statement of Problem and Substantiation for Public Comment

This Public Comment is the work of an NEC Correlating Committee task group directed to develop standardized text to improve correlation, clarity and usability of the NEC. This effort identified GFCI requirements that supplement or modify the general requirements of 210.8. The present GFCI requirements throughout the NEC were developed by various Technical Committees when the general GFCI requirements in 210.8 were limited to dwelling units. The consequences of time and various committees working to enhance safety have created significant correlation issues with the general requirements in 210.8. The arrangement of the NEC, as detailed in 90.3 clarifies that the general requirements of Chapters 1 through 4 apply “generally to all electrical installations.” The work of this Task Group resulted in 41 public comments to provide necessary correlation, clarity and usability. The task group’s work was identified in and based upon Correlating Committee Note 152 to the 2020 First Revisions. The Task Group members consisted of Jim Dollard, Chair, Steve Campolo, Donny Cook, Tom Domitrovich, Mark Hilbert, Keith Lofland, Alan Manche and Steve Rood.

Related Item

• CCN 152

Submitter Information Verification

Submitter Full Name: James Dollard
Organization: IBEW Local Union 98
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 29 10:44:51 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7993-NFPA 70-2018

Statement: There are provisions of 210.8(B) that apply to Article 525 venues.

Public Comment No. 2074-NFPA 70-2018 [Section No. 525.23(A)]

(A) Where GFCI Protection Is Required.

In addition to the requirements of 210.8, GFCI protection for personnel shall be provided for the following:

(1) All 125-volt, single-phase, 15- and 20-ampere non-locking-type receptacles used for disassembly and reassembly or readily accessible to the general public

(2) Equipment that is readily accessible to the general public and supplied from a 125-volt, single-phase, 15- or 20-ampere branch circuit

The GFCI shall be permitted to be an integral part of the attachment plug or located in the power-supply cord within 300 mm (12 in.) of the attachment plug. Listed cord sets incorporating GFCI for personnel shall be permitted.

Statement of Problem and Substantiation for Public Comment

This revision supports the Panel Action and Statement for RESOLVED Public Input No 2272. In correlation with the requirements of NEC® 90.3, explicit statement these words will preclude any misinterpretation.

Related Item

• Public Input No. 2272-NFPA 70-2017 [Section No. 525.23(A)]

Submitter Information Verification

Submitter Full Name: Brian Rock
Organization: Hubbell Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 30 16:18:48 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7993-NFPA 70-2018
Statement: There are provisions of 210.8(B) that apply to Article 525 venues.

Public Comment No. 493-NFPA 70-2018 [Section No. 525.23(A)]

(A) Where GFCI Protection Is Required.

GFCI protection for personnel shall be provided for the following:

(1) All 125-volt, single-phase, 15- and 20-ampere non-locking-type receptacles used for disassembly and reassembly or readily accessible to the general public

(2) Equipment that is readily accessible to the general public and supplied from a 125-volt, single-phase, 15- or 20-ampere branch circuit

(3) Any additional ground-fault requirements of 210.8(B) shall not apply.

The GFCI shall be permitted to be an integral part of the attachment plug or located in the power-supply cord within 300 mm (12 in.) of the attachment plug. Listed cord sets incorporating GFCI for personnel shall be permitted.

Statement of Problem and Substantiation for Public Comment

Initially, the proposed language was included in PI 2272. The language found in 525.23 is not consistent with the requirements in 210.8(B). The current text only addresses the 15 and 20 amp, 125 volt, receptacles. If the requirements are included in 210.8(B), why does the language need to exist in Article 525. When enforcing the NEC, is it the intent to for the user of the code to use all of the requirements of 210.8 or just those mentioned in the section? As a part of the committee consideration, please review the initial substantiation from CMP-2 regarding 210.8(B) that expanded the GFCI requirements. In my opinion, the committee will find no substantiation to include equipment used in these types of venues. In our opinion, based on the initial substantiation (no documented injuries or death), the proposed safety benefit doesn't justify added cost of the GFCI protection.

Related Item

• PI 2272

Submitter Information Verification

Submitter Full Name: Dean Hunter
Organization: Minnesota Department of Labor
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 09 12:00:16 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected
Resolution: There are requirements of 210.8(B) that apply to Article 525 occupancies.

Public Comment No. 1537-NFPA 70-2018 [Section No. 530.23]

530.23 Branch Circuits.

A branch circuit of any size supplying one or more receptacles shall be permitted to supply stage set lighting loads.

The ~~application of~~ requirements in 210.8(B), other than 210.8(B)(4) shall ~~not be required~~ apply.

Statement of Problem and Substantiation for Public Comment

This Public Comment is the work of an NEC Correlating Committee task group directed to develop standardized text to improve correlation, clarity and usability of the NEC. This effort identified GFCI requirements that supplement or modify the general requirements of 210.8. The present GFCI requirements throughout the NEC were developed by various Technical Committees when the general GFCI requirements in 210.8 were limited to dwelling units. The consequences of time and various committees working to enhance safety have created significant correlation issues with the general requirements in 210.8. The arrangement of the NEC, as detailed in 90.3 clarifies that the general requirements of Chapters 1 through 4 apply "generally to all electrical installations." The work of this Task Group resulted in 41 public comments to provide necessary correlation, clarity and usability. The task group's work was identified in and based upon Correlating Committee Note 152 to the 2020 First Revisions. The Task Group members consisted of Jim Dollard, Chair, Steve Campolo, Donny Cook, Tom Domitrovich, Mark Hilbert, Keith Lofland, Alan Manche and Steve Rood.

Related Item

• CCN 152

Submitter Information Verification

Submitter Full Name: James Dollard
Organization: IBEW Local Union 98
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 29 10:48:25 EDT 2018
Committee: NEC-P15

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7996-NFPA 70-2018
Statement: The revised text improves correlation and clarity.