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WORKING DRAFT OF NEC CODE-MAKING PANEL 15 MEETING OUTPUT

CONTENT NOT FINAL – SUBJECT TO REVISION PRIOR TO LETTER BALLOT AND PUBLICATION OF SECOND DRAFT REPORT

Document: National Electrical Code®

Revision Cycle: A2025

Meeting Date: October 2024

Panel Activity: Comment Stage

This is a working draft, prepared by NFPA staff, to record the output generated at the Code-Making Panel 15 Second Draft Meeting. It includes draft copies of the Second Revisions and any Global Revisions.

It is being made available to Panel members for the purpose of facilitating early review, particularly for those Panel members who may be seeking input from their respective organizations in preparation for the Second Draft Ballot.

Second Revision No. 8358-NFPA 70-2024 [Global Comment]

Replace "Overcurrent", "Overcurrent protective devices" and "Overcurrent protection" to "OCPD" in Articles 517, 518, 520, 522, 525, 530, 540

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 11:57:45 EDT 2024

Committee Statement

Committee Statement: The term Overcurrent Protective Device(s) has been replaced with OCPDs for consistency with the current terminology as defined by the code.

Response Message: SR-8358-NFPA 70-2024

Public Comment No. 1655-NFPA 70-2024 [Global Input]

Second Revision No. 8458-NFPA 70-2024 [Global Comment]

Remove "to be installed" in all instances in Articles 517, 518, 520, 522, 525, 530, 540

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:01:26 EDT 2024

Committee Statement

Committee Statement: The committee revises all instances of “to be installed” in this Article to reduce redundancy.

Response Message: SR-8458-NFPA 70-2024

Second Revision No. 8456-NFPA 70-2024 [Detail]

517.7 Patient Care Space Risk Categories~~and Risk Assessment~~ .

All activities, as well as systems or equipment that are new or altered, shall be designed and installed to meet Category 1 through Category 4 requirements~~, as detailed in this code~~ . [**99:**4.1]

Activities, systems, and equipment shall be permitted to be designed and installed to a higher risk category. [**99:**4.1.5]

Informational Note: See definition of categories in Chapter 4 of NFPA 99-2024.

~~(A) Risk Categories.~~

~~All activities, as well as systems or equipment that are new or altered, shall be designed and installed to meet Category 1 through Category 4 requirements, as detailed in this code. [**99:**4.1]~~

~~Activities, systems, and equipment shall be permitted to be designed and installed to a higher risk category. [**99:**4.1.5]~~

~~(1) Category 1.~~

~~Activities, systems, or equipment whose failure is likely to cause major injury or death of patients, staff, or visitors shall be designed and installed to meet Category 1 requirements, as detailed in this code. [**99:**4.1.1]~~

~~(2) Category 2.~~

~~Activities, systems, or equipment whose failure is likely to cause minor injury of patients, staff, or visitors shall be designed and installed to meet Category 2 requirements, as detailed in this code. [**99:**4.1.2]~~

~~(3) Category 3.~~

~~Activities, systems, or equipment whose failure is not likely to cause injury of patients, staff, or visitors shall be designed and installed to meet Category 3 requirements, as detailed in this code. [**99:**4.1.3]~~

~~(4) Category 4.~~

~~Activities, systems, or equipment whose failure would have no impact on patient care shall be designed and installed to meet Category 4 requirements, as detailed in this code. [**99:**4.1.4]~~

~~Informational Note No. 1: Major injury can include the following:~~

(1) ~~Any amputation~~

(2) ~~Loss of the sight of an eye (whether temporary or permanent)~~

(3) ~~Chemical or hot metal burn to the eye or any penetrating injury to the eye~~

(4) ~~Any injury that results in electric shock and electric burns leading to unconsciousness and that requires resuscitation or admittance to a hospital for 24 hours or more~~

(5) ~~Any other injury leading to hypothermia, heat induced illness, or unconsciousness requiring resuscitation or admittance to a hospital for 24 hours or more~~

(6) ~~Loss of consciousness caused by asphyxia or lack of oxygen or exposure to a biological agent or harmful substance~~

(7) ~~Absorption of any substance by inhalation, skin, or ingestion causing loss of consciousness or acute illness requiring medical treatment~~

(8) ~~Acute illness requiring medical treatment where there is reason to believe the exposure was to biological agents, its toxins, or infected materials~~

~~[**99:**A.4.1.1]~~

~~Informational Note No. 2: A minor injury means not serious or involving risk of life. [**99:**A.4.1.2]~~

~~(B) Risk Assessment.~~

~~The health care facility's governing body shall establish the processes and operations that are planned for the health care facility. [**99:**4.2.1]~~

~~The governing body shall conduct risk assessments and shall determine risk categories based on the character of the processes and operations conducted in the health care facility. [**99:**4.2.1.1]~~

~~Risk categories shall be classified by the health care facility's governing body by following and documenting a defined risk assessment procedure. [**99:**4.2.2]~~

~~Where required by the authority having jurisdiction, the risk assessment shall be provided to the authority having jurisdiction for review based on the character of the processes and operations conducted in the health care facility. [**99:**4.2.2.1]~~

~~A documented risk assessment shall not be required where Category 1 is selected. [**99:**4.2.3]~~

~~Informational Note: See ISO/IEC 31010-2019, *Risk Management — Risk Assessment Techniques*; NFPA 551-2022, *Guide for the Evaluation of Fire Risk Assessments*; SEMI S10-0307E , *Safety Guideline for Risk Assessment and Risk Evaluation Process*; or SFPE's *Engineering Guide to Fire Risk Assessment* (2006) for information and guidance on risk assessment procedures. The results of the assessment procedure should be documented and records retained.~~

~~[**99:**A.4.2]~~

Supplemental Information

File Name	Description	Approved
CMP-15_SR-8456.docx		
CMP-15_SR-8456_517.7.docx	For prod use	

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 19:57:02 EDT 2024

Committee Statement

Committee Statement: The risk categories are covered in NFPA 99 and are not necessary to be included in the NEC. The titles and headers were then edited to comply with the NEC Style Manual.

The risk assessment is conducted by the health care facility governing body and is adequately addressed in NFPA 99 and not needis outside the scope of in the NEC.

Response Message: SR-8456-NFPA 70-2024

Public Comment No. 667-NFPA 70-2024 [Section No. 517.7(B)]

Public Comment No. 779-NFPA 70-2024 [Section No. 517.7(A)]

517.7 Patient Care Space Risk Categories ~~and Risk Assessment~~.

~~(A) Risk Categories.~~

All activities, as well as systems or equipment that are new or altered, shall be designed and installed to meet Category 1 through Category 4 requirements~~, as detailed in this code~~. [**99:**4.1]

Activities, systems, and equipment shall be permitted to be designed and installed to a higher risk category. [**99:**4.1.5]

Informational Note: See definition of categories in Chapter 4 of NFPA 99-2024.

~~(1) Category 1.~~

~~Activities, systems, or equipment whose failure is likely to cause major injury or death of patients, staff, or visitors shall be designed and installed to meet Category 1 requirements, as detailed in this code. [**99:**4.1.1]~~

~~(2) Category 2.~~

~~Activities, systems, or equipment whose failure is likely to cause minor injury of patients, staff, or visitors shall be designed and installed to meet Category 2 requirements, as detailed in this code. [**99:**4.1.2]~~

~~(3) Category 3.~~

~~Activities, systems, or equipment whose failure is not likely to cause injury of patients, staff, or visitors shall be designed and installed to meet Category 3 requirements, as detailed in this code. [**99:**4.1.3]~~

~~(4) Category 4.~~

~~Activities, systems, or equipment whose failure would have no impact on patient care shall be designed and installed to meet Category 4 requirements, as detailed in this code. [**99:**4.1.4]~~

~~Informational Note No. 1: Major injury can include the following:~~

~~1. Any amputation~~

~~2. Loss of the sight of an eye (whether temporary or permanent)~~

~~3. Chemical or hot metal burn to the eye or any penetrating injury to the eye~~

~~4. Any injury that results in electric shock and electric burns leading to unconsciousness and that requires resuscitation or admittance to a hospital for 24 hours or more~~

~~5. Any other injury leading to hypothermia, heat induced illness, or unconsciousness requiring resuscitation or admittance to a hospital for 24 hours or more~~

~~6. Loss of consciousness caused by asphyxia or lack of oxygen or exposure to a biological agent or harmful substance~~

~~7. Absorption of any substance by inhalation, skin, or ingestion causing loss of consciousness or acute illness requiring medical treatment~~

8. Acute illness requiring medical treatment where there is reason to believe the exposure was to biological agents, its toxins, or infected materials

[**99:**A.4.1.1]

Informational Note No. 2: A minor injury means not serious or involving risk of life. [**99:**A.4.1.2]

(B) Risk Assessment.

The health care facility's governing body shall establish the processes and operations that are planned for the health care facility. [**99:**4.2.1]

The governing body shall conduct risk assessments and shall determine risk categories based on the character of the processes and operations conducted in the health care facility. [**99:**4.2.1.1]

Risk categories shall be classified by the health care facility's governing body by following and documenting a defined risk assessment procedure. [**99:**4.2.2]

Where required by the authority having jurisdiction, the risk assessment shall be provided to the authority having jurisdiction for review based on the character of the processes and operations conducted in the health care facility. [**99:**4.2.2.1]

A documented risk assessment shall not be required where Category 1 is selected. [**99:**4.2.3]

Informational Note: See ISO/IEC 31010-2019, *Risk Management — Risk Assessment Techniques*; NFPA 551-2022, *Guide for the Evaluation of Fire Risk Assessments*; SEMI S10-0307E , *Safety Guideline for Risk Assessment and Risk Evaluation Process*; or SFPE's *Engineering Guide to Fire Risk Assessment* (2006) for information and guidance on risk assessment procedures. The results of the assessment procedure should be documented and records retained.

[**99:**A.4.2]

Second Revision No. 8506-NFPA 70-2024 [Detail]

~~Equipment, Portable. (Portable Equipment)~~

~~Equipment fed with portable cords or cables intended to be moved from one place to another. (640) (CMP-12)~~

Equipment, Portable. (Portable Equipment)

Equipment with electrical components suitable to be moved by a single person without mechanical aids. (511) (CMP-14)

Equipment, Portable. (Portable Equipment)

Equipment fed with portable cords or cables intended to be moved from one place to another. ~~(520)~~ (CMP-15)

~~Equipment, Portable. (Portable Equipment)~~

~~Equipment intended to be moved from one place to another. (530) (CMP-15)~~

Supplemental Information

File Name	Description	Approved
CMP-15_SR-8506.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 11:57:26 EDT 2024

Committee Statement

Committee Statement: This revision reduces redundancy in definitions. Because this term is now used in multiple Articles, the reference to 520 is removed as well as the panel ownership indicator.

Response Message: SR-8506-NFPA 70-2024

~~Equipment, Portable. (Portable Equipment)~~

~~Equipment fed with portable cords or cables intended to be moved from one place to another. (640) (CMP-12)~~

Equipment, Portable. (Portable Equipment)

Equipment with electrical components suitable to be moved by a single person without mechanical aids. (511) (CMP-14)

Equipment, Portable. (Portable Equipment)

Equipment fed with portable cords or cables intended to be moved from one place to another. ~~(520)~~ (CMP-15)

~~Equipment, Portable. (Portable Equipment)~~

~~Equipment intended to be moved from one place to another. (530) (CMP-15)~~

Second Revision No. 8503-NFPA 70-2024 [Definition: Motion Picture Sound Stage.]

~~**Motion Picture Sound Stage.**~~

~~A building or portion of a building, usually insulated from outside noise and natural light, designed, constructed, or altered for the purpose of image capture. (CMP-15)~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 11:48:18 EDT 2024

Committee Statement

Committee Statement: The term “Motion Picture Sound Stage” is no longer used in Article 530.

Response Message: SR-8503-NFPA 70-2024

Public Comment No. 666-NFPA 70-2024 [Definition: Motion Picture Sound Stage.]

Second Revision No. 8541-NFPA 70-2024 [Definition: Patient Care Space Category.]

Patient Care Space Category.

Any space of a health care facility wherein patients are intended to be examined or treated. [**99:**3.3.~~145~~ 150] (517) (CMP-15)

Informational Note No. 1: The health care facility's governing body designates patient care space in accordance with the type of patient care anticipated.

Informational Note No. 2: Business offices, corridors, lounges, day rooms, dining rooms, or similar areas typically are not classified as patient care spaces. [**99:**A.3.3.~~145~~ 150]

Category 1 Space (Category 1).

Space in which failure of equipment or a system is likely to cause major injury or death of patients, staff, or visitors. [**99:**3.3.~~140~~ 150 .1] (CMP-15)

Informational Note: These spaces, formerly known as critical care rooms, are typically where patients are intended to be subjected to invasive procedures and connected to line-operated, patient care–related appliances. Examples include, but are not limited to, special care patient rooms used for critical care, intensive care, and special care treatment rooms such as angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, post-anesthesia care units, trauma rooms, and other similar rooms.~~[99: A.3.3.140.1]~~

Category 2 Space (Category 2).

Space in which failure of equipment or a system is likely to cause minor injury to patients, staff, or visitors. [**99:**3.3.~~140~~ 150 .2] (CMP-15)

Informational Note: These spaces were formerly known as general care rooms. Examples include, but are not limited to, inpatient bedrooms, dialysis rooms, in vitro fertilization rooms, procedural rooms, and similar rooms.~~[99: A.3.3.140.2]~~

Category 3 Space (Category 3).

Space in which the failure of equipment or a system is not likely to cause injury to patients, staff, or visitors but can cause discomfort. [**99:**3.3.~~140~~ 150 .3] (517) (CMP-15)

Informational Note: These spaces, formerly known as basic care rooms, are typically where basic medical or dental care, treatment, or examinations are performed. Examples include, but are not limited to, examination or treatment rooms in clinics, medical and dental offices, nursing homes, and limited care facilities.~~[99: A.3.3.140.3]~~

Category 4 Space (Category 4).

Space in which failure of equipment or a system is not likely to have a physical impact on patient care. [**99:**3.3.~~140~~ 150 .4] (517) (CMP-15)

Informational Note: These spaces were formerly known as support rooms. Examples of support spaces include, but are not limited to, anesthesia work rooms, sterile supply, laboratories, morgues, waiting rooms, utility rooms, and lounges.~~[99: A.3.3.140.4]~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 15:09:15 EDT 2024

Committee Statement

Committee Statement: The changes made are per NFPA's extract policy.
Response Message: SR-8541-NFPA 70-2024

Second Revision No. 8504-NFPA 70-2024 [Definition: Road Show Connection Panel.]

Road Show Connection Panel.

A type of ~~patch~~ panel designed to allow for road show connection of portable stage switchboards to fixed lighting outlets by means of permanently installed supplementary circuits. (520) (CMP-15)

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 11:50:45 EDT 2024

Committee Statement

Committee Statement: The term “patch” is removed from the definition because upon review it was determined to add no value or clarification. This revision improves usability.

Response Message: SR-8504-NFPA 70-2024

Public Comment No. 502-NFPA 70-2024 [Definition: Road Show Connection Panel.]

Second Revision No. 8510-NFPA 70-2024 [Section No. 120.110]

120.110 Receptacle Loads.

Receptacle loads calculated in accordance with 120.14(H) and 120.14(I) and supplied by branch circuits not exceeding 150 volts to ground shall be permitted to be subjected to the demand factors provided in Table 120.110 for health care facilities.

Informational Note No. ~~1~~ 1 : See ~~Article 100 for the definitions of patient care space categories. Informational Note No. 2: See~~ 120.14(I) for the calculation of receptacle outlet loads.

Table 120.110 Demand Factors for Receptacles Supplied by General-Purpose Branch Circuits in Health Care Facilities

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First 10,000 or less	100
-	-
Remainder over 10,000	20

Supplemental Information

File Name	Description	Approved
2023-10-09-PresentationToCMP15-TaskGroup.pdf	The attachment is a report presented to the committee and is added substantiation.	
load_in_hospitals_112223.pdf	The attachment is added substantiation.	

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 12:50:16 EDT 2024

Committee Statement

Committee Statement: Health care facilities and the associated spaces needed to deliver health care to the patient are the purview of Code Making Panel 15 in that health care facilities, including their associated administrative, office, and support spaces, which are defend-in-place occupancies.

Administrative, office and support spaces in other occupancies are less defined than health care office space. Health care offices are distributed throughout the health care occupancy and not delineated as separate office / health care / patient care space. Administrative, office, and support spaces in other occupancies is designed to accommodate unknown equipment being introduced into those spaces, whereas in health care administrative support spaces, equipment loads are known.

Entire health care facility loads are documented in the research submitted and presented by Dr. Ehsan Mousavi (Clemson University) at the First Draft Meeting, and have been evaluated by the committee. Data supports the demand factors proposed in

the First Revision and that they apply to all areas of healthcare facilities. These recommended demand factors have been studied before, during, and after the pandemic.

Supporting data:

Electrical Load in Hospitals a Statistical Approach, Dr. Ehsan Mousavi

Health Care Plug Load Research, by Mazzetti, Presented to CMP-15 on October 9, 2023

Electric Circuit Data Collection: An Analysis of Health Care Facilities by Troy Savage, Walt Vernon, PE, and Eric Nimer, PE, Mazzetti, 1 Feb 2022 (Fire Protection Research Foundation Report)

Evaluation of Electrical Feeder and Branch Circuit Loading: Phase 1 by Tammy Gammon, Ph.D., P.E., 1 Jan 2017 (Fire Protection Research Foundation Report)

Response Message: SR-8510-NFPA 70-2024

Public Comment No. 708-NFPA 70-2024 [Section No. 120.110]

Second Revision No. 8518-NFPA 70-2024 [Section No. 120.111]

120.~~111~~ ~~Specific Appliance Loads.~~

~~Receptacle loads~~

111 Patient Care-Related Electrical Equipment.

120 volt-20 amp branch circuits that supply patient care-related electrical equipment and are calculated in accordance with 120.14(A) ~~and supplied by branch circuits not exceeding 150 volts to ground~~ shall be permitted to be subjected to the demand factors provided in Table 120.111 for health care facilities.

Table 120.~~111 Specific Appliance~~ 111 Specific Patient Care-Related Electrical Use Demand Factor for Health Care Facilities

Number of Circuits	Demand Factor (%)
Largest 0–10	100
11 or more	30

Supplemental Information

File Name	Description	Approved
2023-10-09-PresentationToCMP15-TaskGroup.pdf	This attachment is added information for the substantiation. For ballot	
load_in_hospitals_11-22-23-90.pdf	This attachment is added information for the substantiation. For ballot	
NEC_CMP-15_SR-8518_120.111.docx	For prod use	

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 13:31:41 EDT 2024

Committee Statement

Committee Statement: Health care facilities and patient care-related electrical equipment needed to deliver health care to the patient are the purview of Code Making Panel 15 in that health care facilities, including their associated administrative, office, and support spaces, which are defend-in-place occupancies.

Administrative, office and support spaces in other occupancies are less defined than health care office space. Health care offices are distributed throughout the health care occupancy and not delineated as separate office / health care / patient care space. Administrative, office, and support spaces in other occupancies is designed to accommodate unknown equipment being introduced into those spaces, whereas in health care administrative support spaces, equipment loads are known.

Entire health care facility loads are documented in the research submitted and presented by Dr. Ehsan Mousavi (Clemson University) at the First Draft Meeting and have been evaluated by the committee. Data supports the demand factors proposed in

the First Revision and that they apply to all areas of healthcare facilities. These recommended demand factors have been studied before, during, and after the pandemic.

This revision was made based on both the data presented and information from the Correlating Committee. Although the data recommends application to all appliances, the committee accepts the proposed limitation from the Correlating Committee, which applies only to patient related equipment, for this cycle.

Supporting data:

Electrical Load in Hospitals a Statistical Approach, Dr. Ehsan Mousavi

Health Care Plug Load Research, by Mazzetti, Presented to CMP-15 on October 9, 2023

Electric Circuit Data Collection: An Analysis of Health Care Facilities by Troy Savage, Walt Vernon, PE, and Eric Nimer, PE, Mazzetti, 1 Feb 2022 (Fire Protection Research Foundation Report)

Evaluation of Electrical Feeder and Branch Circuit Loading: Phase 1 by Tammy Gammon, Ph.D., P.E., 1 Jan 2017 (Fire Protection Research Foundation Report)

Response Message: SR-8518-NFPA 70-2024

Public Comment No. 709-NFPA 70-2024 [Section No. 120.111]

Second Revision No. 8362-NFPA 70-2024 [New Section after 517.1]

517.4 Electrical Service.

(A) Additional Sources.

In addition to off-site utility provided electrical service, the following sources shall be permitted to supplement the service to supply the entire electrical load for the facility based on reliability:

(1) Power Production Equipment

(2) Fuel Cell Systems

(3) Energy Storage Systems

(4) Health Care Microgrid

(B) Capacity of Systems.

The systems shall have the capacity and rating to meet the maximum

actual demand likely to be produced by the connected load on the system. Demand calculations for

sizing of the systems shall be based on any of the following:

(1) Prudent demand factors and historic data.

(2) Connected load.

(3) Feeder calculations.

(4) Any combination of the above.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 12:05:36 EDT 2024

Committee Statement

Committee Statement: This revision provides the ability for microgrids to act as a source on either side of the transfer switch. This correlates with NFPA 99. The requirements are included in 517.4 to meet the NFPA Style Manual.

Response Message: SR-8362-NFPA 70-2024

Public Comment No. 1270-NFPA 70-2024 [New Part after I.]

Second Revision No. 8439-NFPA 70-2024 [Section No. 517.6]

517.6 ~~Patient Care–Related Electrical~~ 3 . Reconditioned Equipment.

~~The reconditioning requirements of this code shall not apply to patient care–related electrical equipment~~

A) Permitted to be Installed.

The installation of the following reconditioned equipment shall be permitted.

(1) Patient Care Related Electrical Equipment

(2) Patient Care Related Electrical EquipmentAs permitted by other sections of this code .

Informational Note No. 1: Patient care–related electrical equipment is differentiated from electrical equipment as described in 110.21(A)(2).

Informational Note No. 2: If patient care–related electrical equipment is relocated, it is expected to be recommissioned or recertified in accordance with the U.S. *Federal Food, Drug, and Cosmetic Act (FDCA)*.~~Informational Note No. 3: *Patient care–related electrical equipment* is defined in NFPA 99-2024, *Health Care Facilities Code* , 3.3.144, as an electrical equipment appliance that is intended to be used for diagnostic, therapeutic, or monitoring purposes in a patient care vicinity.~~

(B) Not Permitted to be Installed. (Reserved)

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8439_517.6.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:40:26 EDT 2024

Committee Statement

Committee Statement: This revision relocates the reconditioning requirements previously included under Patient-Care Related Electrical Equipment to 517.3 for consistency with other articles and better compliance with the NEC Style Manual. Article 100 includes the definition of patient care-related electrical equipment and a reference to NFPA 99 is no longer needed.

Response Message: SR-8439-NFPA 70-2024

Public Comment No. 777-NFPA 70-2024 [Section No. 517.6]

Public Comment No. 668-NFPA 70-2024 [Section No. 517.6]

517.6 ~~Patient Care–Related Electrical~~Reconditioned Equipment. [Move to 517.3]

~~The reconditioning requirements of this code shall not apply to patient care–related electrical equipment.~~

(A) Permitted to be Installed.

The installation of the following reconditioned equipment shall be permitted.

(1) Patient Care Related Electrical Equipment

(2) Patient Care Related Electrical Equipment as permitted by other sections of this code.

Informational Note No. 1: Patient care–related electrical equipment is differentiated from electrical equipment as described in 110.21(A)(2).

Informational Note No. 2: If patient care–related electrical equipment is relocated, it is expected to be recommissioned or recertified in accordance with the U.S. *Federal Food, Drug, and Cosmetic Act (FDCA)*.

~~Informational Note No. 3: *Patient care–related electrical equipment* is defined in NFPA 99-2024, *Health Care Facilities Code*, 3.3.144, as an electrical equipment appliance that is intended to be used for diagnostic, therapeutic, or monitoring purposes in a patient care vicinity.~~

(B) Not Permitted to be Installed. (Reserved)

Second Revision No. 8378-NFPA 70-2024 [Section No. 517.10(B)]

(B) Not Covered.

Article 517, Part II, shall not apply to the following:

(1) Spaces not intended for direct patient care

(2) Spaces of nursing homes and limited care facilities wired in accordance with Chapters 1 through 4 of this code where these spaces are used exclusively as patient sleeping rooms, as determined by the health care facility's governing body

Informational Note No. 1: See 406.26(5) for receptacles located in health care facility business offices, corridors, and waiting rooms that are required to be tamper resistant.

Informational Note No. 2: See 210.12(D) for branch circuits supplying outlets and receptacles located in patient sleeping rooms in nursing homes and limited care facilities that are connected to arc-fault circuit-interrupter circuits.

(3) Spaces used exclusively for any of the following purposes:

(4) Intramuscular (IM), subcutaneous (SC), and intradermal (ID) injections (immunizations)

(5) Psychiatry and psychotherapy

(6) Alternative medicine

(7) Optometry

(8) Pharmacy services not contiguous to health care facilities

Informational Note No. 3: See NFPA 101-2024, *Life Safety Code* .

Informational Note No. 4: Intravenous (IV) infusions and transfusions, epidural infusions, and intraosseous (OS) injections are not considered to be intramuscular (IM), subcutaneous (SC), or intradermal (ID) injections, and are considered medical procedures accompanied by greater patient risk. IV infusions and transfusions are not considered to be alternative medicine.

Informational Note No. 5: See ~~517.8~~ NFPA 99 for definitions of patient care space categories.

~~Informational Note No. 6: Spaces that provide direct patient care may need to meet the grounding and bonding requirements of this section when procedures are performed that provide a direct electrical pathway to the heart. NFPA 99-2024, *Health Care Facilities Code* , 3.3.43, defines direct electrical pathway to the heart as an externalized conductive pathway, insulated except at its ends, one end of which is in direct contact with heart muscle while the other is outside the body and is accessible for inadvertent or intentional contact with grounded objects or energized, ground-referenced sources. Electrodes, such as those used for pacing the heart, and catheters filled with conductive fluids are examples of direct electrical pathways to the heart.~~

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8378_517.10_B_.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 13:39:53 EDT 2024

Committee Statement

Committee Statement: Informational note 4 includes defined terms in the health care field that help delineate the types of services offered and conditions where article 517 would not be applied.

Informational note 5 was revised to direct users to NFPA 99, which provides more detail on this requirement.

Informational note 6 was removed because it is a performance requirement and is already covered by NFPA 99.

Response Message: SR-8378-NFPA 70-2024

Public Comment No. 783-NFPA 70-2024 [Section No. 517.10(B)]

Public Comment No. 669-NFPA 70-2024 [Section No. 517.10(B)]

(B) Not Covered.

Article 517, Part II, shall not apply to the following:

1. Spaces not intended for direct patient care
2. Spaces of nursing homes and limited care facilities wired in accordance with Chapters 1 through 4 of this code where these spaces are used exclusively as patient sleeping rooms, as determined by the health care facility's governing body

Informational Note No. 1: See 406.26(5) for receptacles located in health care facility business offices, corridors, and waiting rooms that are required to be tamper resistant.

Informational Note No. 2: See 210.12(D) for branch circuits supplying outlets and receptacles located in patient sleeping rooms in nursing homes and limited care facilities that are connected to arc-fault circuit-interrupter circuits.

3. Spaces used exclusively for any of the following purposes:
    1. Intramuscular (IM), subcutaneous (SC), and intradermal (ID) injections (immunizations)
    2. Psychiatry and psychotherapy
    3. Alternative medicine
    4. Optometry
    5. Pharmacy services not contiguous to health care facilities

Informational Note No. 3: See NFPA 101-2024, *Life Safety Code*.

Informational Note No. 4: Intravenous (IV) infusions and transfusions, epidural infusions, and intraosseous (OS) injections are not considered to be intramuscular (IM), subcutaneous (SC), or intradermal (ID) injections, and are considered medical procedures accompanied by greater patient risk. IV infusions and transfusions are not considered to be alternative medicine.

Informational Note No. 5: See ~~517.8~~NFPA 99 for definitions of patient care space categories.

~~Informational Note No. 6: Spaces that provide direct patient care may need to meet the grounding and bonding requirements of this section when procedures are performed that provide a direct electrical pathway to the heart. NFPA 99-2024, *Health Care Facilities Code*, 3.3.43, defines direct electrical pathway to the heart as an externalized conductive pathway, insulated except at its ends, one end of which is in direct contact with heart muscle while the other is outside the body and is accessible for inadvertent or intentional contact with grounded objects or energized, ground-referenced sources. Electrodes, such as those used for pacing the heart, and catheters filled with conductive fluids are examples of direct electrical pathways to the heart.~~

Second Revision No. 8379-NFPA 70-2024 [Section No. 517.13(A)]

(A) Wiring Methods.

All branch circuits serving patient care spaces shall be provided with an effective ground-fault current path by installation in a metal raceway system or a cable having a metallic armor or sheath assembly including metallic outlet boxes, device boxes, junction boxes, fittings and other wiring enclosures . The metal raceway system, metallic cable armor, or sheath assembly shall itself qualify as an equipment grounding conductor in accordance with 250.118.

~~Informational Note: A metal raceway system includes outlet boxes, device boxes, junction boxes, and other wiring enclosures~~

and 250.109(A) .

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8379_517.13_A_.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 13:43:44 EDT 2024

Committee Statement

Committee Statement: The section was modified to define the entire equipment grounding system and all of its potential components. These requirements should not be left to interpretation in the form of an informational note.

Response Message: SR-8379-NFPA 70-2024

Public Comment No. 679-NFPA 70-2024 [Section No. 517.13(A)]

(A) Wiring Methods.

All branch circuits serving patient care spaces shall be provided with an effective ground-fault current path by installation in a metal raceway system or a cable having a metallic armor or sheath assembly~~.~~ including metallic outlet boxes, device boxes, junction boxes, fittings and other wiring enclosures. The metal raceway system, metallic cable armor, or sheath assembly shall itself qualify as an equipment grounding conductor in accordance with 250.118~~.~~ and 250.109(A).

~~Informational Note: A metal raceway system includes outlet boxes, device boxes, junction boxes, and other wiring enclosures.~~

Second Revision No. 8366-NFPA 70-2024 [New Section after 517.14]

517.15 Multiwire Branch Circuits.

The branch circuit serving life safety lighting and power circuits shall not be part of a multiwire branch circuit.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 12:17:03 EDT 2024

Committee Statement

Committee Statement: This revision adds an important requirement that was inadvertently removed when section 517.26 was modified to identify that Article 700 does not apply to health care facilities.

Response Message: SR-8366-NFPA 70-2024

Public Comment No. 1786-NFPA 70-2024 [New Section after 517.14]

Second Revision No. 8445-NFPA 70-2024 [Section No. 517.14]

517.14 Panelboard Enclosure Bonding.

The equipment grounding terminal buses of the normal and essential branch-circuit panelboards serving the same individual patient care vicinity shall be connected together with an insulated continuous copper conductor not smaller than 10 AWG. Where two or more ~~enclosed panelboards~~ panelboard enclosures serving the same individual patient care vicinity are served from separate transfer switches on the essential electrical system, the equipment grounding terminal buses of those panelboard enclosures shall be connected together with an insulated continuous copper conductor not smaller than 10 AWG. This conductor shall be permitted to be broken in order to terminate on the equipment grounding terminal bus in each panelboard enclosure.

Exception: The insulated continuous copper conductor not smaller than 10 AWG shall be permitted to be terminated on listed connections to aluminum or copper busbars not smaller than 6 mm thick × 50 mm wide (¼ in. thick × 2 in. wide) and of sufficient length to accommodate the number of terminations necessary for the bonding of the panelboards enclosure. The busbar shall be securely fastened and installed in an accessible location.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 19:15:44 EDT 2024

Committee Statement

Committee Statement: The committee reviewed each use of “panelboard” and made one change. See 517.14 changed to “Panelboard enclosure” to align with defined terms.

Response Message: SR-8445-NFPA 70-2024

Second Revision No. 8385-NFPA 70-2024 [Section No. 517.17(B)]

(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 protective devices or other protective equipment that causes the feeder disconnecting means to open.

Ground-fault protection of equipment with automatic disconnecting means shall not be ~~required on alternate power supply sources, between alternate power supply~~ required between on-site power sources or set of power sources and any essential electrical system transfer switch, or on the load side of any essential electrical system transfer switch.~~[99: 6.7.2.1.2.1]~~

Ground-fault indication without automatic disconnection shall be provided at any on-site power source. [**99:**6.7.2.1.2.2]

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 13:56:44 EDT 2024

Committee Statement

Committee Statement: The undefined term “alternate power supply” is replaced with the term “on-site power sources or set of on-site power sources”. The extract bracket has been removed because this change has not been accepted by the NFPA 99 ELS Committee and is therefore not part of NFPA 99.

Response Message: SR-8385-NFPA 70-2024

Public Comment No. 1067-NFPA 70-2024 [Section No. 517.17(B)]

Second Revision No. 8386-NFPA 70-2024 [Section No. 517.20(A)]

(A) Receptacles and Fixed Equipment.

Wet procedure locations shall be provided with special protection against electric shock. [**99:**6.3.2.3.1]

Special protection shall be provided by one of the following:

(1) Isolated power systems that remain in operation in the event of a single line-to-ground fault condition that inherently limits the possible ground-fault current due to a first fault to a low value, without interrupting the power supply

Informational Note No. 1: Isolated power systems can eliminate the danger of electric shock to patients who might be more susceptible to leakage current and unable to move in their beds.

(2) Power distribution system in which the power supply is interrupted if the ground-fault current does, in fact, exceed the trip value of a Class A GFCI [**99:**6.3.2.3.2(2)]

(3) Where GFCI protection is used in an operating room, one of the following shall apply:

(4) Each receptacle shall be an individual GFCI device.

(5) Each receptacle shall be individually protected by a single GFCI device.

[**99:**6.3.2.3.9]

Informational Note No. 2 to (2) and (3): See ANSI/UL 943-2018, *Ground-Fault Circuit-Interrupters*, Annex E, and 110.3(B) for the manufacturers' installation instructions of listed GFCIs for information on the supply connection of life-support equipment to circuits providing GFCI protection of personnel at outlets.

(6) ~~See Annex E of ANSI/UL 943-2018, *Ground-Fault Circuit-Interrupters* , and 110.3(B) for the manufacturers' installation instructions of listed ground-fault circuit interrupters for information on the supply connection of life-support equipment to circuits providing ground-fault circuit-interrupter (GFCI) protection of personnel at outlets.~~

Exception: Branch circuits supplying only listed, fixed, therapeutic, and diagnostic equipment shall be permitted to be supplied from a grounded service, single- or 3-phase system if the following conditions are met:

(1) Wiring for grounded and isolated circuits does not occupy the same raceway.

(2) All conductive surfaces of the equipment are connected to an insulated copper equipment grounding conductor.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 13:59:41 EDT 2024

Committee Statement

Committee Statement: Item (4) is addressed in informational note 2 and not needed as a requirement.

Response Message: SR-8386-NFPA 70-2024

Public Comment No. 661-NFPA 70-2024 [Section No. 517.20(A)]

Second Revision No. 8388-NFPA 70-2024 [Section No. 517.25]

517.25 Essential Electrical Systems for Health Care Facilities.

Type 1 and Type 2 essential electrical systems (EES) for health care facilities shall comprise 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~~ effective facility operation during the time ~~normal~~ electrical service is interrupted for any reason.

Informational Note: See NFPA 99-2024, *Health Care Facilities Code*, for information on essential electrical systems.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 14:01:04 EDT 2024

Committee Statement

Committee Statement: This revision more accurately describes the function of essential electrical systems at healthcare facilities. The text was also revised

to remove the term “normal electrical service” as this is an undefined term. This revision correlates with changes being made to NFPA 99.

Response Message: SR-8388-NFPA 70-2024

Public Comment No. 1283-NFPA 70-2024 [Section No. 517.25]

Second Revision No. 8369-NFPA 70-2024 [New Section after 517.26]

517.28 Signs.

(A) On-site Sources.

A sign shall be placed at the service-entrance equipment, indicating type and location of each on-site power source.

Exception: A sign shall not be required for Battery-Equipped Emergency Luminaires.

(B) Grounding.

Where removal of a grounding or bonding connection in a power source equipment interrupts the grounding electrode conductor connection to another power source(s) grounded conductor, a warning sign shall be installed stating:

WARNING

SHOCK HAZARD EXISTS IF GROUNDING

ELECTRODE CONDUCTOR OR BONDING JUMPER

CONNECTION IN THIS EQUIPMENT IS REMOVED

WHILE ANOTHER SOURCE(S) IS ENERGIZED.

The warning sign(s) or label(s) shall comply with 110.21(B).

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 12:34:07 EDT 2024

Committee Statement

Committee Statement: This revision Aadds an important requirement that was inadvertently removed when section 517.26 was modified to clearly identify that Article 700 does not apply to health care facilities.

Response Message: SR-8369-NFPA 70-2024

Public Comment No. 1794-NFPA 70-2024 [New Section after 517.25]

Second Revision No. 8415-NFPA 70-2024 [Section No. 517.29]

517.29 Type 1 Essential Electrical Systems (EESs).

~~Type 1 essential electrical systems (EESs~~

~~) shall comply with 517.29(A) and 517.29(B) .~~

(A) Applicability.

(1) The requirements of 517.29 through 517.35 shall apply to Type 1 EESs.

(2) Type 1 systems shall be permitted to serve Category 2, Category 3, and Category 4 spaces.

(3) Type 1 EESs shall be permitted to serve Category 2, Category 3, and Category 4 spaces.

(B) Category 1 Spaces. Category 1 spaces shall not only be served by a Type 12 EES. [99:6.4.12]

~~The requirements of 517.29 through 517.35 shall apply to Type 1 EESs. Type 1 systems shall be required for Category 1 spaces. Type 1 systems shall be permitted to serve Category 2, Category 3, and Category 4 spaces.~~

Informational Note: Type 1 essential electrical systems (EESs) 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.6.7.5.1]

~~**(A)** Applicability.~~

Informational Note No. ~~1~~ 2 : See NFPA 99-2024, *Health Care Facilities Code*, for performance, maintenance, and testing requirements of EESs in hospitals. See NFPA 20-2022, *Standard for the Installation of Stationary Pumps for Fire Protection*, for installation of centrifugal fire pumps.

Informational Note No. ~~2~~ 3 : See NFPA 99-2024, *Health Care Facilities Code*, 6.7.5 and 6.7.6, for additional information on Type 1 and Type 2 EESs.

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

Category 1 spaces shall be served by a Type 1 EES. [**99:**6.4.1]

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

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8415_517.29.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 17:34:00 EDT 2024

Committee Statement

Committee Statement: The revision clarifies the content of this section by creating a list for the requirements, removes redundant language that Category 1 spaces be served by a Type 1 EES,

	relocates the informational notes after the requirements, and uses the acronym EES for consistency throughout the code.
Response Message:	SR-8415-NFPA 70-2024

Public Comment No. 34-NFPA 70-2024 [Section No. 517.29]

517.29 Type 1 Essential Electrical Systems (EESs).

~~Type 1 essential electrical systems (EESs) shall comply with 517.29(A) and 517.29(B).~~

Informational Note No. 1: Type 1 essential electrical systems (EESs) 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.6.7.5.1]

Commented [SB1]: Move IN under (B)

(A) Applicability.

~~The requirements of 517.29 through 517.35 shall apply to Type 1 EESs. Type 1 systems shall be required for Category 1 spaces. Type 1 systems shall be permitted to serve Category 2, Category 3, and Category 4 spaces.~~

(1)

The requirements of 517.29 through 517.35 shall apply to Type 1 EESs.

(2)

Type 1 systems shall be ~~required for Category 1~~permitted to serve Category 2, Category 3, and Category 4 spaces.

(3)

Type 1 EESs~~systems~~ shall be permitted to serve Category 2, Category 3, and Category 4 spaces.

(B) Category 1 Spaces.

Category 1 spaces shall not only be served by a Type 12 EES. [**99:**6.4.12]

Informational Note No. ~~1~~2: See NFPA 99-2024, *Health Care Facilities Code*, for performance, maintenance, and testing requirements of EESs in hospitals. See NFPA 20-2022, *Standard for the Installation of Stationary Pumps for Fire Protection*, for installation of centrifugal fire pumps.

Informational Note No. ~~2~~3: See NFPA 99-2024, *Health Care Facilities Code*, 6.7.5 and 6.7.6, for additional information on Type 1 and Type 2 EESs.

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

Category 1 spaces shall be served by a Type 1 EES. [**99:**6.4.1]

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

Second Revision No. 8392-NFPA 70-2024 [Section No. 517.30(A)]

(A) Independent Power Sources.

EES loads shall be served by two or more independent sources ~~(~~ or sets of ~~sources). One source (or sets of sources)~~ power sources and sets of feeders designed to ensure the sufficient reliability to provide effective facility operation consistent with the facility's emergency operations plan. At least one power source shall be on-site ~~power production equipment, storage components, or a combination~~ and sized to supply the entire EES. The additional power source(s) shall be permitted to be either on-site or off-site.

Informational Note: An example of a set of sources may be several generators that when combined serve the entire EES.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 14:16:06 EDT 2024

Committee Statement

Committee Statement: This revision correlates with changes being made to NFPA 99.

Response Message: SR-8392-NFPA 70-2024

Public Comment No. 1869-NFPA 70-2024 [Section No. 517.30(A)]

Second Revision No. 8372-NFPA 70-2024 [New Section after 517.30(D)]

(E)

Essential electrical systems utilizing a single on-site power source shall include a permanent switching means to connect a portable or temporary on-site power source that is available for the duration of the servicing and that complies with all of the following requirements:

(1) The connection shall be provided to support equipment sized to match or exceed the single largest on-site power source.

(2) The connection to the portable or temporary on-site power source shall not require modification of the permanent system wiring.

(3) Transfer of power to the portable or temporary on-site power source shall be in accordance with 517.32.

(4) The connection point for the portable or temporary on-site power source shall be marked with the phase rotation and system bonding requirements, a sequence of operation for temporary connection, and instructions for integration of start signal and annunciation wiring.

(5) Mechanical or electrical interlocking shall prevent inadvertent interconnection of power sources.

(F)

Essential systems utilizing more than one power sources shall comply with all of the following when any single on-site power source is disabled for service:

(1) The essential electrical system shall include means for the connection of a portable or temporary on-site power source without modification to permanent system wiring or equipment. The temporary connection shall be sized to accommodate the largest power source.

(2) A documented sequence of operation for this connection and method for the connection of a portable or temporary on-site power source shall be permanently located at the connection point. The connection shall be sized to support the capacity of the load intended to be served.

(3) Integration of temporary power sources shall not impede the operation of the remaining operational on-site power sources or the timing of transfer switch operation as specified in 517.32. Mechanical or electrical interlocking shall prevent inadvertent interconnection of power sources.

(4) The connection point for the portable or temporary on-site power source shall be marked with the phase rotation, system bonding requirements and instructions for integration of start signal and annunciation wiring.

Exception: Essential Systems with multiple power sources that have capacity to support the demand load of the life safety, critical, and delayed automatic equipment branch with the largest power source disabled shall not be required to comply with this section.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 12:55:09 EDT 2024

Committee Statement

Committee Statement: This revision adds an important requirement that was inadvertently removed when section 517.26 was modified at the First Draft stage to identify that Article 700 does not apply to health care facilities. The language was modified to include health care systems with multiple on-site power sources. The revision addresses both the single source and the complexities of multiple sources in a healthcare system. This requirement was written as sub-bullets (E) and (F) to avoid the potential to allow a temporary power source to be used in place of one of the listed sources in (B).

Response Message: SR-8372-NFPA 70-2024

Public Comment No. 1880-NFPA 70-2024 [New Section after 517.30(B)(4)]

Public Comment No. 1284-NFPA 70-2024 [Section No. 517.30]

Second Revision No. 8398-NFPA 70-2024 [Section No. 517.31(A)]

(See attached word doc for added informational note and figure.)

(A) Separate Branches.

Type 1 EESs shall be comprised of three separate branches — life safety, critical, and equipment — capable of supplying a limited amount of lighting and power service that is considered essential for life safety and effective hospital operation.

The division between the branches shall occur at transfer switches where more than one transfer switch is required. [**99:**6.7.2.2.1]

Supplemental Information

File Name	Description	Approved
CMP-15_SR-8398.docx		
CMP-15_SR-8398_517.31_A_.docx	For prod use	

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 14:37:30 EDT 2024

Committee Statement

Committee Statement: New diagram provides a expansive view of what is possible and is therefore more accurate. This revision correlates with changes being made to NFPA 99. The diagram from NFPA 99 was modified to call attention to the utilities on either side of the transfer switch and a key was added with further explanation. The changes reflect the special provisions regarding utilities, that are addressed in the section.

Response Message: SR-8398-NFPA 70-2024

Public Comment No. 1290-NFPA 70-2024 [Section No. 517.31(A)]

517.31 Requirements for the Essential Electrical System.

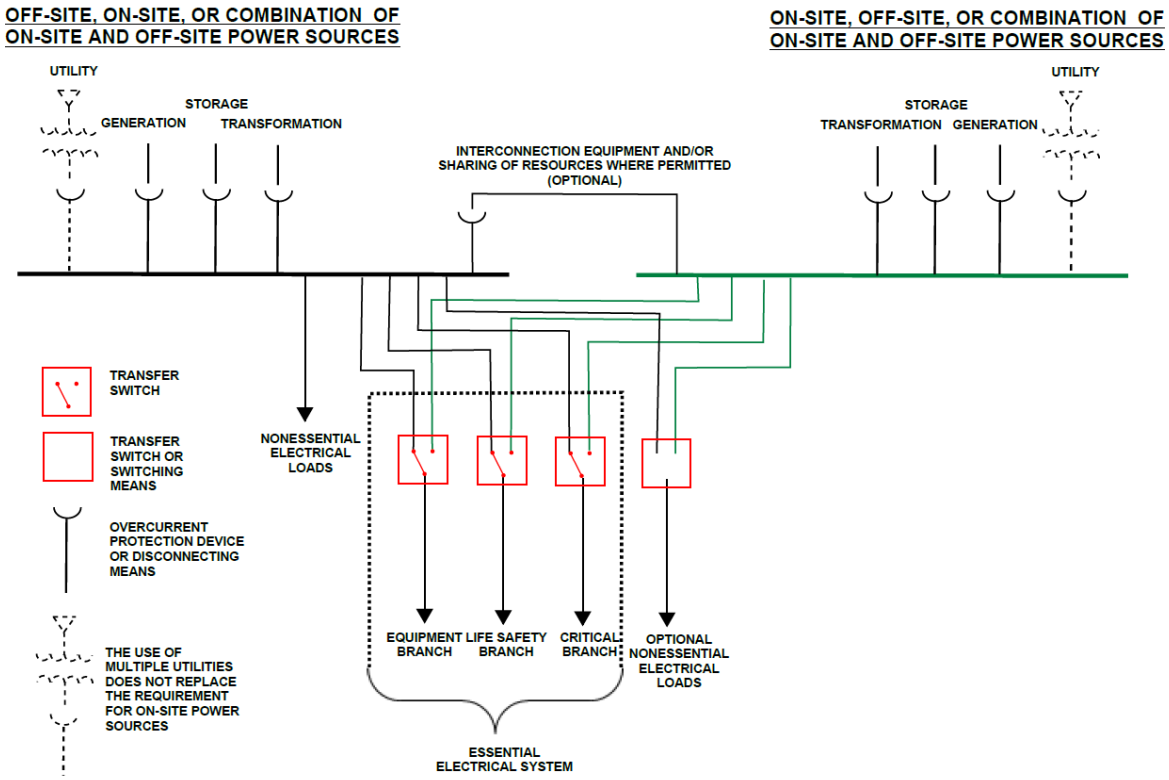
(A) Separate Branches.

Type 1 EESs shall be comprised of three separate branches — life safety, critical, and equipment — capable of supplying a limited amount of lighting and power service that is considered essential for life safety and effective hospital operation.

The division between the branches shall occur at transfer switches where more than one transfer switch is required. [**99:**6.7.2.2.1]

Informational Note 1: See Figure Informational Note 517.31(A).

Figure Informational Note 517.31(A) On-Site, Off-Site, or Combination of On-Site and Off-Site Source Configuration.



Second Revision No. 8407-NFPA 70-2024 [Section No. 517.31(B) [Excluding any Sub-Sections]]

Transfer switches shall comply with one of the following:

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

(2) One transfer switch shall be permitted to serve one or more branches in a facility with a continuous essential electrical system load ~~on the switch~~ of 150 kVA (120 kW) or less. [**99:**6.7.2.2.3, 6 .7. 2.2.3.1]

Informational Note No. 1: See NFPA 99-2024, *Health Care Facilities Code*, 6.7.3.1, 6.7.2.2.5, 6.7.2.2.5.15, and 6.7.2.2.7, for more information on transfer switches.

Informational Note No. 2: See Figure Informational Note 517.31(B)(1).

Informational Note No. 3: See Figure Informational Note 517.31(B)(2).

Figure Informational Note 517.31(B)(1) Type 1 EES — Minimum Requirement (Greater Than 150 kVA) for Transfer Switch Arrangement.

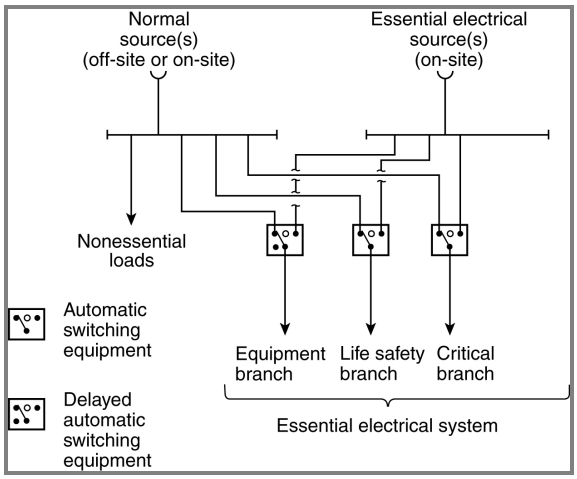
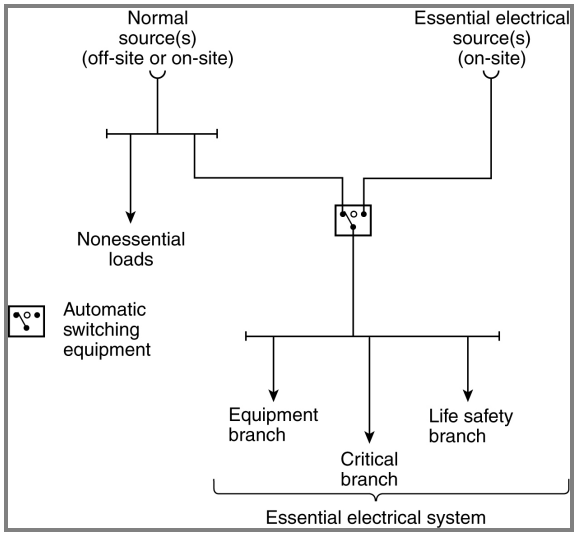


Figure Informational Note 517.31(B)(2) Type 1 EES — Minimum Requirement (150 kVA or Less) for Transfer Switch Arrangement.



Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 16:40:23 EDT 2024

Committee Statement

Committee Statement:	The revision Uupdates extracted text to align with NFPA 99. This revision corrects language that could be misinterpreted to mean it is permissible to use multiple transfer switches that mix the branches as long as the load in each transfer switch is kept below 150kVA..
Response Message:	SR-8407-NFPA 70-2024

Public Comment No. 1068-NFPA 70-2024 [Section No. 517.31(B) [Excluding any Sub-Sections]]

Public Comment No. 1285-NFPA 70-2024 [Section No. 517.31(B)]

Second Revision No. 8417-NFPA 70-2024 [Section No. 517.33]

517.~~33~~ ~~Automatic Connection to~~ 33 Life Safety Branch.

(A)– Connections to Life Safety Branch.

The life safety branch shall be limited to circuits essential to life safety. [**99:**6.7.5.1.2.1]

No functions other than those listed in 517.33(A)(1)through 517.33(A)(7) shall be connected to the life safety branch. The life safety branch shall supply power as follows:

(1) 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

Informational Note: SeeNFPA 101-2024, *Life Safety Code*, Sections 7.8 and 7.9.

(2) Exit signs and exit directional signs

Informational Note: See NFPA 101-2024, *Life Safety Code*, Section 7.10.

(3) Alarm and alerting systems, as follows:

(4) Fire alarm systems shall be required.

(5) Alarm and alerting systems (other than fire alarm systems) shall be connected to the life safety branch or critical branch. [**99:** 6.7.5.1.2.3]

(6) Alarms shall be required for systems used for the piping of nonflammable medical gases.

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

(8) Communications systems for the following:

(9) Communications systems, where used for issuing instructions during emergency conditions [**99:** 6.7.5.1.2.2(3)]

(10) Where used, emergency responder radio communication systems (ERRCs)

(11) Generator set locations, as follows:

(12) Task illumination

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

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

[**99:**6.7.5.1.2.2(4)]

(15) Elevator cab lighting, control, communications, and signal systems [**99:**6.7.5.1.2.2(5)]

(16) Electrically powered doors used for building egress [**99:**6.7.5.1.2.2(6)]

(B) Illumination of Means of Egress.

Switching arrangements to transfer patient corridor lighting in hospitals from general illumination circuits to night illumination circuits shall be permitted if only one of two circuits can be selected and both circuits cannot be extinguished at the same time.

(C) 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 the output terminals of the generator with overcurrent protective devices. [**99:**6.7.5.1.2.4]

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8417_517.33.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 17:44:30 EDT 2024

Committee Statement

Committee Statement: The title was changed to keep consistency with the other sections. Item (A) was revised to be more descriptive and reflective of the content and to avoid repetition of the title of the section.

The rest of Public Comment 1070 has no corresponding Public Input submitted to CMP-15 during the first draft stage of the code-making process. Under the regulations governing development of codes and standards, this comment is considered new material and therefore, rejected

Response Message: SR-8417-NFPA 70-2024

Public Comment No. 662-NFPA 70-2024 [Section No. 517.33]

Public Comment No. 1070-NFPA 70-2024 [Section No. 517.33]

517.33 ~~Automatic Connection to~~ Life Safety Branch.

(A) Connections to Life Safety Branch.

The life safety branch shall be limited to circuits essential to life safety. [**99:**6.7.5.1.2.1]

No functions other than those listed in 517.33(A)(1)through 517.33(A)(7) shall be connected to the life safety branch. The life safety branch shall supply power as follows:

1. 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

Informational Note: SeeNFPA 101-2024, *Life Safety Code*, Sections 7.8 and 7.9.

2. Exit signs and exit directional signs

Informational Note: See NFPA 101-2024, *Life Safety Code*, Section 7.10.

3. Alarm and alerting systems, as follows:
    1. Fire alarm systems shall be required.
    2. Alarm and alerting systems (other than fire alarm systems) shall be connected to the life safety branch or critical branch. [**99:**6.7.5.1.2.3]
    3. Alarms shall be required 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.
4. Communications systems for the following:
    1. Communications systems, where used for issuing instructions during emergency conditions [**99:**6.7.5.1.2.2(3)]
    2. Where used, emergency responder radio communication systems (ERRCs)
5. 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:**6.7.5.1.2.2(4)]

6. Elevator cab lighting, control, communications, and signal systems [**99:**6.7.5.1.2.2(5)]
7. Electrically powered doors used for building egress [**99:**6.7.5.1.2.2(6)]

(B) Illumination of Means of Egress.

Commented [SB1]: Add space

Commented [SB2]: Add space

Switching arrangements to transfer patient corridor lighting in hospitals from general illumination circuits to night illumination circuits shall be permitted if only one of two circuits can be selected and both circuits cannot be extinguished at the same time.

(C) 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 the output terminals of the generator with overcurrent protective devices. [**99:**6.7.5.1.2.4]

Second Revision No. 8422-NFPA 70-2024 [Section No. 517.35(B)]

(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 on-site power source:

(1) Heating equipment used to provide heating for operating, delivery, labor, recovery, intensive care, and coronary care spaces; nurseries; infection/isolation rooms; emergency treatment spaces; and general patient rooms and pressure maintenance (i.e., jockey or make-up) pumps for water-based fire protection systems [**99:**6.7.5.1.4.4(1)]

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: See ASHRAE *Handbook on Fundamentals* (2013) Chapter 24, which shows the outside design temperature is based on the 97.5 percent design values.

Informational Note No. 2: See 517.30(D) for a description of a dual source of normal power.

(2) Elevator(s) selected to provide service to patient, surgical, obstetrical, and ground floors during interruption of normal power [**99:**6.7.5.1.4.4(3)]

(3) Supply, return, and exhaust ventilating systems for surgical and obstetrical delivery suites; intensive care and coronary care spaces; nurseries; and emergency treatment spaces [**99:**6.7.5.1.4.4(4)]

(4) Hyperbaric facilities [**99:**6.7.5.1.4.4(5)]

(5) Hypobaric facilities [**99:**6.7.5.1.4.4(6)]

(6) ~~Automatically operated doors~~

(7) Autoclaving equipment, which is permitted to be arranged for either automatic or manual connection to the alternate source [**99:** 6.7.5.1.4.4(7)]

(8) Controls for equipment listed in 517.35 [**99:**6.7.5.1.4.4(8)]

(9) Other selected equipment [**99:**6.7.5.1.4.4(9)]

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:00:05 EDT 2024

Committee Statement

Committee Statement: Removing the requirement for non-egress automatic doors to be connected to equipment for delayed automatic or manual connection correlates with NFPA 99.

Response Message: SR-8422-NFPA 70-2024

Public Comment No. 1287-NFPA 70-2024 [Section No. 517.35(B)]

Second Revision No. 8423-NFPA 70-2024 [Section No. 517.41(A)]

(A) Independent Power Sources.

EES loads shall be served by two or more independent sources ~~(~~ or sets of ~~sources). One source (or sets of sources) shall be on-site power production equipment, storage components, or a combination~~ power sources and sets of feeders designed to ensure the sufficient reliability to provide effective facility operation consistent with the facility's emergency operations plan. At least one power sourceshall be on-site and sized to supply the entire EES. The additional power source(s) shall be permitted to be either on-site or off-site.

Informational Note: An example of a set of sources may be several generators that when combined serve the entire EES.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:09:14 EDT 2024

Committee Statement

Committee Statement: This revision correlates with changes being made to NFPA 99

Response Message: SR-8423-NFPA 70-2024

Public Comment No. 1873-NFPA 70-2024 [Section No. 517.41(A)]

Second Revision No. 8409-NFPA 70-2024 [Section No. 517.42(B)]

(B) Transfer Switches.

Transfer switches shall comply with one of the following:

(1) The number of transfer switches to be used shall be based upon reliability, design, and load considerations. [**99:** 6.7.2.2.3]Transfer switches shall comply with one of the following: Each branch of the essential electrical system shall have one or more transfer switches.
[**99:** 6.7. 6. 2. 1.1, 6.7.6. 2. 1. 3 .1]

(2) One transfer switch shall be permitted to serve one or more branches in a facility with a continuous essential electrical system load

on the switch
of 150 kVA (120 kW) or less.

[**99:** 6.7.2.2.3.2]

Informational Note No. 1: See NFPA 99-2024, *Health Care Facilities Code*, 6.7.2.2.4, 6.7.2.2.5, 6.7.2.2.5.15, and 6.7.2.2.7 for more information on transfer switches.

Informational Note No. 2: See Figure Informational Note 517.42(B)(1).

Informational Note No. 3: See Figure Informational Note 517.42(B)(2).

Figure Informational Note 517.42(B)(1) Type 2 EESs (Nursing Home and Limited Health Care Facilities) — Minimum Requirement (Greater Than 150 kVA) for Transfer Switch Arrangement.

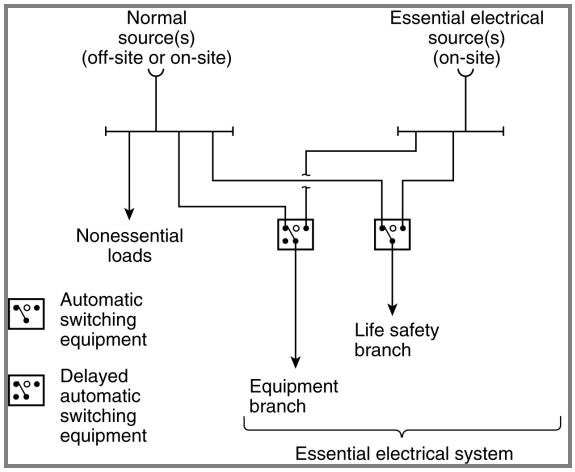
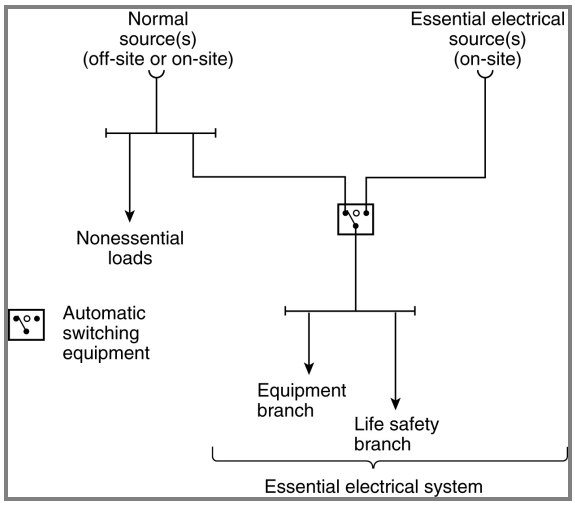


Figure Informational Note 517.42(B)(2) Type 2 EESs (Nursing Home and Limited Health Care Facilities) — Minimum Requirement (150 kVA or Less) for Transfer Switch Arrangement.



Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8409_517.42_B_.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 16:45:28 EDT 2024

Committee Statement

Committee Statement: This revision updates extracted text in (B)(1) to align with NFPA 99 and is reformatted for consistency with 517.31(B). This revisions corrects language that could be misinterpreted to mean it is permissible to use multiple transfer switches that mix the branches as long as the load in each transfer switch is kept below 150kVA.

Response Message: SR-8409-NFPA 70-2024

Public Comment No. 1298-NFPA 70-2024 [Section No. 517.42(B)]

Second Revision No. 8424-NFPA 70-2024 [Section No. 517.42(D)]

(D) Separation from Other Circuits.

The life safety branch and equipment branch shall be kept entirely independent of all other wiring and equipment. [**99:**6.7.6.3.1]

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

(2) **Circuit Separation.** These circuits shall not enter the same raceways, boxes, or cabinets with other wiring except as follows:

(1) In transfer switches

(2) In exit or emergency luminaires supplied from two sources

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

Supplemental Information

File Name	Description	Approved
NEC_CMP-15_SR-8424_517.42_D_.docx		

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:12:25 EDT 2024

Committee Statement

Committee Statement: This revision correlates Type 2 EES requirements with Type 1 requirements found in 517.31(C)(1).

Response Message: SR-8424-NFPA 70-2024

Public Comment No. 1771-NFPA 70-2024 [Section No. 517.42(D)]

Second Revision No. 8542-NFPA 70-2024 [Section No. 517.42(E)]

(E) Receptacle Identification.

The electrical receptacles or the cover plates for the electrical receptacles supplied from the life safety ~~or~~ and equipment branches shall have a distinctive color or marking so as to be readily identifiable. [**99:**6.7.6.3.2]

Informational Note: If color is used to identify these receptacles, the same color should be used throughout the facility. [**99:**A.6.7.6.3.2]

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 15:33:14 EDT 2024

Committee Statement

Committee Statement: Updated the language to align with NFPA 99.

Response Message: SR-8542-NFPA 70-2024

Second Revision No. 8427-NFPA 70-2024 [Section No. 517.43]

517.43 Automatic Connection to Life Safety Branch.

(A) Life Safety Branch.

The life safety ~~branches shall~~ branch shall be installed and connected to the on-site power specified in 517.41 so that all functions specified herein for the life safety ~~branches are~~ branch are automatically restored to operation within 10 seconds after interruption of power. [**99:**6.7.6.4.1]

No functions other than those listed in 517.43(B)(1) through 517.43(B)(6) shall be connected to the life safety branch. [**99:**6.7.6.2.1.5(B)]

The life safety branch shall supply power as follows:

(1) Illumination of means of egress as is necessary for corridors, passageways, stairways, landings, and exit doors and all ways of approach to exits

Informational Note: See NFPA 101-2024, *Life Safety Code*, Sections 7.8 and 7.9.

(2) Exit signs and exit directional signs

Informational Note: See NFPA 101-2024, *Life Safety Code*, Section 7.10 and NFPA 99-2024, *Health Care Facilities Code*, 6.7.6.2.1.5(2).

(3) Alarm and alerting systems, including the following:

(4) Fire alarms

Informational Note No. 1: See NFPA 99-2024, *Health Care Facilities Code*, 6.7.6.2.1.5(3)(a).

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

Informational Note No. 2: See NFPA 99-2024, *Health Care Facilities Code*, 6.7.5.1.2.5.

(6) Communications systems for the following:

a. Communications systems, where used for issuing instructions during emergency conditions [**99:**6.7.6.2.1.5(A)(3)]

b. Emergency responder radio communication systems (ERRCs)

(7) Task illumination and select receptacles at the generator set location and essential electrical system transfer switch locations

(8) Elevator cab lighting, control, communications, and signal systems [**99:**6.7.6.2.1.5(A)(6)]

(9) Equipment for Nondelayed-Automatic Connection. Generator accessories including, but not limited to, the transfer fuel pump, electrically operated for louvers, and other generator accessories essential for generator operation shall be arranged for automatic connection to the on-site power source.

(B) Illumination of Means of Egress.

Switching arrangement to transfer patient corridor lighting from general illumination circuits shall be permitted if only one of two circuits can be selected and both circuits cannot be extinguished at the same time.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:17:40 EDT 2024

Committee Statement

Committee Statement: Loads support generator operation and should be connected to the Life Safety Branch. This revision is in alignment with changes proposed to the next edition of NFPA 99 but cannot formally be extracted at this time.

Response Message: SR-8427-NFPA 70-2024

Public Comment No. 1177-NFPA 70-2024 [Section No. 517.43]

Public Comment No. 1180-NFPA 70-2024 [Section No. 517.44]

Second Revision No. 8437-NFPA 70-2024 [Section No. 517.44 [Excluding any Sub-Sections]]

The equipment branch shall be installed and connected to the on-site power source such that equipment ~~described~~ listed in 517.44(~~B~~ A) is automatically restored to operation at appropriate time-lag intervals following the ~~energizing~~ restoration of the life safety ~~branches~~ branch to operation . [**99:**6.7.~~5~~ 6 .2. 1.~~4.2~~ 6 (A)]

The equipment branch arrangement shall also provide for the additional connection of equipment listed in 517.44(C).

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

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 18:37:05 EDT 2024

Committee Statement

Committee Statement: This revision matches extracted text in NFPA 99 with the exception that the reference to 517.44 requirements no longer exists on the equipment branch and has been moved to the life safety branch.

Response Message: SR-8437-NFPA 70-2024

Public Comment No. 1288-NFPA 70-2024 [Section No. 517.44]

Second Revision No. 8449-NFPA 70-2024 [Section No. 517.160(A)(4)]

(4) Isolation Transformers.

An isolation transformer shall not serve more than one operating room and associated induction rooms except as covered in 517.160(A)(4)(a) and 517.160(A)(4)(b).

Informational Note: For purposes of this section, anesthetic induction rooms are ~~considered~~ typically part of the operating room or rooms served by the induction rooms.

(a) *Induction Rooms.* Where an induction room serves more than one operating room, the isolated circuits of the induction room shall be permitted to be supplied from the isolation transformer of any one of the operating rooms served by that induction room.

(b) *Higher Voltages.* Isolation transformers shall be permitted to serve single receptacles in several patient areas where the following apply:

(3) The receptacles are reserved for supplying power to equipment requiring 150 volts or higher between conductors , such as portable X-ray units.

(4) The receptacles and mating plugs are not interchangeable with the receptacles on the local isolated power system.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 19:24:46 EDT 2024

Committee Statement

Committee Statement: This revision provides consistency and alignment where other voltage limitations, such as 600 volts between conductors, are used. Associated induction rooms requirements were moved to the charging statement so that the informational note would be in compliance with the NEC Style Manual.

Response Message: SR-8449-NFPA 70-2024

Public Comment No. 670-NFPA 70-2024 [Section No. 517.160(A)(4)]

Second Revision No. 8459-NFPA 70-2024 [Section No. 518.6(B)]

(B) ~~Communications Systems,~~ Signaling Systems, Data Systems, and Fire Alarm Systems.

Fixed wiring methods for specific installations shall be as follows:

(1) Audio signal processing, amplification, and reproduction equipment — 640.9

(2) ~~Communications systems — Article~~ ~~805~~ ~~, Part IV, and Article~~ ~~840~~ ~~, Part VI~~

(3) Class 2 and Class 3 remote control and signaling circuits — Article 725~~, Part II~~

(4) Class 2 circuits that transmit power, data, or both to a powered ~~device~~ ~~device~~ ~~— Article 725~~

(5) Fire Alarm Systems—Article 760, Part III

Informational Note: See ANSI/NEMA C137.3-2017, *American National Standard for Lighting Systems — Minimum Requirements for Installation of Energy Efficient Power over Ethernet (PoE) Lighting Systems*, for information on installation of cables for PoE lighting systems.~~ See Article~~ ~~760~~ ~~, Part III, for information on fire alarm circuits.~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:04:33 EDT 2024

Committee Statement

Committee Statement: Fire Alarm Systems were moved from the informational note into the list as it is a mandatory requirement.

The removal of subparagraph (2) correlated with revisions to Articles 805 and 840.

Response Message: SR-8459-NFPA 70-2024

Public Comment No. 671-NFPA 70-2024 [Section No. 518.6(B)]

Second Revision No. 8460-NFPA 70-2024 [Sections 518.7(A)(1), 518.7(A)(2)]

Sections 518.7(A)(1), 518.7(A)(2)

(1) Overcurrent Protection.

Power outlets and commercial appliance outlet centers shall provide overcurrent protection or be protected by ~~overcurrent devices~~ OCPDs .

(2) Accessibility.

~~Overcurrent devices~~ OCPDs , power outlets, and commercial appliance outlet centers shall not be accessible to the general public.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:09:40 EDT 2024

Committee Statement

Committee Statement: The term Overcurrent Protective Device(s) has been replaced with OCPDs for consistency with the code as recommended in the report.

Response Message: SR-8460-NFPA 70-2024

Second Revision No. 8461-NFPA 70-2024 [Section No. 518.8]

518.8 Illumination.

Illumination shall be provided for all working spaces about fixed service equipment, switchboards, switchgear, ~~enclosed panelboards~~ panelboard enclosure , or motor control centers installed outdoors that serve assembly occupancies. Control by automatic means only shall not be permitted. Additional lighting outlets shall not be required where the workspace is illuminated by an adjacent light source.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:11:29 EDT 2024

Committee Statement

Committee Statement: The committee reviewed each use of “panelboard” and revised instances to align with defined terms.

Response Message: SR-8461-NFPA 70-2024

Second Revision No. 8463-NFPA 70-2024 [Section No. 520.2]

520.2 Listing Requirements.

The following equipment shall be listed:

(1) Fixed stage switchboards

(2) Curtain machines

(3) Portable stage switchboards

(4) Single-pole portable cable connectors

(5) Arc lamps and associated ballasts

(6) Portable power distribution units

(7) ~~Trunk cables, breakout assemblies, and multicircuit enclosures~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:16:34 EDT 2024

Committee Statement

Committee Statement: This revision correlates to the changes made at First Draft to 520.68(D)(4) because the listing requirement changed to “listed or approved.”

Response Message: SR-8463-NFPA 70-2024

Public Comment No. 852-NFPA 70-2024 [Section No. 520.2]

Second Revision No. 8465-NFPA 70-2024 [Section No. 520.5(B)]

(B) ~~Communications Systems,~~ Signaling Systems, Data Systems, and Fire Alarm Systems.

Fixed wiring methods for specific installations shall be as follows:

(1) Audio signal processing, amplification, and reproduction equipment — 640.9

(2) ~~Communications systems — Article 800 , Parts I and IV; Article 805 , Part IV; and Article 840 , Part VI~~

(3) Class 2 and Class 3 remote control and signaling circuits — Article 725~~, Part II~~

(4) Class 2 circuits that transmit power, data, or both to a powered device — Article 725

(5) Fire Alarm Systems—Article 760, Part III

Informational Note: See ANSI/NEMA C137.3-2017, *American National Standard for Lighting Systems — Minimum Requirements for Installation of Energy Efficient Power over Ethernet (PoE) Lighting Systems*, for information on installation of cables for PoE lighting systems. ~~See Article 760 , Part III, for information on fire alarm circuits.~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:23:27 EDT 2024

Committee Statement

Committee Statement: Fire Alarm Systems were moved from the informational note into the list as it is a mandatory requirement.

The removal of subparagraph (2) correlated with revisions to Articles 805 and 840.

Response Message: SR-8465-NFPA 70-2024

Public Comment No. 673-NFPA 70-2024 [Section No. 520.5(B)]

Second Revision No. 8464-NFPA 70-2024 [Section No. 520.44(C)(2)]

(2) Cords and Cables Not in Contact with Heat-Producing Equipment.

Listed multiconductor extra-hard usage type cords and cables not in direct contact with equipment containing heat-producing elements shall be permitted to have their ampacity determined by Table 520.44(C)(2)(1). Maximum load current in any conductor with an ampacity determined by Table 520.44(C)(2)(1) shall not exceed the values in Table 520.44(C)(2)(1).

Table 520.44(C)(2)(1) Ampacity of Listed Extra-Hard Usage Cords and Cables with Temperature Ratings of 75°C (167°F) and 90°C (194°F) [Based on Ambient Temperature of 30°C (86°F)]

Size (AWG)	Temperature Rating of Cords and Cables		Maximum Rating of ~~Overcurrent Device~~ OCPD
	75°C (167°F)	90°C (194°F)	
14	24	28	15
12	32	35	20
10	41	47	25
8	57	65	35
6	77	87	45
4	101	114	60
2	133	152	80

Note: Ampacity shown shall be the ampacity for multiconductor cords and cables where only three copper conductors are current-carrying in accordance with 400.5. If the number of current-carrying conductors in a cord or cable exceeds three and the load diversity is 50 percent or less, the ampacity of each conductor shall be reduced as shown in Table 520.44(C)(2)(2). Load diversity shall be the percentage of the total current of all simultaneously energized circuits fed by the cable to the sum of the ampacities of all pairs of circuit conductors in that cable.

Table 520.44(C)(2)(2) Ampacity Adjustment Factors for More Than Three Current-Carrying Conductors in a Cord or Cable Where Load Diversity Is 50 Percent or Less

Number of Conductors	Percent of Ampacity Value in Table 520.44(C)(2)(a)
4–6	80
7–24	70
25–42	60
43 and above	50

Note: Ultimate insulation ~~temperature. In~~ 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.

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 counted as a current-carrying conductor.

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

~~Informational Note No. 1: A neutral conductor that carries only the unbalanced current from other conductors of the same circuit need not be considered a current-carrying conductor.~~

~~Informational Note No. 2: For the purposes of Table 520.44(C)(2)(1) , load diversity is the percentage of the total current of all simultaneously energized circuits fed by the cable to the sum of the ampacities of all pairs of circuit conductors in that cable.~~

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:19:51 EDT 2024

Committee Statement

Committee Statement: This revision reduces redundancy and ensures the requirement is mandatory language.

Response Message: SR-8464-NFPA 70-2024

Public Comment No. 677-NFPA 70-2024 [Section No. 520.44(C)(2)]

Second Revision No. 8468-NFPA 70-2024 [Section No. 520.50]

520.50 Road Show Connection Panel- ~~(A Type of Patch Panel)~~ .

Road show connection panels, supplementary circuits, and outlets shall comply with 520.50(A) through 520.50(D).

(A) Load Circuits.

Circuits shall originate from grounding-type polarized inlets of current and voltage rating that match the fixed-load receptacle.

(B) Circuit Transfer.

Circuits that are transferred between fixed and portable switchboards shall have all circuit conductors transferred simultaneously.

(C) Overcurrent Protection.

The supply devices of these supplementary circuits shall be protected by branch-circuit overcurrent protective devices. Each supplementary circuit, within the road show connection panel and theater, shall be protected by branch-circuit overcurrent protective devices installed within the road show connection panel.

(D) Enclosure.

Panel construction shall comply with Article 408, Part IV.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:30:37 EDT 2024

Committee Statement

Committee Statement: The phrase “A Type of Patch Panel” is removed from both this section title and the term definition because upon review was determined to add no value or clarification. This revision improves usability.

Response Message: SR-8468-NFPA 70-2024

Second Revision No. 8467-NFPA 70-2024 [Section No. 520.68(D)]

(D) Special-Purpose Multicircuit Cable Systems.

Special-purpose multicircuit cable systems shall comply with the following requirements:

(1) Branch circuits shall be rated at not more than 20 amperes and not more than 150 volts to ground.

(2) Trunk cable types shall be extra-hard usage (hard service) or hard usage (junior hard service).

(3) The ampacity of trunk cables shall be determined in accordance with Table 520.44(C)(2)(1).

(4) Trunk cables, breakout assemblies, and multicircuit enclosures shall be listed or approved.

(5) Section 406.12(F) shall not apply to multicircuit, multipole plugs or receptacles that are part of a special-purpose multicircuit cable system.

(6) When deployed, all multicircuit, multipole connectors shall be clearly marked to uniquely identify the pinout configuration type of the connector and the voltage of the branch circuits serviced by the connector.

(7) Only qualified persons shall deploy and operate special-purpose multicircuit cable systems.

Informational Note: See ANSI/ ESTA E1.80-~~202X~~ 2024 for information on pinout configuration types.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Thu Oct 24 20:27:39 EDT 2024

Committee Statement

Committee Statement: This revision updates the ANSI reference, which was published on 9/20/2024 and available from ANSI on 9/20/2024.

Response Message: SR-8467-NFPA 70-2024

Public Comment No. 678-NFPA 70-2024 [Section No. 520.68(D)]

Second Revision No. 8540-NFPA 70-2024 [Section No. 525.20]

525.~~20~~ ~~Wiring Methods~~ 20 Requirements .

(A) Type.

Where flexible cords or cables are used, they shall be listed for extra-hard usage. Where flexible cords or cables are used and are not subject to physical damage, they shall be permitted to be listed for hard usage. Where used outdoors, flexible cords and cables shall also be listed for wet locations and be sunlight resistant. Extra-hard usage flexible cords or cables shall be permitted for use as permanent wiring on portable amusement rides and attractions where not subject to physical damage.

(B) Single-Conductor.

Single-conductor cable shall be permitted only in sizes 2 AWG or larger.

(C) Open Conductors.

Open conductors shall be prohibited except as part of listed assemblies or festoon lighting installed in accordance with Article 225, Part I.

(D) Splices.

Flexible cords or cables shall be continuous without splices or taps between boxes or fittings.

(E) Cord Connectors.

Cord connectors shall not be laid on the ground unless listed for wet locations. Connectors and cable connections shall not be placed in audience traffic paths or within areas accessible to the public unless guarded.

(F) Support.

Wiring for amusement rides, attractions, tents, or similar structures shall not be supported by any other ride or structure unless specifically designed for the purpose.

(G) Protection.

Flexible cords or cables accessible to the public shall comply with the following:

(1) They shall be arranged to minimize the tripping hazard.

(2) They shall be permitted to be covered with nonconductive matting secured to the walkway surface or protected with another approved cable protection method if the matting or other protection method does not constitute a greater tripping hazard than the uncovered cables.

(3) Burying cables shall be permitted.

(4) The requirements of 300.7 shall not apply.

(H) Boxes and Fittings.

Boxes or fittings shall be installed at each connection point, outlet, switchpoint, or junction point in accordance with 300.15.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 15:03:18 EDT 2024

Committee Statement

Committee Statement: This revision improves usability by differentiating stacked titles.
Response Message: SR-8540-NFPA 70-2024

Second Revision No. 8490-NFPA 70-2024 [Section No. 525.31]

525.31 Equipment Grounding.

The equipment grounding conductor shall be connected to the system grounded conductor at the service disconnecting means or, in the case of a separately derived system such as a generator, at the generator or first disconnecting means supplied by the generator.

Exception: 525.31 shall not apply to portable generators used in accordance with 445.20(A) Exception.

Submitter Information Verification

Committee: NEC-P15

Submittal Date: Fri Oct 25 11:24:12 EDT 2024

Committee Statement

Committee Statement: When portable generators are used under the Exception to 445.20(A) the system grounded conductor need not be bonded to the equipment grounding conductor, and that allowance should be reiterated in 525.31.

Response Message: SR-8490-NFPA 70-2024

Public Comment No. 1323-NFPA 70-2024 [Section No. 525.31]

Second Revision No. 8494-NFPA 70-2024 [Section No. 530.5]

530.5 Supervision by Qualified ~~Personnel~~ Persons .

Portable electrical equipment covered in this article, including portable distribution systems, generators, battery systems, and other portable power sources, shall be deployed, energized, and, while energized, operated and continuously supervised by trained, qualified, and employer-authorized ~~personnel~~ persons .

Exception: Continuous supervision shall not be required for utility-supplied portable distribution equipment that provides uninterrupted power to other than professional stage and studio equipment, or to production equipment requiring standby power during nonoperation.

Informational Note: Portable HVAC, mobile production trucks, portable UPS trailers, refrigerators, production support trailers, and portable substations are examples of equipment associated with other than professional stage and studio equipment. Lighting consoles, digital imaging technician (DIT) carts, and other information-technology-based equipment are examples of production equipment requiring standby power.

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Committee Statement

Committee Statement: This revision modifies language to align with a defined term

Response Message: SR-8494-NFPA 70-2024

Public Comment No. 683-NFPA 70-2024 [Section No. 530.4]

Second Revision No. 8499-NFPA 70-2024 [Section No. 530.6(B)]

(B) ~~Communications Systems,~~ Signaling Systems, Data Systems, and Fire Alarm Systems.

Permanent wiring methods for communications systems, signaling systems, data systems, fire alarm systems, and systems operating at less than 120 volts, nominal, shall comply with the following:

(1) Audio signal processing, amplification, and reproduction equipment — 640.9

(2) ~~Communications systems — Article 800 , Parts I and IV; Article 805 , Part IV; and Article 840 , Part IV~~

(3) Class 2 and Class 3 remote control and signaling circuits — Article 725~~, Part II~~

(4) Class 2 circuits that transmit power, data or both to a powered device — Article 725

(5) Fire Alarm Systems—Article 760, Part III

Informational Note: See ANSI/NEMA C137.3-2017, *American National Standard for Lighting Systems — Minimum Requirements for Installation of Energy Efficient Power over Ethernet (PoE) Lighting Systems,* for information on installation of cables for PoE lighting systems. ~~See Article 760 , Part III, for information on fire alarm circuits.~~

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Committee Statement

Committee Statement: Fire Alarm Systems were moved from the informational note into the list as it is a mandatory requirement.

The removal of subparagraph (2) correlated with revisions to Articles 805 and 840.

Response Message: SR-8499-NFPA 70-2024

Second Revision No. 8492-NFPA 70-2024 [Section No. 530.21(B)]

(B) Outdoor Use.

Portable stage and studio equipment and portable power distribution equipment not identified for outdoor use shall be permitted to be deployed outdoors if the equipment is supervised by qualified ~~personnel~~ persons while energized and barriered from the general public.

Informational Note No. 1: See ANSI/ESTA E1.58-2017 (R2022), *Electrical Safety Standard for Portable Stage and Studio Equipment Used Outdoors*, for information on the use of portable stage and studio equipment outdoors.

Informational Note No. 2: See ANSI/ESTA E1.19-2021, *Recommended Practice for the Use of Class A Ground-Fault Circuit Interrupters (GFCIs) Intended for Personnel Protection in the Entertainment Industry*, for guidance on the use of GFCIs in wet locations.

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Public Comment No. 684-NFPA 70-2024 [Section No. 530.21(B)]

Second Revision No. 8497-NFPA 70-2024 [Sections 530.71, 530.72]

Sections 530.71, 530.72

530.71 General.

Wiring and equipment in portable substations rated 50 to 1000 volts ac , 1500 volts dc, nominal, shall conform to the requirements of the sections applying to installations in permanently fixed substations. Where limited space is available, when approved, working spaces shall be permitted to be reduced where the following conditions apply:

(1) The equipment is arranged so that the qualified operator can work safely.

(2) The equipment is guarded so that other persons in the vicinity cannot accidentally come into contact with current-carrying parts or bring conducting objects into contact with them while they are energized.

530.72 Over 1000 Volts, Nominal.

Wiring and equipment of portable substations rated over 1000 volts ac , 1500 volts dc, nominal, shall comply with the requirements of Article ~~490~~ 495 , Part IV.

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Committee Statement

Committee Statement: This revision corrects the reference to Article 490 to the correct Article 495.

The voltage limits are revised to conform to with the global change in the First Draft, which made the requirements consistent throughout the code.

Response Message: SR-8497-NFPA 70-2024

Public Comment No. 191-NFPA 70-2024 [Section No. 530.72]

Public Comment No. 685-NFPA 70-2024 [Section No. 530.72]

Second Revision No. 8501-NFPA 70-2024 [Section No. 540.11(C)]

~~(C)~~ ~~Emergency Systems.~~

~~Control of emergency systems shall comply with Article~~ ~~700~~ ~~.~~

Submitter Information Verification

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Committee Statement

Committee Statement: This revision removes the redundant reference to Article 700, which brings the Article into compliancewith the NEC Style Manual

Response Message: SR-8501-NFPA 70-2024