Second Revision No. 7841-NFPA 70-2021 [Global Comment]

Please see attached Word file for CMP-1 changes to Definitions in Article 100 for style manual compliance and correlation issues.

Supplemental Information

File Name	Description	Approved
NEC_CMP1_100_SR7841.docx	For staff use	
CMP-1_Global_SR-7841_100_for_ballot.docx	For ballot	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 16:58:03 EDT 2021

Committee Statement

Committee Statement: CMP-1 has addressed the NEC Style Manual compliance issues in the definitions.

Response Message: SR-7841-NFPA 70-2021

Public Comment No. 637-NFPA 70-2021 [Global Input]

Global SR-7841 [CMP-1]

Connector, Pressure (Solderless). (Pressure Connector) A device that establishes a connection between two or more conductors or between one or more conductors and a terminal by means of mechanical pressure and without the use of solder. (CMP- 1)

Duty, Continuous. (Continuous Duty) Operation at a substantially constant load for an indefinitely long time. (CMP-1)

Duty, Intermittent. (Intermittent Duty) Operation for alternate intervals of (1) load and no load; or (2) load and rest; or (3) load, no load, and rest. (CMP-1)

Duty, Periodic. (Periodic Duty) Intermittent operation in which the load conditions are regularly recurrent. (CMP-1)

Duty, Short-Time. (Short-Time Duty) Operation at a substantially constant load for a short and definite, specified time. (CMP-1)

Duty, Varying. (Varying Duty) Operation at loads, and for intervals of time, both of which may be subject to wide variation. (CMP-1)

Dwelling, One-Family. (One-Family Dwelling) A building that consists solely of one dwelling unit. (CMP-1)

Dwelling, Two-Family. (Two-Family Dwelling) A building that consists solely of two dwelling units. (CMP-1)

Dwelling, Multifamily. (Multifamily Dwelling) A building that contains three or more dwelling units. (CMP-1)

Field Evaluation Body (FEB). An organization or part of an organization that performs field evaluations of electrical or other equipment. [**790**:3.3.4~~, 2018~~] (CMP-1)

Informational Note: See NFPA 790-2021~~18~~, *Standard for Competency of Third-Party Field Evaluation Bodies,* provides guidelines for establishing the qualification and competency of a body performing field evaluations of electrical products and assembles with electrical components.

Field Labeled (as applied to evaluated products). Equipment or materials to which has been attached a label, symbol, or other identifying mark of an FEB indicating the equipment or materials were evaluated and found to comply with requirements as described in an accompanying field evaluation report. [**790**:3.3.6~~, 2018~~] (CMP-1)

Location, Damp. (Damp Location) Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture. (CMP-1)

Informational Note: Examples of such locations include partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns, and some cold-storage warehouses.

Location, Dry. (Dry Location) A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction. (CMP-1)

Location, Wet. (Wet Location) A location that is one or more of the following:

(1) Unprotected and exposed to weather
(2) Subject to saturation with water and other liquids
(3) Underground
(4) In concrete slabs or masonry in direct contact with the earth

(CMP-1)

Informational Note: A vehicle washing area is an example of a wet location saturated with water or other liquids.

Premises Wiring (System). Interior and exterior wiring, including power, lighting, control, and signal circuit wiring together with all their associated hardware, fittings, and wiring devices, both permanently and temporarily installed. This includes one of the following:

(a1) ~~wiring~~ Wiring from the service point or power source to the outlets ~~or~~
(b2) ~~wiring~~ Wiring from and including the power source to the outlets where there is no service point.

Such wiring does not include wiring internal to appliances, luminaires, motors, controllers, motor control centers, and similar equipment. (CMP-1)

Informational Note: Power sources include, but are not limited to, interconnected or stand-alone batteries, solar photovoltaic systems, other distributed generation systems, or generators.

Qualified Person. One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. (CMP-1)

Informational Note: ~~Refer to~~ See NFPA *70E*-2021~~18~~, *Standard for Electrical Safety in the Workplace,* for electrical safety training requirements.

Second Revision No. 7706-NFPA 70-2021 [Detail]

[New section after 110.28]

110.29 In Sight From (Within Sight From, Within Sight).

Where this *Code* specifies that one equipment shall be "in sight from," "within sight from," or "within sight of" another equipment, the specified equipment shall be visible and not more than 15 m (50 ft) distant from the other.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 13:17:39 EDT 2021

Committee Statement

Committee Statement: A new requirement in 110.29 addresses "in sight from" for general use throughout the Code.

Response Message: SR-7706-NFPA 70-2021

Public Comment No. 18-NFPA 70-2021 [New Section after 110.16(B)]

Second Revision No. 7803-NFPA 70-2021 [Detail]

110.26(A)(6) Grade, Floor, or Working Platform.

The grade, floor, or platform in the required working space ~~in 110.26(A)(1), (A)(2), (A)(3), and (A)(5)~~ shall be kept clear, and the floor, grade, or platform in the working space shall be as level and flat as practical for the entire required depth and width of the working space.

Supplemental Information

File Name	Description	Approved
NEC_CMP1_110.26A6_SR7803.docx	Staff use	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 13:58:52 EDT 2021

Committee Statement

Committee Statement: The wording in 110.26(A)(6) and 110.34(A) is revised to correlate with each other to comply with the NEC Style Manual, Section 3.3.5, Parallel Construction. Also, the references to other parts of 110.26(A) have been removed for clarity.

Response Message: SR-7803-NFPA 70-2021

Public Comment No. 617-NFPA 70-2021 [Section No. 110.26(A)(5)]

Public Comment No. 1951-NFPA 70-2021 [Section No. 110.26(A)(6)]

Second Revision No. 7534-NFPA 70-2021 [Section No. 90.2(E)]

(E) Relation to Other International Standards.

The requirements in this *Code* address the fundamental principles of protection for safety contained in Section 131 of International Electrotechnical Commission Standard 60364-1, *Low-voltage Electrical Installations ~~of Buildings~~ – Part 1: Fundamental Principles, Assessment of General Characteristics, Definitions* .

Informational Note: See IEC 60364-1, *Low-voltage Electrical Installations – Part 1: Fundamental Principles, Assessment of General Characteristics, Definitions* , Section 131, ~~contains~~ for fundamental principles of protection for safety that encompass protection against electric shock, protection against thermal effects, protection against overcurrent, protection against fault currents, and protection against overvoltage. All of these potential hazards are addressed by the requirements in this *Code*.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Oct 13 13:09:06 EDT 2021

Committee Statement

Committee Statement: The title of IEC 60364-1 is revised for accuracy. The informational note is revised to comply with the NEC Style Manual.

Response Message: SR-7534-NFPA 70-2021

Public Comment No. 591-NFPA 70-2021 [Section No. 90.2(E)]

Second Revision No. 7537-NFPA 70-2021 [Section No. 90.7]

90.7 Examination of Equipment for Safety.

For specific items of equipment and materials referred to in this *Code*, examinations for safety made under standard conditions provide a basis for approval where the record is made generally available through promulgation by organizations properly equipped and qualified for experimental testing, inspections of the run of goods at factories, and service-value determination through field inspections. This avoids the necessity for repetition of examinations by different examiners, frequently with inadequate facilities for such work, and the confusion that would result from conflicting reports on the suitability of devices and materials examined for a given purpose.

It is the intent of this *Code* that factory-installed internal wiring or the construction of equipment need not be inspected at the time of installation of the equipment, except to detect alterations or damage, if the equipment has been listed by a qualified electrical testing laboratory that is recognized as having the facilities described in the preceding paragraph and that requires suitability for installation in accordance with this *Code*. Suitability shall be determined by application of requirements that are compatible with this *Code*.

Informational Note No. 1: See ~~requirements in~~ 110.3 for guidance on safety examinations .

Informational Note No. 2: ~~*Listed* is defined in~~ See Article 100 for definitions of *Listed* and *Reconditioned* .

Informational Note No. 3: See Informative Annex A for a list of product safety standards that are compatible with this *Code*.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Oct 13 13:16:24 EDT 2021

Committee Statement

Committee Statement: Informational Notes No.1 and 2 are revised to comply with the NEC Style Manual and to add “reconditioned” to note No. 2.

Response Message: SR-7537-NFPA 70-2021

Public Comment No. 584-NFPA 70-2021 [Section No. 90.7]

Public Comment No. 594-NFPA 70-2021 [Section No. 90.7]

Second Revision No. 7603-NFPA 70-2021 [Definition: In Sight From (Within Sight From, Within Sight).]

In Sight From (Within Sight From, Within Sight).

~~Where this *Code* specifies that one equipment shall be "in sight from," "within sight from," or "within sight of," and so forth, another equipment, the specified equipment is to be~~ Equipment that is visible and not more than 15 m (50 ft) distant from ~~the~~ other equipment is *in sight from* that other equipment . (CMP-1)

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Oct 13 17:48:36 EDT 2021

Committee Statement

Committee Statement: The definition was revised to comply with the NEC Style Manual. Section 2.2.2.2.

Response Message: SR-7603-NFPA 70-2021

Public Comment No. 50-NFPA 70-2021 [Definition: In Sight From (Within Sight From, Within Sight).]

Public Comment No. 649-NFPA 70-2021 [Definition: In Sight From (Within Sight From, Within Sight).]

Public Comment No. 1971-NFPA 70-2021 [Definition: In Sight From (Within Sight From, Within Sight).]

Second Revision No. 7582-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

~~**Industrial Establishment [as applied to hazardous (classified) locations].**~~

~~A building(s) or structure(s) approved for industrial use by the authority having jurisdiction with restricted access where the conditions of maintenance and engineering supervision ensure that only qualified persons design, install, operate, and service the installation. (CMP-14)~~

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Oct 13 16:45:28 EDT 2021

Committee Statement

Committee Statement: The term “industrial establishment” as used in the Code is well understood and does not need to be defined. The definition includes a requirement. The use of the term “industrial establishment” generally also includes conditions of maintenance and supervision ensure that only qualified persons service the installation.

Response Message: SR-7582-NFPA 70-2021

Public Comment No. 1953-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 1527-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 2133-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 2224-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 313-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 653-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Public Comment No. 1161-NFPA 70-2021 [Definition: Industrial Establishment [as applied to hazardo...]

Second Revision No. 7655-NFPA 70-2021 [Definition: Occupiable Space.]

~~**Occupiable Space.**~~

~~A room or enclosed space designed for human occupancy. (CMP-1)~~

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 10:37:17 EDT 2021

Committee Statement

Committee Statement: The definition for occupiable space that is used only one time in the Code is deleted.

Response Message: SR-7655-NFPA 70-2021

Public Comment No. 651-NFPA 70-2021 [Definition: Occupiable Space.]

Second Revision No. 7745-NFPA 70-2021 [Definition: Reconditioned.]

Reconditioned.

Electromechanical systems, equipment, apparatus, or components that are restored to operating conditions. This process differs from normal servicing of equipment that remains within a facility, or replacement of listed equipment on a one-to-one basis. (CMP-~~10~~ 1)

Informational Note: The term *reconditioned* is frequently referred to as *rebuilt*, *refurbished*, or *remanufactured*.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 16:10:41 EDT 2021

Committee Statement

Committee Statement: The definition for “reconditioned” has been assigned to CMP-1.

Response Message: SR-7745-NFPA 70-2021

Public Comment No. 1972-NFPA 70-2021 [Definition: Reconditioned.]

Second Revision No. 7743-NFPA 70-2021 [Definition: Servicing.]

Servicing.

The process of following a manufacturer's set of instructions or applicable industry standards to analyze, adjust, or perform prescribed actions upon equipment with the intention to preserve or restore the operational performance of the equipment. (CMP-1)

Informational Note: Servicing often encompasses maintenance and repair activities.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 16:05:53 EDT 2021

Committee Statement

Committee Statement: Industry standards such as NFPA 70B may be used a guide for servicing of equipment and therefore the definition is amended to include applicable industry standards in addition to manufacturer's instructions.

Response Message: SR-7743-NFPA 70-2021

Public Comment No. 1941-NFPA 70-2021 [Definition: Servicing.]

Second Revision No. 7702-NFPA 70-2021 [Definition: Voltage, Nominal.]

Voltage, Nominal. (Nominal Voltage)

A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (e.g., 120/240 volts, 480Y/277 volts, 600 volts). (CMP-1)

Informational Note No. 1: The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.

Informational Note No. 2: See ANSI C84.1-2011, *Voltage Ratings for Electric Power Systems and Equipment (60 Hz).*

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 13:01:13 EDT 2021

Committee Statement

Committee Statement: The searchable term “Nominal Voltage” was added in the title to comply with the NEC Style Manual.

Response Message: SR-7702-NFPA 70-2021

Public Comment No. 549-NFPA 70-2021 [Definition: Voltage, Nominal.]

Second Revision No. 7666-NFPA 70-2021 [Section No. 110.3(A)]

(A) Examination.

In judging equipment, considerations such as the following shall be evaluated:

(1) Suitability for installation and use in conformity with this *Code*

Informational Note No. 1: Equipment may be new, reconditioned, refurbished, or remanufactured.

Informational Note No. 2: Suitability of equipment use may be identified by a description marked on or provided with a product to identify the suitability of the product for a specific purpose, environment, or application. Special conditions of use or other limitations and other pertinent information may be marked on the equipment, included in the product instructions, or included in the appropriate listing and labeling information. Suitability of equipment may be evidenced by listing or labeling.

(2) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided

(3) Wire-bending and connection space

(4) Electrical insulation

(5) Heating effects under normal conditions of use and also under abnormal conditions likely to arise in service

(6) Arcing effects

(7) Classification by type, size, voltage, current capacity, and specific use

(8) Cybersecurity for network-connected life safety equipment to address its ability to withstand unauthorized updates and malicious attacks while continuing to perform its intended safety functionality

Informational Note No. 3: See the IEC 62443 series of standards for industrial automation and control systems, the UL 2900 series of standards for software cybersecurity for network-connectable products, and UL 5500, *Standard for Remote Software Updates* , which are standards that provide frameworks to mitigate current and future security cybersecurity vulnerabilities and address software integrity in systems of electrical equipment.

(9) Other factors that contribute to the practical safeguarding of persons using or likely to come in contact with the equipment

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 10:57:47 EDT 2021

Committee Statement

Committee Statement: Although a part of one existing requirement states that “other factors” should be evaluated as part of the required examination in judging equipment, a “cybersecurity for network-connected life-safety equipment, to address its ability to withstand unauthorized updates and malicious attacks while continuing to perform its intended safety functionality,” is justified as being specifically referenced as being required by the

examination requirements of 110.3(A). See NFPA 101: Life Safety Code for examples of life safety equipment.

Response Message: SR-7666-NFPA 70-2021

Public Comment No. 2143-NFPA 70-2021 [Section No. 110.3(A)]

Public Comment No. 348-NFPA 70-2021 [Section No. 110.3(A)]

Second Revision No. 7668-NFPA 70-2021 [Section No. 110.3(B)]

(B) Installation and Use.

Equipment that is listed, labeled, or both, or identified for a use shall be installed and used in accordance with any instructions included in the listing ~~or~~ , labeling, or identification .

Informational Note No. 1: The installation and use instructions may be provided in the form of printed material, quick response (QR) code, or the address on the internet where users can download the required instructions.

Informational Note No. 2: The installation and use instructions may not reduce the requirements in the *Code* .

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 11:06:30 EDT 2021

Committee Statement

Committee Statement: Not all equipment is listed or labeled and that installation instructions, if provided, should be used. See the definition of Identified (as applicable to equipment) in Article 100. The new informational note addresses any conflict that might exist in the installation or use instructions which should not circumvent Code requirements.

Response Message: SR-7668-NFPA 70-2021

Public Comment No. 1040-NFPA 70-2021 [Section No. 110.3(B)]

Public Comment No. 1533-NFPA 70-2021 [Section No. 110.3(B)]

Second Revision No. 7671-NFPA 70-2021 [Section No. 110.4]

110.4 Voltages.

~~Throughout this~~ ~~*Code*~~ ~~, the~~ The voltage considered shall be that at which the circuit operates. The voltage rating of electrical equipment shall not be less than the nominal voltage of a circuit to which it is connected.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 11:10:54 EDT 2021

Committee Statement

Committee Statement: The phrase “throughout this Code” is unnecessary.

Response Message: SR-7671-NFPA 70-2021

Public Comment No. 655-NFPA 70-2021 [Section No. 110.4]

Second Revision No. 7672-NFPA 70-2021 [Section No. 110.5]

110.5 Conductors.

Conductors used to carry current shall be of copper, aluminum, or copper-clad aluminum unless otherwise provided in this *Code*. ~~Where~~ If the conductor material is not specified, the sizes given in this *Code* shall apply to copper conductors. ~~Where~~ If other materials are used, the size shall be changed accordingly.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 11:13:01 EDT 2021

Committee Statement

Committee Statement: The modifications align with the NEC Style Manual; using the term “if” when stating a condition rather than a location is appropriate in this section.

Response Message: SR-7672-NFPA 70-2021

Public Comment No. 29-NFPA 70-2021 [Section No. 110.5]

Second Revision No. 7788-NFPA 70-2021 [Section No. 110.14(A)]

(A) Terminals.

Connection of conductors to terminal parts shall ensure a mechanically secure electrical connection without damaging the conductors and shall be made by means of pressure connectors (including set-screw type), solder lugs, or splices to flexible leads. ~~Terminal connections shall not be made to the drive surfaces of either wire-binding screws or set-screw-type pressure connectors.~~ ~~Terminal connections shall not rely solely upon friction, magnetic, or cantilevered-spring contact with wire-binding screws or set-screw-type pressure connectors.~~ Connection by means of wire-binding screws or studs and nuts that have upturned lugs or the equivalent shall be permitted for 10 AWG or smaller conductors.

Terminals for more than one conductor and terminals used to connect aluminum shall be so identified.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 11:03:46 EDT 2021

Committee Statement

Committee Statement: The deleted text was added by FR 8556. The revision to prevent the use of various types of connection methods may have the unintended consequence of conflicting with established equipment construction specifications. For example, the use of spring type contacts has been used for years in electrical switchgear for applications such as circuit breaker control power and potential transformers connections.

The word “electrical” was added to provide additional clarity about the connection.

CMP-1 considers certification of connection methods for equipment to be covered within the scope of Article 406 under the purview of CMP-18.

Response Message: SR-7788-NFPA 70-2021

Public Comment No. 246-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 174-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 1655-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 1727-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 1762-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 1944-NFPA 70-2021 [Section No. 110.14(A)]

Public Comment No. 1935-NFPA 70-2021 [Section No. 110.14(A)]

Second Revision No. 7793-NFPA 70-2021 [Sections 110.14(C), 110.14(D)]

(C) Temperature Limitations.

The temperature rating associated with the ampacity of a conductor shall be selected and coordinated so as not to exceed the lowest temperature rating of any connected termination, conductor, or device. Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both.

(1) Equipment Provisions.

The determination of termination provisions of equipment shall be based on 110.14(C)(1)(a) or (C)(1)(b). Unless the equipment is listed and marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table 310.16 as appropriately modified by 310.12.

(a) Termination provisions of equipment for circuits rated 100 amperes or less, or marked for 14 AWG through 1 AWG conductors, shall be used only for one of the following:

(1) Conductors rated 60°C (140°F).

(2) Conductors with higher temperature ratings, provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used.

(3) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors.

(4) For motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

(b) Termination provisions of equipment for circuits rated over 100 amperes, or marked for conductors larger than 1 AWG, shall be used only for one of the following:

(1) Conductors rated 75°C (167°F)

(2) Conductors with higher temperature ratings, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity of the conductor size used, or up to their ampacity if the equipment is listed and identified for use with such conductors

(2) Separate Connector Provisions.

Separately installed pressure connectors shall be used with conductors at the ampacities not exceeding the ampacity at the listed and identified temperature rating of the connector.

Informational Note: ~~With respect to 110.14(C)(1) and (C)(2), equipment~~ Equipment markings or listing information may additionally restrict the sizing and temperature ratings of connected conductors.

(D) Terminal Connection Torque.

Tightening torque values for terminal connections shall be as indicated on equipment or in installation instructions provided by the manufacturer. An approved means shall be used to achieve the indicated torque value.

Informational Note No. 1: Examples of approved means of achieving the indicated torque values include torque tools or devices such as shear bolts or breakaway-style devices with visual indicators that demonstrate that the proper torque has been applied.

Informational Note No. 2: See UL Standard 486A-486B, *Standard for Safety-Wire Connectors* , Informative Annex I for torque values in the absence of manufacturer's recommendations. The equipment manufacturer can be contacted if numeric torque values are not indicated on the equipment or if the installation instructions are not available. ~~Informative Annex I of UL Standard 486A-486B, *Standard for Safety-Wire Connectors* , provides torque values in the absence of manufacturer's recommendations.~~

Informational Note No. 3: ~~Additional~~ See NFPA 70B-2019, *Recommended Practice for Electrical Equipment Maintenance* , Section 8.11 for additional information for torquing threaded connections and terminations ~~can be found in Section 8.11 of NFPA 70B-2019, *Recommended Practice for Electrical Equipment Maintenance* .~~

Supplemental Information

File Name	Description	Approved
NEC_CMP1_110.14_SR7793.docx	Staff use	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 11:33:32 EDT 2021

Committee Statement

Committee Statement: The Informational Notes to 110.14(C)(2) and 110.14(D) have been revised to comply with the NEC Style Manual.

Response Message: SR-7793-NFPA 70-2021

Public Comment No. 596-NFPA 70-2021 [Section No. 110.14(A)]

Second Revision No. 7690-NFPA 70-2021 [Section No. 110.14 [Excluding any Sub-Sections]]

Because of different characteristics of dissimilar metals, devices such as pressure terminal or pressure splicing connectors and soldering lugs shall be identified for the material of the conductor and shall be properly installed and used. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector where physical contact occurs between dissimilar conductors ~~(such as copper and aluminum or aluminum and copper-clad aluminum),~~ unless the device is identified for the purpose and conditions of use. Materials such as solder, fluxes, inhibitors, and compounds, where employed, shall be suitable for the use and shall be of a type that will not adversely affect the conductors, installation, or equipment.

Connectors and terminals for conductors more finely stranded than Class B and Class C stranding as shown in Chapter 9, Table 10, shall be identified for the specific conductor class or classes.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 12:15:55 EDT 2021

Committee Statement

Committee Statement: The parenthetical phrase is being deleted to comply with 3.3.1.2 of the NEC Style Manual which states, in part, to “[u]se simple declarative sentence structure and keep sentences short. Writing rules in long sentences full of commas, dependent clauses, and parenthetical expressions often creates confusion and misunderstanding. The requirement can be written in two or more short sentences, expressed using a list or table, or both.”

Response Message: SR-7690-NFPA 70-2021 While the statement that copper and copper-clad aluminum are considered similar metals, this will cause confusion without proper context. Terminals are only suitable for use with copper-clad aluminum conductors if they have been evaluated for both copper and aluminum. The proposed text implies that terminals suitable for copper are also suitable for copper-clad aluminum.

Public Comment No. 331-NFPA 70-2021 [Section No. 110.14 [Excluding any Sub-Sections]]

Second Revision No. 7704-NFPA 70-2021 [Section No. 110.16(B)]

(B) Service Equipment and Feeder Supplied Equipment.

In other than dwelling units, in addition to the requirements in 110.16(A), a permanent arc flash label shall be field or factory applied to service equipment and feeder supplied equipment rated 1000 amperes or more. The arc flash label shall be in accordance with ~~acceptable~~ applicable industry practice and include the date the label was applied. The label shall meet the requirements of 110.21(B).

Informational Note No. 1: See ANSI Z535.4-2011 (R2017), *Product Safety Signs and Labels*, for guidelines for the design of safety signs and labels for application to products.

Informational Note No. 2: See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, for ~~acceptable~~ applicable industry practices for equipment labeling. This standard provides specific criteria for developing arc-flash labels for equipment that provides nominal system voltage, incident energy levels, arc-flash boundaries, minimum required levels of personal protective equipment, and so forth.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 13:10:52 EDT 2021

Committee Statement

Committee Statement: "Acceptable" is changed to "applicable" which eliminates a possible unenforceable and vague term per Table 3.2.1 of the NEC Style Manual.

Response Message: SR-7704-NFPA 70-2021

Public Comment No. 597-NFPA 70-2021 [Section No. 110.16(B)]

Second Revision No. 7732-NFPA 70-2021 [Section No. 110.17]

110.17 Servicing and Maintenance of Equipment.

Servicing and electrical preventive maintenance shall be performed by qualified persons trained in servicing and maintenance of equipment and shall comply with the following:

(1) The servicing and electrical preventive maintenance shall be performed in accordance with the original equipment manufacturer's instructions and information included in the listing information, applicable industry standards, or as approved by the authority having jurisdiction.

(2) The servicing and electrical preventive maintenance shall be performed using identified replacement parts that are verified under applicable product standards. The replacement parts shall comply with at least one of the following:

a. Be provided by the original equipment manufacturer

b. Be designed by an engineer experienced in the design of replacement parts for the type of equipment being serviced or maintained

c. Be approved by the authority having jurisdiction

Informational Note No. 1: For equipment that is not listed or field labeled, or for which components are no longer available from the original equipment manufacturer, one way to determine suitability is to review the documentation that accompanies the replacement parts.

Informational Note No. 2: See NFPA 70B, *Recommended Practice for Electrical Equipment Maintenance* , for information related to preventive maintenance for electrical, electronic, and communication systems and equipment.

Supplemental Information

File Name	Description	Approved
NEC_CMP1_110.17_SR7732.docx	Staff use	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 15:26:45 EDT 2021

Committee Statement

Committee Statement: "Applicable industry standards" and an informational note providing an example of information for preventative maintenance are added to provide additional clarity to the requirement.

Response Message: SR-7732-NFPA 70-2021 This section is not deleted. It correlates with the definition of "reconditioned" and provides clarity by distinguishing between reconditioning and servicing activities and maintenance activities.

Public Comment No. 8-NFPA 70-2021 [Section No. 110.17]

Public Comment No. 1287-NFPA 70-2021 [Section No. 110.17]

Public Comment No. 249-NFPA 70-2021 [Section No. 110.17]

Public Comment No. 1925-NFPA 70-2021 [Section No. 110.17]

Second Revision No. 7751-NFPA 70-2021 [Section No. 110.21(A)(1)]

(1) General.

The manufacturer's name, trademark, or other descriptive marking by which the organization responsible for the product can be identified shall be ~~placed on~~ applied or affixed onto all electrical equipment. Other markings that indicate voltage, current, wattage, or other ratings shall be provided as specified elsewhere in this *Code*. The marking shall be of sufficient durability to withstand the environment involved.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 16:26:56 EDT 2021

Committee Statement

Committee Statement: The section is revised to clarify that labels should be applied or affixed onto, instead of merely placing on equipment. The phrase "placed on" is revised to "applied or affixed onto" which clarifies the requirement. Simply placing the manufacturer's name, trademark, or other descriptive marking by which the organization responsible for the product can be identified on all electrical equipment is not what is required. It must also be applied or affixed – not simply just be placed there.

Response Message: SR-7751-NFPA 70-2021

Public Comment No. 669-NFPA 70-2021 [Section No. 110.21(A)(1)]

Second Revision No. 7762-NFPA 70-2021 [Section No. 110.22(A)]

(A) General.

Each disconnecting means shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident. In other than one- or two-family dwellings, the marking shall include the identification and location of the circuit source that supplies the disconnecting means unless located and arranged so the identification and location of the circuit source is evident . The marking shall be of sufficient durability to withstand the environment involved.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 17:46:01 EDT 2021

Committee Statement

Committee Statement: The additional text clarifies that the identification and location of the circuit source does not need to be marked on the disconnecting means if the location of the source is evident.

Response Message: SR-7762-NFPA 70-2021

Public Comment No. 1949-NFPA 70-2021 [Section No. 110.22(A)]

Second Revision No. 7763-NFPA 70-2021 [Section No. 110.24(A)]

(A) Field Marking.

Service equipment at other than dwelling units shall be legibly marked in the field with the available fault current. The field marking(s) shall include the date the fault-current calculation was performed and be of sufficient durability to withstand the environment involved. The calculation shall be documented and made available to those authorized to design, install, inspect, maintain, or operate the system.

Informational Note No. 1: ~~The available fault-current marking(s) addressed in 110.24 is related to required short-circuit current and interrupting ratings of equipment.~~ See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace,* for assistance in determining the severity of potential exposure, planning safe work practices, and selecting personal protective equipment. The available fault-current marking(s) addressed in 110.24 is related to required short-circuit current and interrupting ratings of equipment.

Informational Note No. 2: Values of available fault current for use in determining appropriate minimum short-circuit current and interrupting ratings of service equipment are available from electric utilities in published or other forms.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 17:47:01 EDT 2021

Committee Statement

Committee Statement: The informational note is revised to comply with the NEC Style Manual, Section 4.1.3, Reference Structure.

Response Message: SR-7763-NFPA 70-2021

Public Comment No. 599-NFPA 70-2021 [Section No. 110.24(A)]

Second Revision No. 7801-NFPA 70-2021 [Section No. 110.26]

110.26 Spaces About Electrical Equipment.

~~Access and~~ Working space, and access to and egress from working space, shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment. Open equipment doors shall not impede access to and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6 ½ ft) high.

(A) Working Space.

Working space for equipment operating at 1000 volts, nominal, or less to ground and likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 110.26(A)(1), (A)(2), (A)(3), and (A)(4) or as required or permitted elsewhere in this *Code*.

Informational Note: See NFPA *70E*-2021, *Standard for Electrical Safety in the Workplace*, for guidance, such as determining severity of potential exposure, planning safe work practices including establishing an electrically safe work condition, arc flash labeling, and selecting personal protective equipment.

(1) Depth of Working Space.

The depth of the working space in the direction of live parts shall not be less than that specified in Table 110.26(A)(1) unless the requirements of 110.26(A)(1)(a), (A)(1)(b), or (A)(1)(c) are met. Distances shall be measured from the exposed live parts or from the enclosure or opening if the live parts are enclosed.

Table 110.26(A)(1) Working Spaces

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0–150	900 mm (3 ft)	900 mm (3 ft)	900 mm (3 ft)
151–600	900 mm (3 ft)	1.0 m (3 ft 6 in.)	1.2 m (4 ft)
601–1000	900 mm (3 ft)	1.2 m (4 ft)	1.5 m (5 ft)

Note: Where the conditions are as follows:

Condition 1 — Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 — Exposed live parts on both sides of the working space.

(a) *Dead-Front Assemblies.* Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards, switchgear, or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible from locations other than the back or sides. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in.) shall be provided.

(b) *Low Voltage.* By special permission, smaller working spaces shall be permitted where all exposed live parts operate at not greater than 30 volts rms, 42 volts peak, or 60 volts dc.

(c) *Existing Buildings.* In existing buildings where electrical equipment is being replaced, Condition 2 working clearance shall be permitted between dead-front switchboards, switchgear, enclosed panelboards, or motor control centers located across the aisle from each other where conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the aisle from being open at the same time and qualified persons who are authorized will service the installation.

(2) Width of Working Space.

The width of the working space in front of the electrical equipment shall be the width of the equipment or 762 mm (30 in.), whichever is greater. In all cases, the work space shall permit at least a 90-degree opening of equipment doors or hinged panels.

(0)

(0) ~~Open equipment doors shall not impede the entry to or egress from the working space.~~

(3) Height of Working Space.

The work space shall be clear and extend from the grade, floor, or platform to a height of 2.0 m (6½ ft) or the height of the equipment, whichever is greater. Within the height requirements of this section, other equipment or support structures, such as concrete pads, associated with the electrical installation and located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

Exception No. 1: On battery systems mounted on open racks, the top clearance shall comply with 480.10(D).

Exception No. 2: In existing dwelling units, service equipment or enclosed panelboards that do not exceed 200 amperes shall be permitted in spaces where the height of the working space is less than 2.0 m (6½ ft).

Exception No. 3: Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.

(4) Limited Access.

Where equipment operating at 1000 volts, nominal, or less to ground and likely to require examination, adjustment, servicing, or maintenance while energized is required by installation instructions or function to be located in a space with limited access, all of the following shall apply:

(1) Where equipment is installed above a lay-in ceiling, there shall be an opening not smaller than 559 mm × 559 mm (22 in. × 22 in.), or in a crawl space, there shall be an accessible opening not smaller than 559 mm × 762 mm (22 in. × 30 in.).

(2) The width of the working space shall be the width of the equipment enclosure or a minimum of 762 mm (30 in.), whichever is greater.

(3) All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.

(4) The space in front of the enclosure shall comply with the depth requirements of Table 110.26(A)(1) and shall be unobstructed to the floor by fixed cabinets, walls, or partitions. Space reductions in accordance with 110.26(A)(1)(b) shall be permitted. The maximum height of the working space shall be the height necessary to install the equipment in the limited space. A horizontal ceiling structural member or access panel shall be permitted in this space provided the location of weight-bearing structural members does not result in a side reach of more than 150 mm (6 in.) to work within the enclosure.

(5) Separation from High-Voltage Equipment.

Where switches, cutouts, or other equipment operating at 1000 volts, nominal, or less are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating over 1000 volts, nominal, the high-voltage equipment shall be effectively separated from the space occupied by the low-voltage equipment by a suitable partition, fence, or screen.

Detail SR-7803

(6) Grade, Floor, or Working Platform.

The grade, floor, or platform in the required working space ~~in 110.26(A)(1), (A)(2), (A)(3), and (A)(5)~~ shall be kept clear, and the floor, grade, or platform in the working space shall be as level and flat as practical for the entire required depth and width of the working space.

(B) Clear Spaces.

Working space required by this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.

(C) Entrance to and Egress from Working Space.

(1) Minimum Required.

At least one entrance of sufficient area shall be provided to give access to and egress from working space about electrical equipment.

(2) Large Equipment.

For large equipment that contains overcurrent devices, switching devices, or control devices, there shall be one entrance to and egress from the required working space not less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high at each end of the working space. This requirement shall apply to either of the following conditions:

(1) For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide

(2) For service disconnecting means installed in accordance with 230.71(B) where the combined ampere rating is 1200 amperes or more and where the combined width is over 1.8 m (6 ft)

A single entrance to and egress from the required working space shall be permitted where either of the conditions in 110.26(C)(2)(a) or (C)(2)(b) is met.

(a) *Unobstructed Egress.* Where the location permits a continuous and unobstructed way of egress travel, a single entrance to the working space shall be permitted.

(b) *Extra Working Space.* Where the depth of the working space is twice that required by 110.26(A)(1), a single entrance shall be permitted. It shall be located such that the distance from the equipment to the nearest edge of the entrance is not less than the minimum clear distance specified in Table 110.26(A)(1) for equipment operating at that voltage and in that condition.

(3) Personnel Doors.

Where equipment rated 800 amperes or more that contains overcurrent devices, switching devices, or control devices is installed and there is a personnel door(s) intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the door(s) shall open at least 90 degrees in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

Informational Note: See UL 305, *Standard For ~~Safety For~~ Panic Hardware*, for information on panic hardware.

See UL 305, *Standard For Panic Hardware*, for fire exit hardware, and see UL 10C, *Standard for Safety for Positive Pressure Fire Tests of Door Assemblies*.

(D) Illumination.

Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, enclosed panelboards, or motor control centers installed indoors. Control by automatic means shall not be permitted to control all illumination within the working space. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by 210.70(A)(1), Exception No. 1, for switched receptacles.

(E) Dedicated Equipment Space.

All service equipment, switchboards, switchgear, panelboards, and motor control centers shall be located in dedicated spaces and protected from damage.

Exception: Control equipment that by its very nature or because of other rules of the Code must be adjacent to or within sight of its operating machinery shall be permitted in those locations.

(1) Indoor.

Indoor installations shall comply with 110.26(E)(1)(a) through (E)(1)(d).

(a) *Dedicated Electrical Space.* The space equal to the width and depth of the equipment and extending from the floor to a height of 1.8 m (6 ft) above the equipment or to the structural ceiling, whichever is lower, shall be dedicated to the electrical installation. No piping, ducts, leak protection apparatus, or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Suspended ceilings with removable panels shall be permitted within the 1.8 m (6 ft) zone.

(b) *Foreign Systems.* The area above the dedicated space required by 110.26(E)(1)(a) shall be permitted to contain foreign systems, provided protection is installed to avoid damage to the electrical equipment from condensation, leaks, or breaks in such foreign systems.

(c) *Sprinkler Protection.* Sprinkler protection shall be permitted for the dedicated space where the piping complies with this section.

(d) *Suspended Ceilings.* A dropped, suspended, or similar ceiling that does not add strength to the building structure shall not be considered a structural ceiling.

(2) Outdoor.

Outdoor installations shall comply with 110.26(E)(2)(a) through (E)(2)(c).

(a) *Installation Requirements.* Outdoor electrical equipment shall be the following:

(1) Installed in identified enclosures

(2) Protected from accidental contact by unauthorized personnel or by vehicular traffic

(3) Protected from accidental spillage or leakage from piping systems

(b) *Work Space.* The working clearance space shall include the zone described in 110.26(A). No architectural appurtenance or other equipment shall be located in this zone.

(c) *Dedicated Equipment Space.* The space equal to the width and depth of the equipment, and extending from grade to a height of 1.8 m (6 ft) above the equipment, shall be dedicated to the electrical installation. No piping or other equipment foreign to the electrical installation shall be located in this zone.

Exception: Structural overhangs or roof extensions shall be permitted in this zone.

(F) Locked Electrical Equipment Rooms or Enclosures.

Electrical equipment rooms or enclosures housing electrical apparatus that are controlled by a lock(s) shall be considered accessible to qualified persons.

Supplemental Information

File Name	Description	Approved
NEC_CMP1_110.26_SR7801.docx	Staff use	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 13:48:30 EDT 2021

Committee Statement

Committee Statement:	The requirement from First Draft Section 110.26(A)(2)(b) is relocated to 110.26 because it relates to more than just working space width. It has also been revised to clarify the condition caused by open equipment door(s) which would impede access to and egress from the working space.
Response Message:	SR-7801-NFPA 70-2021

Public Comment No. 1288-NFPA 70-2021 [Section No. 110.26(A)(2)]

Public Comment No. 967-NFPA 70-2021 [Section No. 110.26(A)]

Public Comment No. 870-NFPA 70-2021 [Section No. 110.26(A)(2)]

Public Comment No. 609-NFPA 70-2021 [Section No. 110.26(A)(2)]

Second Revision No. 7765-NFPA 70-2021 [Section No. 110.27(C)]

(C) Warning Signs.

Entrances to rooms and other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter. The marking shall meet the requirements in 110.21(B).

~~Informational Note: For motors, see 430.232 and 430.233 . For over 1000 volts, see 110.34 .~~

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Oct 14 18:03:22 EDT 2021

Committee Statement

Committee Statement: The informational note is removed as 110.27(C) pertains to warning signs and the three sections referenced in the informational note do not address warning signs.

Response Message: SR-7765-NFPA 70-2021

Public Comment No. 1996-NFPA 70-2021 [Section No. 110.27(C)]

Second Revision No. 7806-NFPA 70-2021 [Section No. 110.28]

110.28 Enclosure Types.

Enclosures (other than surrounding fences or walls covered in 110.31) of switchboards, switchgear, enclosed panelboards, industrial control panels, motor control centers, meter sockets, enclosed switches, transfer switches, power outlets, circuit breakers, adjustable-speed drive systems, pullout switches, portable power distribution equipment, termination boxes, general-purpose transformers, fire pump controllers, fire pump motors, and motor controllers, rated not over 1000 volts nominal and intended for such locations, shall be marked with an enclosure-type number as shown in Table 110.28.

Table 110.28 shall be used for selecting these enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the raceway or unsealed openings.

Table 110.28 Enclosure Selection

Provides a Degree of Protection Against the Following Environmental Conditions	For Outdoor Use									
	Enclosure Type Number									
	3	3R	3S	3X	3RX	3SX	4	4X	6	6P
Incidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X
Rain, snow, and sleet	X	X	X	X	X	X	X	X	X	X
Sleet*	—	—	X	—	—	X	—	—	—	—
Windblown dust	X	—	X	X	—	X	X	X	X	X
Hosedown	—	—	—	—	—	—	X	X	X	X
Corrosive agents	—	—	—	X	X	X	—	X	—	X
Temporary submersion	—	—	—	—	—	—	—	—	X	X
Prolonged submersion	—	—	—	—	—	—	—	—	—	X

Provides a Degree of Protection Against the Following Environmental Conditions	For Indoor Use									
	Enclosure Type Number									
	1	2	4	4X	5	6	6P	12	12K	13
Incidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X
Falling dirt	X	X	X	X	X	X	X	X	X	X
Falling liquids and light splashing	—	X	X	X	X	X	X	X	X	X
Circulating dust, lint, fibers, and flyings	—	—	X	X	—	X	X	X	X	X
Settling airborne dust, lint, fibers, and flyings	—	—	X	X	X	X	X	X	X	X
Hosedown and splashing water	—	—	X	X	—	X	X	—	—	—
Oil and coolant seepage	—	—	—	—	—	—	—	X	X	X
Oil or coolant spraying and splashing	—	—	—	—	—	—	—	—	—	X
Corrosive agents	—	—	—	X	—	—	X	—	—	—
Temporary submersion	—	—	—	—	—	X	X	—	—	—
Prolonged submersion	—	—	—	—	—	—	X	—	—	—

*The mechanism shall be operable when ice covered.

Informational Note No. 1: The term *raintight* is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 6, and 6P. The term *rainproof* is typically used in conjunction with Enclosure Types 3R and 3RX. The term *watertight* is typically used in conjunction with Enclosure Types 4, 4X, 6, and 6P. The term *driptight* is typically used in conjunction with Enclosure Types 2, 5, 12, 12K, and 13. The term *dusttight* is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 5, 6, 6P, 12, 12K, and 13.

Informational Note No. 2: See ANSI/IEC 60529, *Degrees of Protection Provided by Enclosures*, for ingress protection (IP) ratings. ~~IP ratings are not a substitute for enclosure type ratings.~~

Informational Note No. 3: ~~Dusttight enclosures are suitable for use in hazardous locations in accordance with~~ See 502.10(A)(3), 502.10(B)(4), 503.10(A)(2), and 506.15(C)(9) for information on the use of dusttight enclosures in hazardous locations .

Informational Note No. 4: ~~Dusttight enclosures are suitable for use in unclassified locations and in Class II, Division 2; Class III; and Zone 22 hazardous (classified) locations.~~ Some enclosure types, such as 12, 12K, or 13 enclosures, may be marked with an ancillary "-XH" for corrosive and hosedown capable indoor enclosure.

Informational Note No. 5: Some type 4X enclosures may be marked "indoor only."

Informational Note No. 6: ~~Some~~ See UL 508A, *Standard for Industrial Control Panels* , for information on determining applicable requirements for evaluating type 4, 4X, and 12 ~~enclosures are~~ ventilated~~. One way to determine applicable requirements for evaluating such~~ enclosures ~~is to refer to UL 508A, *Standard for Industrial Control Panels*~~ .

Informational Note No. 7: ~~For additional information, see~~ See NEMA 250, *Enclosures for Electrical Equipment (1000 Volts Maximum)*, for the description of the "Enclosure Type Rating: Ancillary — PW for Pressure Wash."

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 14:46:58 EDT 2021

Committee Statement

Committee Statement: Informational Notes No. 3, No. 6 and No. 7 are revised to comply with the NEC Style Manual, Section 4.1.3, Reference Structure.

Informational Note No. 2 is revised to comply with the NEC Style Manual, Section 3.1.3, as informational notes shall not be written in mandatory language and shall not make interpretations, or make recommendations.

Existing Informational Note No. 4 is unnecessary as it is incomplete with regards to hazardous location references and the appropriate references to hazardous locations are covered in Informational Note No. 3.

New informational Note No. 4 to refer to the new ancillary "-XH" marking.

Response Message: SR-7806-NFPA 70-2021 Informational Notes 2, 3, and 4 were not relocated to the proposed locations, as their relocations are not necessary.

Public Comment No. 1530-NFPA 70-2021 [Section No. 110.28]

Public Comment No. 1528-NFPA 70-2021 [Section No. 110.28]

Public Comment No. 1676-NFPA 70-2021 [Section No. 110.28]

Public Comment No. 621-NFPA 70-2021 [Section No. 110.28]

Second Revision No. 7809-NFPA 70-2021 [Section No. 110.31 [Excluding any Sub-Sections]]

Electrical installations in a vault, room, or closet or in an area surrounded by a wall, screen, or fence, access to which is controlled by a lock(s) or other approved means, shall be considered to be accessible to qualified persons only. The type of enclosure used in a given case shall be designed and constructed according to the nature and degree of the hazard(s) associated with the installation.

For installations other than equipment as described in 110.31(D), a wall, screen, or fence shall be used to enclose an outdoor electrical installation to deter access by persons who are not qualified. A fence shall not be less than 2.1 m (7 ft) in height or a combination of 1.8 m (6 ft) or more of fence fabric and a 300 mm (1 ft) or more extension utilizing three or more strands of barbed wire or equivalent. The distance from the fence to live parts shall be not less than given in Table 110.31.

Table 110.31 Minimum Distance from Fence to Live Parts

-	Minimum Distance to Live Parts	
Nominal Voltage	m	ft
1001–13,799	3.05	10
13,800–230,000	4.57	15
Over 230,000	5.49	18

~~Note: For clearances of conductors for specific system voltages and typical BIL ratings, see ANSI/IEEE C2-2017, *National Electrical Safety Code*.~~

Informational Note: See ANSI/IEEE C2-2017, *National Electrical Safety Code*, for clearances of conductors for specific system voltages and typical BIL ratings.

~~Informational Note No. 2: See Part III of Article 450 for construction requirements for transformer vaults.~~

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 14:58:16 EDT 2021

Committee Statement

Committee Statement: The existing Note in Table 110.31 is removed due to redundancy with existing Informational Note No. 1 and because notes to the tables are enforceable. Informational Note No. 2 is removed due to the redundancy with the wording in 110.31(A)(5).

Response Message: SR-7809-NFPA 70-2021

Public Comment No. 1952-NFPA 70-2021 [Section No. 110.31 [Excluding any Sub-Sections]]

Second Revision No. 7810-NFPA 70-2021 [Section No. 110.33(A)]

(A) Entrance.

At least one entrance to enclosures for electrical installations as described in 110.31 not less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high shall be provided to give access to the working space about electrical equipment.

Open equipment doors shall not impede ~~the entry~~ access to ~~or~~ and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6 ½ ft) high.

(1) Large Equipment.

On switchgear and control panels exceeding 1.8 m (6 ft) in width, there shall be one entrance at each end of the equipment. A single entrance to the required working space shall be permitted where either of the conditions in 110.33(A)(1)(a) or (A)(1)(b) is met.

(a) *Unobstructed Exit.* Where the location permits a continuous and unobstructed way of exit travel, a single entrance to the working space shall be permitted.

(b) *Extra Working Space.* Where the depth of the working space is twice that required by 110.34(A), a single entrance shall be permitted. It shall be located so that the distance from the equipment to the nearest edge of the entrance is not less than the minimum clear distance specified in Table 110.34(A) for equipment operating at that voltage and in that condition.

(2) Guarding.

Where bare energized parts at any voltage or insulated energized parts above 1000 volts, nominal, are located adjacent to such entrance, they shall be suitably guarded.

(3) Personnel Doors.

Where there are personnel doors intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the doors shall open at least 90 degrees in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

Informational Note: See UL 305, *Standard for Panic Hardware*, for additional information, and UL 10C, *Standard for Safety for Positive Pressure Fire Tests of Door Assemblies*.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 15:03:09 EDT 2021

Committee Statement

Committee Statement: The requirement has been revised to clarify the condition caused by open equipment door(s) which would impede access to and egress from the working space. This revision aligns 110.33(A) with 110.26(A).

Response Message: SR-7810-NFPA 70-2021

Second Revision No. 7811-NFPA 70-2021 [Section No. 110.34(A)]

(A) Working Space.

Except as elsewhere required or permitted in this *Code,* equipment likely to require examination, adjustment, servicing, or maintenance while energized shall have clear working space in the direction of access to live parts of the electrical equipment and shall be not less than specified in Table 110.34(A). Distances shall be measured from the live parts, if such are exposed, or from the enclosure front or opening if such are enclosed. The grade, floor, or platform in the required working space shall ~~provide a~~ be kept clear, and the floor, ~~platform,~~ grade, or ~~similar working surface that is as flat and level as practicable~~ platform in the working space shall be as level and flat as practical for the entire depth and width of the working space.

Exception: Working space shall not be required in back of equipment such as switchgear or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where all connections are accessible from locations other than the back. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum working space of 762 mm (30 in.) horizontally shall be provided.

Table 110.34(A) Minimum Depth of Clear Working Space at Electrical Equipment

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
1001–2500 V	900 mm (3 ft)	1.2 m (4 ft)	1.5 m (5 ft)
2501–9000 V	1.2 m (4 ft)	1.5 m (5 ft)	1.8 m (6 ft)
9001–25,000 V	1.5 m (5 ft)	1.8 m (6 ft)	2.8 m (9 ft)
25,001 V–75 kV	1.8 m (6 ft)	2.5 m (8 ft)	3.0 m (10 ft)
Above 75 kV	2.5 m (8 ft)	3.0 m (10 ft)	3.7 m (12 ft)

Note: Where the conditions are as follows:

Condition 1 — Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 — Exposed live parts on both sides of the working space.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Oct 15 15:07:23 EDT 2021

Committee Statement

Committee Statement: The wording in this section is revised to correlate with the new language in 110.26(A)(6) to comply with the NEC Style Manual, Section 3.3.5, Parallel Construction.

Response Message: SR-7811-NFPA 70-2021

Public Comment No. 624-NFPA 70-2021 [Section No. 110.34(A)]

Second Revision No. 7541-NFPA 70-2021 [Section No. A.1]

A.1

Table A.1(a) Product Safety Standards for Conductors and Equipment That Have an Associated Listing Requirement

Article	Standard Number	Standard Title
110	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 305	Panic Hardware
	UL 486D	Sealed Wire Connector Systems
	UL 2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
210	UL 498	Attachment Plugs and Receptacles
	UL 935	Fluorescent-Lamp Ballasts
	UL 943	Ground Fault Circuit Interrupters
	UL 1029	High-Intensity-Discharge Lamp Ballast
	UL 1699	Arc-Fault Circuit-Interrupters
	UL 1699A	Outlet Branch Circuit AFCIs
225	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
230	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 67	Panelboards
	UL 98	Enclosed and Dead-Front Switches
	UL 218	Fire Pump Controllers
	UL 231	Power Outlets
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 414	Meter Sockets
	UL 486A-486B	Wire Connectors
	UL 486C	Splicing Wire Connectors
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 514B	Conduit, Tubing and Cable Fittings

Article	Standard Number	Standard Title
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 845	Motor Control Centers
	UL 857	Busways
	UL 869A	Reference Standard for Service Equipment
	UL 891	Switchboards
	~~UL 891A~~	~~Switchboards Rated 601–1000 V~~
	UL 977	Fused Power-Circuit Devices
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1062	Unit Substations
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1429	Pullout Switches
	UL 1449	Surge Protective Devices
	UL 1558	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1740	Robots and Robotic Equipment
	UL 1953	~~Outline for~~ Power Distribution Blocks
	UL 2011	~~Outline for~~ Machinery
	UL 2200	Stationary Engine Generator Assemblies
	UL 2416	Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
	UL 2446	~~Outline for~~ Unitary Boiler Room Systems
	UL 2565	Industrial Metalworking and Woodworking Machine Tools
	UL 2735	Electric Utility Meters
	UL 2745	~~Outline for~~ Meter Socket Adapters for Communications Equipment
	UL 2876	~~Outline for~~ Remote Racking Devices for Switchgear and Controlgear
	UL 4248-1	Fuseholders — Part 1: General Requirements
	UL 60947-1	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
240	UL 248-1	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 2: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses

Article	Standard Number	Standard Title
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-11	Low-Voltage Fuses — Part 11: Plug Fuses
	UL 248-12	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
	UL 489I	Solid State Molded-Case Circuit Breakers
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 4248-1	Fuseholders — Part 1: General Requirements
242	UL 1449	Surge Protective Devices
250	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 5	Surface Metal Raceways and Fittings
	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 486A-486B	Wire Connectors
	UL 486C	Splicing Wire Connectors
	UL 486D	Sealed Wire Connector Systems
	UL 498	Attachment Plugs and Receptacles
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1569	Metal-Clad Cables
	UL 1652	Flexible Metallic Tubing
300	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 263	Fire Tests of Building Construction and Materials
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL ~~756C~~ 746C	Polymeric Materials — Use in Electrical Equipment Evaluations

Article	Standard Number	Standard Title
	UL 1569	Metal-Clad Cable
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 2239	Hardware for Support of Conduit, Tubing and Cable
	UL 2556	~~Standard for~~ Wire and Cable Test Methods
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
310	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 224	Extruded Insulating Tubing
	UL 1063	Machine-Tool Wires and Cables
	UL 1441	Coated Electrical Sleeving
~~311~~ 315	ANSI C119.4	Electric Connectors — Connectors for Use between Aluminum-to-Aluminum and Aluminum-to-Copper Conductors Designed for Normal Operation at or Below 93ºC and Copper-to-Copper Conductors Designed for Normal Operation at or Below 100ºC
	IEEE 48	IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV
	IEEE 386	IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV
	IEEE 404	IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV
	UL 4	Armored Cable
	UL 504	Mineral-Insulated, Metal-Sheathed Cable
	UL 1072	Medium Voltage Power Cables
	UL 1569	Metal-Clad Cable
312	UL 50	Enclosures for Electrical Equipment
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 916	Energy Management Equipment
	UL 2808	Energy Monitoring Equipment
	UL 61010-1 and UL 61010-2-030	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-030: Particular Requirements for Testing and Measuring Circuits
314	UL 50	Enclosures for Electrical Equipment
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 486D	Sealed Wire Connector Systems
	UL 498	Attachment Plugs and Receptacles
	UL 498B	~~Outline for~~ Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts

Article	Standard Number	Standard Title
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices
	UL 1953	Power Distribution Blocks
320	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1063	Machine-Tool Wires and Cables
	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing, and Cable
~~322~~	~~NEMA Publication No. UC2~~	~~Under-carpet Power Distribution Systems~~
322	UL 486A-486B	Wire Connectors
	UL 498	Attachment Plugs and Receptacles
	UL 514A	Metallic Outlet Boxes
~~324~~	~~NEMA Publication No. UC2~~	~~Under-carpet Power Distribution Systems~~
324	UL 486A-486B	Wire Connectors
	UL 498	Attachment Plugs and Receptacles
330	UL 44	Thermoset-Insulated Wires and Cables
	UL 66	Fixture Wire
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 1063	Machine-Tool Wires and Cables
	UL 1565	Positioning Devices
~~330~~	UL 1569	Metal-Clad Cables
	UL 2225	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
	UL 2239	Hardware for the Support of Conduit, Tubing, and Cable
332	UL 504	~~Outline for~~ Mineral-Insulated, Metal-Sheathed Cable
	UL 514B	Conduit, Tubing and Cable Fittings
334	UL 719	Nonmetallic-Sheathed Cables
	UL ~~Subject~~ 2256	Nonmetallic Sheathed Cable Interconnects
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installations
335	UL 2250	Instrumentation Tray Cable

Article	Standard Number	Standard Title
336	UL 514B	Conduit, Tubing, and Cable Fittings
~~336~~	UL 1277	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 2225	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
337	UL 1309A	Cable for Use in Mobile Installations
338	UL 514B	Conduit, Tubing, and Cable Fittings
~~338~~	UL 854	Service-Entrance Cables
340	UL 514B	Conduit, Tubing, and Cable Fittings
340	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
~~341~~		
342	UL 514B	Conduit, Tubing, and Cable Fittings
~~342~~	UL 1242	Electrical Intermediate Metal Conduit — Steel
344	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B	Conduit, Tubing, and Cable Fittings
348	UL 1	Flexible Metal Conduit
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
350	UL 360	Liquid-Tight Flexible Steel Conduit
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
352	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
353	UL 651A	Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit
354	UL 1990	Nonmetallic Underground Conduit with Conductors
355	UL 2420	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A	Supplemental Requirements for Extra-Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
356	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
358	UL 514B	Conduit, Tubing, and Cable Fittings
~~358~~	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
360	UL 514B	Conduit, Tubing, and Cable Fittings
~~360~~	UL ~~Subject~~ 1652	Flexible Metallic Tubing
362	UL 1653	Electrical Nonmetallic Tubing
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation

Article	Standard Number	Standard Title
366	UL 870	Wireways, Auxiliary Gutters, and Associated Fittings
368	UL 509	Bus Drop Cable
370	ANSI/CSA C22.2 No. 273	Cablebus
374	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
376	UL 870	Wireways, Auxiliary Gutters and Associated Fittings
~~376~~	UL 1953	Power Distribution Blocks
378	UL 870	Wireways, Auxiliary Gutters, and Associated Fittings
382	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL183	Manufactured Wiring Systems
	UL 467	Grounding and Bonding Equipment
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M	Marine Shore Power Inlets
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices
	UL 746C	Polymeric Materials — Use in Electrical Equipment Evaluations
	UL 943	Ground-Fault Circuit-Interrupters
	UL 991	Tests for Safety-Related Controls Employing Solid-State Devices
	UL 1077	Supplementary Protectors for Use in Electrical Equipment
	UL 1699	Arc-Fault Circuit-Interrupters
	UL 1998	Software in Programmable Components
384	UL 5B	Strut-Type Channel Raceways and Fittings
386	UL 5	Surface Metal Raceways and Fittings
388	UL 5A	Nonmetallic Surface Raceways and Fittings
392	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
393	UL 13	Power-Limited Circuit Cables
	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1310	Class 2 ~~and Class 3~~ Power ~~Supplies~~ Units
	UL 2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 2577	Suspended Ceiling Power Grid Systems and Equipment

Article	Standard Number	Standard Title
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
396	UL 1072	Medium-Voltage Power Cables
~~400~~	~~UL 62~~	~~Flexible Cords and Cables~~
	~~UL 498~~	~~Attachment Plugs and Receptacles~~
	~~UL 498B~~	~~Outline for Receptacles with Integral Switching Means~~
	~~UL 498D~~	~~Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts~~
	~~UL 498E~~	~~Attachment Plugs, Cord Connectors and Receptacles - Enclosure Types for Environmental Protection~~
	~~UL 817~~	~~Cord Sets and Power-Supply Cords~~
	~~UL Subject 1650~~	~~Portable Power Cable~~
~~402~~	~~UL 66~~	~~Fixture Wire~~
404	UL 20	General-Use Snap Switches
	UL 98	Enclosed and Dead-Front Switches
	UL ~~Subject~~ 98A	Open-Type Switches
	UL 363	Knife Switches
	UL 489	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	UL 773	Plug-In Locking Type Photocontrols for Use with Area Lighting
	UL 773A	Nonindustrial Photoelectric Switches for Lighting Control
	UL 917	Clock-Operated Switches
	UL 977	Fused Power-Circuit Devices
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1472	Solid-State Dimming Controls
	UL 1429	Pullout Switches
	UL 60730-1	Automatic Electrical Controls — Part 1: General Requirements
	UL 60730-2	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	UL 60730-2-7	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	ANSI/NEMA WD 6–2016	Wiring Devices — Dimensional Specifications
406	UL 498	Attachment Plugs and Receptacles
	UL 498B	Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M	Marine Shore Power Inlets
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices

Article	Standard Number	Standard Title
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943B	Appliance Leakage-Current Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 970	Retail Fixtures and Merchandising Displays
	UL 1286	Office Furnishings Systems
	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 1682	Plugs, Receptacles, and Cable Connectors, of the Pin and Sleeve Type
	UL 1691	Single Pole Locking-Type Separable Connectors
	UL 1699	Arc-Fault Circuit-Interrupters
	UL 2999	Individual Commercial Office Furnishings
408	UL 44	Thermoset-Insulated Wires and Cables
	UL 67	Panelboards
	UL 891	Switchboards
	UL 1558	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
	~~UL 60947-1~~	~~Low-Voltage Switchgear and Controlgear — Part 1: General Rules~~
	~~UL 60947-4-1~~	~~Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters~~
	~~UL 60947-4-2~~	~~Voltage Switchgear and Controlgear — Part 4-2: Contactors and Motor-Starters — AC Semiconductor Motor Controllers and Starters~~
	~~UL 60947-5-1~~	~~Low-Voltage Switchgear and Controlgear — Part 5-1: Control Circuit Devices and Switching Elements — Electromechanical Control Circuit Devices~~
	~~UL 60947-5-2~~	~~Low-Voltage Switchgear and Controlgear — Part 5-2: Control Circuit Devices and Switching Elements — Proximity Switches~~
	~~UL 60947-7-1~~	~~Low-Voltage Switchgear and Controlgear — Part 7-1: Ancillary Equipment — Terminal Blocks for Copper Conductors~~
	~~UL 60947-7-2~~	~~Low-Voltage Switchgear and Controlgear — Part 7-2: Ancillary Equipment — Protective Conductor Terminal Blocks for Copper Conductors~~
	~~UL 60947-7-3~~	~~Low-Voltage Switchgear and Controlgear — Part 7-3: Ancillary Equipment — Safety Requirements for Fuse Terminal Blocks~~
409	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
410	ANSI/CSA-C22.2 No. 184.2	Solid-State Controls for Lighting Systems (SSCLS)
	UL 153	Portable Electric Luminaires
	UL 496	Lampholders
	UL 498	Attachment Plugs and Receptacles
	UL 498B	~~Outline for~~ Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection

Article	Standard Number	Standard Title
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 542	Fluorescent Lamp Starters
	UL 588	Seasonal and Holiday Decorative Products
	UL 935	Fluorescent-Lamp Ballasts
	UL 943	Ground-Fault Circuit-Interrupters
	UL 970	Retail Fixtures and Merchandising Displays
	UL 1029	High-Intensity-Discharge Lamp Ballasts
	UL ~~Subject~~ 1029A	Ignitors and Related Auxiliaries for HID Lamp Ballasts
	UL 1574	Track Lighting Systems
	UL 1598	Luminaires
	UL 1598B	Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires, Supplemental Requirements
	UL 1598C	Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits
	UL 1993	Self-Ballasted Lamps and Lamp Adapters
	UL 2388	Flexible Lighting Products
	UL 8750	Light Emitting Diode (LED) Equipment for Use in Lighting Products
	UL 8752	Organic Light Emitting Diode (OLED) Panels
	UL 8753	Field-Replaceable Light Emitting Diode (LED) Light Engines
	UL 8754	Holders, Bases and Connectors for Solid-State (LED) Light Engines and Arrays
	UL ~~Subject~~ 8800	Horticultural Lighting Equipment and Systems
~~411~~	~~UL 234~~	~~Low-Voltage Lighting Fixtures for Use in Recreational Vehicles~~
411	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 1838	Low-Voltage Landscape Lighting Systems
	UL 2108	Low-Voltage Lighting Systems
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
422	ANSI/CSA-C22.2 No. 339	Hand-held motor-operated electric tools — Safety — Particular requirements for chain beam saws
	UL 22	Amusement and Gaming Machines
	UL 73	Motor-Operated Appliances
	UL 82	Electric Gardening Appliances
	UL 122	Photographic Equipment
	UL 141	Garment Finishing Appliances
	UL 174	Household Electric Storage Tank Water Heaters
	UL 197	Commercial Electric Cooking Appliances
	UL 283	Air Fresheners and Deodorizers
	UL 399	Drinking Water Coolers
	UL 430	Waste Disposers
	~~UL 474~~	~~Dehumidifiers~~
	UL 498	Attachment Plugs and Receptacles

Article	Standard Number	Standard Title
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 499	Electric Heating Appliances
	UL 507	Electric Fans
	UL 514A	Metallic Outlet Boxes
	UL 515	Electric Resistance Trace Heating for Commercial Applications
	UL 561	Floor Finishing Machines
	UL 574	Electric Oil Heaters
	UL 621	Ice Cream Makers
	UL 705	Power Ventilators
	UL 710B	Recirculating Systems
	UL 749	Household Dishwashers
	UL 751	Vending Machines
	UL 763	Motor-Operated Commercial Food Preparing Machines
	UL 778	~~Standard for~~ Motor-Operated Water Pumps
	UL 834	Heating, Water Supply, and Power Boilers — Electric
	UL 858	Household Electric Ranges
	UL 875	Electric Dry-Bath Heaters
	UL 921	Commercial Dishwashers
	UL 923	Microwave Cooking Appliances
	UL 943	Ground-Fault Circuit-Interrupters
	UL 962	Household and Commercial Furnishings
	UL 962A	Furniture Power Distribution Units
	UL 979	Water Treatment Appliances
	UL 982	Motor-Operated Household Food Preparing Machines
	UL 987	Stationary and Fixed Electric Tools
	UL 1017	Vacuum Cleaners, Blower Cleaners, and Household Floor Finishing Machines
	UL 1026	Household Electric Cooking and Food Serving Appliances
	UL 1086	Household Trash Compactors
	UL 1090	Electric Snow Movers
	UL 1206	Electric Commercial Clothes-Washing Equipment
	UL 1240	Electric Commercial Clothes-Drying Equipment
	UL 1278	Movable and Wall- or Ceiling-Hung Electric Room Heaters
	UL 1447	Electric Lawn Mowers
	UL 1450	Motor-Operated Air Compressors, Vacuum Pumps, and Painting Equipment
	UL 1453	Electric Booster and Commercial Storage Tank Water Heaters
	UL 1576	Flashlights and Lanterns
	UL 1594	Sewing and Cutting Machines

Article	Standard Number	Standard Title
	UL 1647	Motor-Operated Massage and Exercise Machines
	UL 1727	Commercial Electric Personal Grooming Appliances
	UL 1776	High-Pressure Cleaning Machines
	UL 2157	Electric Clothes Washing Machines and Extractors
	UL 2158	Electric Clothes Dryers
	UL 2565	Industrial Metalworking and Woodworking Machine Tools
	UL 60335-2-3	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electric Irons
	UL 60335-2-8	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Shavers, Hair Clippers, and Similar Appliances
	UL 60335-2-24	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances, and Ice-Makers
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~~503~~	~~UL 13~~	~~Power Limited Circuit Cables~~
	UL 823	Standard for Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	~~UL 1203~~	~~Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations~~
	UL 1836	~~Outline of Investigation for~~ Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
	~~UL 2250~~	~~Instrumentation Tray Cable~~
	UL 60079-30-1	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	UL 698A	Standard for Industrial Control Panels Relating to Hazardous (Classified) Locations
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	UL 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations

Article	Standard Number	Standard Title
	UL 120202	Recommendations for the Preparation, Content, and Organization of Intrinsic Safety Control Drawings
	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation
505		Requirements
	IEEE 1349	Guide for the Application of Electric Motors in Class I, Division 2 and Class I, Zone 2 Hazardous (Classified) Locations
	~~UL 13~~	~~Power Limited Circuit Cables~~
	~~UL 674~~	~~Electric Motors and Generators for Use in Hazardous (Classified) Locations~~
	~~UL 1203~~	~~Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations~~
	UL 1309A	~~Marine Shipboard~~ Cable for Mobile Installations
	~~UL 1389~~	~~Standard for Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations~~
	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	~~UL 2250~~	~~Instrumentation Tray Cable~~
	~~UL 2874~~	~~Outline for Electric Motors for Use in Hazardous (Classified) Locations — Protection by Pressurized Atmosphere Maintained above the UFL~~
	UL 60079-0	Explosive ~~Gas~~ Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-1	~~Explosive Gas Atmospheres — Part 1: Type of Protection — Flameproof "d"~~ Explosive Atmospheres — Part 1: Equipment Protection by Flameproof Enclosures "d"
	UL 60079-2	~~Standard for~~ Explosive Atmospheres — Part 2: Equipment protection by pressurized enclosure "p"
	UL 60079-5	Explosive Gas Atmospheres — Part 5: Type of Protection — Powder Filling "q"
	UL 60079-6	~~Standard for~~ Explosive Atmospheres — Part 6: Equipment Protection by Liquid Immersion "o"
	UL 60079-7	~~Explosive Gas Atmospheres — Part 7: Increased Safety "e"~~ Explosive Atmospheres — Part 7: Equipment Protection by Increased Safety "e"
	UL 60079-10-1	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive Gas Atmospheres
	UL 60079-11	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety "i"
	UL 60079-13	~~Standard for~~ Explosive Atmospheres — Part 13: Equipment Protection by Pressurized Room "p" and Artificially Ventilated Room "v"
	UL 60079-15	~~Electrical Apparatus for Explosive Gas Atmospheres — Part 15: Type of Protection "n"~~ Explosive Atmospheres — Part 15: Equipment Protection by Type of Protection "n"
	UL 60079-18	~~Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection — Encapsulation "m"~~ Explosive Atmospheres — Part 18: Equipment Protection

Article	Standard Number	Standard Title
		by Encapsulation “m”
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-26	~~Standard for~~ Explosive Atmospheres — Part 26: Equipment with Equipment Protection Level (EPL) Ga
	UL 60079-28	~~Standard for~~ Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-29-1	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1	~~Standard for~~ Explosive Atmospheres — Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 80079-36	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37	Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non Electrical Type of Protection Constructional Safety “c”, Control of Ignition Source “b”, Liquid Immersion “k”
	~~UL 122001~~	~~General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations~~
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
506		
	UL 698A	Industrial Control Panels Relating to Hazardous (Classified) Locations
	~~UL 13~~	~~Power Limited Circuit Cables~~
	~~UL 1277~~	~~Electrical Power and Control Tray Cables with Optional Optical-Fiber Members~~
	~~UL 2011 (Part 3)~~	~~Outline of Investigation for Machinery~~
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0	Explosive ~~Gas~~ Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-2	~~Standard for~~ Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure “p”
	~~UL 60079-10-2~~	~~Part 10-2: Classification of Areas — Combustible Dust Atmospheres~~
	UL 60079-11	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety "i"
	UL 60079-18	~~Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations Type of Protection — Encapsulation “m”~~ Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”

Article	Standard Number	Standard Title
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-28	~~Standard for~~ Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1	~~Explosive Atmospheres —~~ Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-31	Explosive Atmospheres — Part 31: Equipment Dust Ignition Protection by Enclosure “t”
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 62784	Vacuum Cleaners and Dust Extractors Providing Equipment Protection Level Dc for the Collection of Combustible Dusts — Particular Requirements
	UL 80079-36	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37	Explosive Atmospheres — Part 37: Non-Electrical Equipment for Explosive Atmospheres — Non Electrical Type of Protection Constructional Safety “c”, Control of Ignition Source “b“, Liquid Immersion “k”
~~511~~	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
	~~UL 122701~~	~~Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids~~
~~514~~	~~UL 2225~~	~~Cable and Cable Fittings for Use in Hazardous (Classified) Locations~~
~~517~~	~~AAMI ES60601-1~~	~~Medical electrical equipment— Part 1: General requirements for basic safety and essential performance~~
512	UL 1389	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations
516	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
~~515~~	UL 844	Luminaires for Use in Hazardous (Classified) Locations
517	AAMI ES 60601-1	~~AAMI Medical Electrical Equipment — Part 1: General Requirements for Basic Safety and Essential Performance~~ Medical electrical equipment — Part 1: General requirements for basic safety and essential performance
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 467	Grounding and Bonding Equipment
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts

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	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1022	Line Isolation Monitors
	UL 1047	Isolated Power Systems Equipment
	UL 1286	Office Furnishing Systems
	UL 2930	Cord-and-Plug-connected Health Care Facility Outlet Assemblies
	UL 60601-1	Medical Electrical Equipment — Part 1: General Requirements for Safety
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
518	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 2305	Exhibition Display Units, Fabrication and Installation
	UL 2305A	Convention Center Cord Sets
520	UL 62	Flexible Cords and Cables
	UL ~~Subject~~ 334	Theater Lighting Distribution and Control Equipment
	UL 1573	Stage and Studio Luminaires and Connector Strips
	UL 1640	Portable Power-Distribution Equipment
	UL 1691	Single Pole Locking-Type Separable Connectors
522	UL 13	Power Limited Circuit Cables
	UL 1063	Machine-Tool Wires and Cables
	UL 2250	Instrumentation Tray Cable
525	UL 62	Flexible Cords and Cables
	UL 817	Cord Sets and Power-Supply Cords
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 1691	Single Pole Locking-Type Separable Connectors
530	UL 62	Flexible Cords and Cables
	UL 1479	Fire Tests of Penetration Firestops
	UL 1573	Stage and Studio Luminaires and Connector Strips
	UL 1680	~~Outline for~~ Stage and Lighting Cables
	UL 1691	Single Pole Locking-Type Separable Connectors
	UL 1836	~~Outline of Investigation for~~ Electric Motors and Generators for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2 and Zone 22 Hazardous (Classified) Locations
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements

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540	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
545	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 20	General Use Snap Switches
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 2024	Cable Routing Assemblies and Communications Raceways
547	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62	Flexible Cords and Cables
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1598	Luminaires
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
550	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 83	Thermoplastic-Insulated Wires and Cables
	~~UL 234~~	~~Low Voltage Lighting Fixtures for Use in Recreational Vehicles~~
	UL 307A	Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 307B	Gas-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection

Article	Standard Number	Standard Title
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL ~~Subject~~ 1462	Mobile Home Pipe Heating Cable
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108	Low-Voltage Lighting Systems
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
551	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 62	Flexible Cords and Cables
	UL 231	Power Outlets
	UL 234	Low Voltage Lighting Fixtures for use in Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 467	Grounding and Bonding Equipment
	UL 486C	Splicing Wire Connectors
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D	Cover Plates for Flush-Mounted Wiring Devices
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1004-4	Electric Generators
	UL 1008	Transfer Switch Equipment
	UL 1008M	~~Outline for~~ Transfer Switch Equipment, Meter Mounted
	UL 1008S	Solid-State Transfer Switches
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1449	Surge Protective Devices
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2200	Stationary Engine Generator Assemblies

Article	Standard Number	Standard Title
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 60730-1	Automatic Electrical Controls; Part 1: General Requirements
	UL 60730-2-9	Automatic Electrical Controls; Part 2: Particular Requirements for Temperature Sensing Controls
552	SAE J1128-2015	Low Voltage Primary Cable, for Types GXL, HDT, and SXL
	SAE J1127-2015	Low Voltage Battery Cable, for Types SGT and SGR
	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62	Flexible Cords and Cables
	UL 67	Panelboards
	UL 231	Power Outlets
	UL 234	Low Voltage Lighting Fixtures for Use in Recreational Vehicles
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 430	Waste Disposers
	UL 467	Grounding and Bonding Equipment
	UL 514A	Metallic Outlet Boxes
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 916	Energy Management Equipment
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1004-4	Electric Generators
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1563	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108	Low Voltage Lighting Systems
	UL 2200	Stationary Engine Generator Assemblies
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
555	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 231	Power Outlets
	UL 486D	Sealed Wire Connector Systems

Article	Standard Number	Standard Title
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676	Underwater Luminaires and Submersible Junction Boxes
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1053	Ground-Fault Sensing and Relaying Equipment
	UL 1650	Portable Power Cable
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
590	UL 496	Lampholders
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 588	Seasonal and Holiday Decorative Products
	UL 817	Cord Sets
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1088	Temporary Lighting Strings
	UL 1377	~~Outline for~~ Wire used in Low Voltage Seasonal Lighting Products In Circuits With a Maximum Available Power of 15W
	~~UL 1838~~	~~Low Voltage Landscape Lighting Systems~~
	~~UL 2108~~	~~Low Voltage Lighting Systems~~
600	UL 1	Flexible Metal Conduit
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 13	Power-Limited Circuit Cables
	UL 48	Electric Signs
	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 98B	~~Outline for~~ Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 489B	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems
	UL 508I	~~Outline for~~ Disconnect Switches Intended for Use in Photovoltaic Systems
	UL 814	Gas-Tube-Sign Cable
	UL 879	Electric Sign Components
	UL 879A	LED Sign and Sign Retrofit Kits
	UL ~~Subject~~ 879B	Polymeric Enclosure Systems for the Splice Between Neon Tubing Electrode Leads and GTO Cable, and the GTO Cable Leading to the Splice
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1699B	Photovoltaic (PV) DC Arc-Fault Circuit Protection

Article	Standard Number	Standard Title
	Ul 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2161	Neon Transformers and Power Supplies
	UL 2703	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3003	~~Outline for~~ Distributed Generation Cables
	UL 3703	Solar Trackers
	~~UL 4248-18~~	~~Outline for Fuseholders — Part 18: Photovoltaic~~
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	UL 7103	~~Outline for~~ Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703	~~Outline for~~ Concentrator Photovoltaic Modules and Assemblies
	~~UL 8801~~	~~Outline for Photovoltaic-Powered Luminaire Systems~~
	UL 9703	~~Outline for~~ Distributed Generation Wiring Harnesses
	UL 61730-1	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements For Construction
	UL 61730-2	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements For Testing
	UL 62109	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
604	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 62	Flexible Cords and Cables
	UL 183	Manufactured Wiring Systems
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 857	Busways
	UL 1569	Metal-Clad Cables
	UL 2024	Cable Routing Assemblies and Communications Raceways
605	UL 962	Household and Commercial Furnishings
	UL 1286	Office Furnishings Systems
	UL 1310	Class 2 ~~and Class 3~~ Power Units
	UL 2999	Individual Commercial Office Furnishings

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	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
610	UL 62	Flexible Cords and Cables
	UL ~~Subject~~ 2273	Festoon Cable
620	UL 62	Flexible Cords and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 98	Enclosed and Dead-Front Switches
	UL 104	Elevator Door Locking Devices and Contacts
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1310	Class 2 Power Units
	UL 1449	Surge Protective Devices
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556	Wire and Cable Test Methods
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
625	UL 62	Flexible Cords And Cables
	UL 1650	Portable Power Cable
~~625~~	UL 2202	Electric Vehicle (EV) Charging System Equipment
	UL 2231-1	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 1: General Requirements
	UL 2231-2	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 2: Particular Requirements for Protection Devices for Use in Charging Systems
	UL 2251	Plugs, Receptacles and Couplers for Electrical Vehicles
	UL 2580	Batteries for Use in Electric Vehicles
	UL 2594	Electric Vehicle Supply Equipment
	UL ~~Subject~~ 9741	~~Bidirectional Electric Vehicle (EV) Charging System Equipment~~ Electric Vehicle Power Export Equipment (EVPE)
626	UL 62	Flexible Cords and Cables
	UL 231	Power Outlets
	UL 498	Attachment Plugs and Receptacles
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 817	Cord Sets and Power-Supply Cords

Article	Standard Number	Standard Title
	UL 1651	Optical Fiber Cable
	UL 1686	Pin and Sleeve Configurations
630	UL 551	Transformer-Type Arc-Welding Machines
640	UL 13	Power Limited Circuit Cables
	UL 62	Flexible Cords and Cables
	UL 813	Commercial Audio Equipment
	UL 1310	Class 2 Power Units
	UL 1419	Professional Video and Audio Equipment
	UL 1492	Audio-Video Products and Accessories
	UL 1711	Amplifiers for Fire Protective Signaling Systems
	UL 2269	~~Outline for~~ Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
	UL 6500	Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use
	UL 60065	Audio, Video and Similar Electronic Apparatus — Safety Requirements
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
645	UL 38	Manual Signaling Boxes for Fire Alarm Systems
	UL 268	Smoke Detectors for Fire Alarm Systems
	UL 444	Communications Cables
	UL 464	Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 497B	Protectors for Data Communications and Fire Alarm Circuits
	UL 833	Control Units and Accessories for Fire Alarm Systems
	UL 864	Control Units and Accessories for Fire Alarm Systems
	UL ~~1425~~ 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL ~~1426~~ 1425	Cables for Non-Power-Limited Fire-Alarm Circuits
	UL 1449	Surge Protective Devices
	UL 1480	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1638	Visible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 1651	Optical Fiber Cable
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1690	Data-Processing Cable
	UL 1778	Uninterruptible Power Systems
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 60950-1	Information Technology Equipment Safety — Part 1: General Requirements
	UL 60950-21	Information Technology Equipment Safety — Part 21: Remote Power Feeding
	UL 60950-22	Information Technology Equipment Safety — Part 22: Equipment to be Installed Outdoors

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	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
646	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 62	Flexible Cords and Cables
	UL 67	Panelboards
	UL 98	Enclosed and Dead-Front Switches
	UL 305	Panic Hardware
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 508A	Industrial Control Panels
	UL 845	Motor Control Centers
	UL 869A	Reference Standard for Service Equipment
	UL 891	Switchboards
	~~UL 891A~~	~~Switchboards Rated 601–1000 V~~
	UL 924	Emergency Lighting and Power Equipment
	UL 977	Fused Power-Circuit Devices
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1062	Unit Substations
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429	Pullout Switches
	UL 1449	Surge Protective Devices
	UL 1655	Community-Antenna Television Cables
	UL 1989	Standby Batteries
	UL ~~Subject~~ 2755	Modular Data Centers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
647	UL 1598	Luminaires
650	UL 1310	Class 2 Power Units
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
670	ANSI/CSA-C22.2 No. 19085-1	Woodworking machines — Safety — Part 1: Common requirements
	UL 508	Industrial Control Equipment

Article	Standard Number	Standard Title
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	~~UL 489~~	~~Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures~~
	~~UL 489G~~	~~Outline for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, 650–1000 Volts AC and 650–1500 Volts DC~~
675	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
680	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 20	General Use Snap-Switches
	UL 62	Flexible Cords and Cables
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 379	Power Units for Fountain, Swimming Pool, and Spa Luminaires
	UL 467	Grounding and Bonding Equipment
	UL 486D	Sealed Wire Connector Systems
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676	Underwater Luminaires and Submersible Junction Boxes
	UL 676A	Potting Compounds for Swimming Pool, Fountain, and Spa Equipment
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	~~Outline for~~ Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-10	Pool Pump Motors
	~~UL 1060~~	~~Circuit Breaker and Ground Fault Circuit Interrupters~~
	UL 1081	Swimming Pool Pumps, Filters, and Chlorinators
	UL 1241	~~Isolated Power Systems Equipment~~ Junction Boxes for Swimming Pool Luminaires
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1261	Electric Water Heaters for Pools and Tubs
	UL 1563	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1569	Metal-Clad Cables
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1795	Hydromassage Bathtubs
	UL 2420	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL ~~Subject~~ 2452	~~Outline of Investigation for~~ Electric Swimming Pool and Spa Cover Operators
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings

Article	Standard Number	Standard Title
	UL 2515A	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2995	Lifts for Swimming Pools and Spas
	UL 60335-2-1000	Household and Similar Electrical Appliances: Particular Requirements for Electrically Powered Pool Lifts
682	UL 486D	Sealed Wire Connector Systems
	UL 1650	Portable Power Cable
	UL 1838	Low Voltage Landscape Lighting Systems
690	UL 98B	Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 467	Grounding and Bonding Equipment
	UL 489B	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures ~~for~~ For Use ~~with~~ With Photovoltaic (PV) Systems
	UL ~~Subject~~ 508I	~~Manual~~ Disconnect Switches Intended for Use in Photovoltaic Systems
	UL 1569	Metal-Clad Cables
	UL 1699B	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	UL 1703	Flat-Plate Photovoltaic Modules and Panels
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
	UL 2703	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3003	Distributed Generation Cables
	UL 3005	Distributed Energy Resource Management Systems
	UL ~~Subject~~ 3703	Solar Trackers
	UL ~~Subject~~ 3730	Photovoltaic Junction Boxes
	UL 3741	Photovoltaic Hazard Control
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	~~UL Subject 6703A~~	~~Multi-Pole Connectors for Use in Photovoltaic Systems~~
	UL 7103	~~Outline for~~ Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL ~~Subject~~ 8703	Concentrator Photovoltaic Modules and Assemblies
	UL 8801	~~Outline for~~ Photovoltaic ~~Powered~~ Luminaire Systems
	UL ~~Subject~~ 9703	Distributed Generation Wiring Harnesses
	UL 61730-1	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements for Construction
	UL 61730-2	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements for Testing
	UL 62109-1	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements

Article	Standard Number	Standard Title
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
~~693~~		
692	UL 2262	~~Outline for~~ Fuel Cell Modules for Use in Portable and Stationary Equipment
	UL 2262A	~~Outline for~~ Borohydride Fuel Cartridges with Integral Fuel Processing for Use with Portable Fuel Cell Power Systems or Similar Equipment
	UL 2265	Fuel Cell Power Units and Fuel Storage Containers for Portable Devices
	UL 2265A	~~Outline for~~ Hand-held or Hand-Transportable Fuel Cell Power Units with Disposable Methanol Fuel Cartridges for use in Original Equipment Manufacturer's Information Technology Equipment
	UL 2265C	~~Outline for~~ Hand-Held or Hand-Transportable Alkaline (Direct Borohydride) Fuel Cell Power Units and Borohydride Fuel Cartridges For Use With Consumer Electronics or Information Technology Equipment
	UL 2266	Electromagnetic Compatibility, Electrical Safety, and Physical Protection of Stationary and Portable Fuel Cell Power Systems for Use with Commercial Network Telecommunications Equipment
	UL 2267	Fuel Cell Power Systems for Installation in Industrial Electric Trucks
694	UL 467	Grounding and Bonding Equipment
	UL ~~Subject~~ 489C	Molded-Case Circuit Breakers and Molded-Case Switches for Use with Wind Turbines
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2227	~~Outline for~~ Flexible Motor Supply Cable and Wind Turbine Tray Cable
	UL 2736	~~Outline for~~ Single Pole Separable Interconnecting Cable Connectors for Use with Wind Turbine Generating Systems
	UL 4143	Wind Turbine Generator — Life Time Extension (LTE)
	UL 6141	Wind Turbines Permitting Entry of Personnel
	UL 6142	Wind Turbine Generating Systems — Small
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
695	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 218	Fire Pump Controllers
	UL 448	Centrifugal Stationary Pumps for Fire-Protection Service
	UL 448B	Residential Fire Pumps Intended for One- and Two-Family Dwellings and Manufactured Homes
	UL 448C	Stationary, Rotary-Type, Positive-Displacement Pumps for Fire Protection Service

Article	Standard Number	Standard Title
	UL 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1004-5	Fire Pump Motors
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1569	Metal-Clad Cables
	UL 1724	~~Outline for~~ Fire Tests for Electrical Circuit Protective Systems
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
~~696~~		
700	UL 924	Emergency Lighting and Power Equipment
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1449	Surge Protective Devices
	UL 1724	~~Outline for~~ Fire Tests for Electrical Circuit Protective Systems
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2200	Stationary Engine Generator Assemblies
701	UL 924	Emergency Lighting and Power Equipment
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
702	UL 98	Enclosed and Dead-Front Switches
~~702~~	UL 1008	Transfer Switch Equipment
~~703~~		
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
705	UL 62	Flexible Cords and Cables
	UL 98	Enclosed and Dead-Front Switches
	UL 486D	Sealed Wire Connector Systems
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429	Pullout Switches
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200	Stationary Engine Generator Assemblies
	UL 3003	~~Outline for~~ Distributed Generation Cables
	UL 6141	Wind Turbines Permitting Entry of Personnel
	UL 6142	Small Wind Turbine Systems
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
	UL 9540	Energy Storage Systems and Equipment

Article	Standard Number	Standard Title
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
706	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-12	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 489H	~~Outline for~~ Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, for Use with Direct Current (DC) Microgrids
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 9540	Energy Storage Systems and Equipment
708	UL 1	Flexible Metal Conduit
	UL 4	Armored Cable
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 497A	Secondary Protectors for Communications Circuits
	UL 1008	Transfer Switch Equipment
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M	Meter-Mounted Transfer Switches
	UL 1008S	Solid-State Transfer Switches
	UL 1569	Metal-Clad Cables
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
710	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200	Stationary Engine Generator Assemblies
	UL 8801	Photovoltaic Luminaire Systems
	UL 9540	Energy Storage Systems and Equipment
	UL 62109-1	Power Converters for use in Photovoltaic Power Systems — Part 1: General Requirements

Article	Standard Number	Standard Title
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
~~712~~	~~UL 248-2~~	~~Low-Voltage Fuses — Part 2: Class C Fuses~~
	~~UL 248-3~~	~~Low-Voltage Fuses — Part 3: Class CA and CB Fuses~~
	~~UL 248-4~~	~~Low-Voltage Fuses — Part 4: Class CC Fuses~~
	~~UL 248-5~~	~~Low-Voltage Fuses — Part 5: Class G Fuses~~
	~~UL 248-6~~	~~Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses~~
	~~UL 248-8~~	~~Low-Voltage Fuses — Part 8: Class J Fuses~~
	~~UL 248-9~~	~~Low-Voltage Fuses — Part 9: Class K Fuses~~
	~~UL 248-12~~	~~Low-Voltage Fuses — Part 12: Class R Fuses~~
	~~UL 248-15~~	~~Low-Voltage Fuses — Part 15: Class T Fuses~~
	~~UL 498G~~	~~Outline for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, for Use with Direct Current (DC) Microgrids~~
	~~UL 1066~~	~~Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures~~
	~~UL 1670~~	~~Medium Voltage Circuit Breakers and Metal-Clad Switchgear~~
	~~UL 1671~~	~~Medium Voltage Metal-Clad Switchgear~~
	~~UL 1741~~	~~Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources~~
	~~UL 6142~~	~~Small Wind Turbine Systems~~
	~~UL 6171~~	~~Wind Turbine Converters and Interconnection Systems Equipment~~
	~~UL 9540~~	~~Energy Storage Systems and Equipment~~
	~~UL 60947-1~~	~~Low-Voltage Switchgear and Controlgear — Part 1: General Rules~~
	~~UL 60947-4-1~~	~~Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters~~
	~~UL 62109-2~~	~~Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters~~
722	UL 13	Standard for Power-Limited Circuit Cables
	UL 444	Standard for Safety for Communications Cables
	UL 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL 1651	Optical Fiber Cable
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cable Installed Vertically in Shafts
	UL 1685	Standard for Safety for Vertical-Tray Fire-Propagation and Smoke- Release Test for Electrical and Optical-Fiber Cables
	UL 1724	Fire Tests for Electrical Circuit Protective Systems
	UL 2024	Standard for Safety for Communications Cables
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2556	Standard for Wire and Cable Test Methods
~~725~~	~~UL 13~~	~~Power-Limited Circuit Cables~~
	~~UL 444~~	~~Communications Cable~~

Article	Standard Number	Standard Title
	~~UL 1012~~	~~Power Units Other Than Class 2~~
	~~UL 1277~~	~~Electrical Power and Control Tray Cables with Optional Optical-Fiber Members~~
725	UL 1310	Class 2 Power Units
	~~UL 1666~~	~~Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts~~
	~~UL 1685~~	~~Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables~~
	~~UL 2196~~	~~Fire Test for Circuit Integrity of Fire -Resistive Power, Instrumentation, Control and Data Cables~~
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL ~~Subject~~ 9990	Information and Communication Technology (ICT) Power Cables
	UL 61010-2-201	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-201: Particular Requirements for Control Equipment
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
726	UL 1400-1	Fault-Managed Power Systems — Part 1 General Requirements
	UL 1400-2	Fault-Managed Power Systems — Part 2 Requirements for Cables
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556	Wire and Cable Test Methods
~~727~~	~~UL 2250~~	~~Instrumentation Tray Cable~~
728	UL 5	Surface Metal Raceways and Fittings
	UL 5A	Nonmetallic Surface Raceways and Fittings
	UL 5B	Strut-Type Channel Raceways and Fittings
	UL 5C	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 209	Cellular Metal Floor Raceways and Fittings
	UL 467	Grounding and Bonding Equipment
	UL 514A	Metallic Outlet Boxes
	UL 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 568	Nonmetallic Cable Tray Systems
	UL 884	Underfloor Raceways and Fittings
	UL ~~Subject~~ 1724	Fire Tests for Electrical Circuit Protective Systems
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
760	UL 268	Smoke Detectors for Fire Alarm Signaling Systems

Article	Standard Number	Standard Title
	UL 268A	Smoke Detectors for Duct Application
	UL 486C	Splicing Wire Connectors
	UL 497B	Protectors for Data Communication and Fire Alarm Circuits
	UL 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL 1425	Cables for Non–Power-Limited Fire-Alarm Circuits
	UL 1480	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 60730-2-14	Automatic Electrical Controls; Part 2: Particular Requirements for Electric Actuators
770	UL 467	Grounding and Bonding Equipment
	UL 568	Nonmetallic Cable Tray Systems
	UL 1651	Optical Fiber Cable
	UL 2024	Optical Fiber and Communication Cable Raceway
	UL 2196	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
800	UL 444	Communications Cables
	UL 467	Grounding and Bonding Equipment
	UL 489A	Circuit Breakers for Use in Communication Equipment
	UL 497	Protectors for Paired-Conductor Communications Circuits
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL ~~Subject~~ 523	Telephone Service Drop Wire
	UL 568	Nonmetallic Cable Tray Systems
	UL 723	Test for Surface Burning Characteristics of Building Materials
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 1666	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1863	Communication Circuit Accessories
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
805	UL 444	Communications Cables
	UL 497	Protectors for Paired-Conductor Communications Circuits
	UL 497A	Secondary Protectors for Communications Circuits

Article	Standard Number	Standard Title
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL ~~Subject~~ 523	Telephone Service Drop Wire
	UL 719	Nonmetallic-Sheathed Cables
	UL 1310	Class 2 Power Units
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 1685	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1863	Communication Circuit Accessories
	UL 2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
810	UL 150	Antenna Rotators
	UL 452	Antenna-Discharge Units
	UL 467	Grounding and Bonding Equipment
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
820	UL 444	Communications Cables
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL 1655	Community-Antenna Television Cables
830	UL 444	Communications Cables
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL ~~Subject~~ 497E	Protectors for Antenna Lead-In Conductors
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
840	UL 444	Communications Cables
	UL 467	Grounding and Bonding Equipment
	UL 498A	Current Taps and Adapters
	UL 1310	Class 2 Power Units
	UL 1651	Optical Fiber Cable
	UL 1863	Communication Circuit Accessories
	UL 2024	Cable Routing Assemblies and Communications Raceways
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 11(A) and 11(B)	UL 1310	Class 2 Power Units
	UL 1434	Thermistor-Type Devices
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers

Article	Standard Number	Standard Title
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 12(A) and 12(B)	UL 1310	Class 2 Power Units
	UL 1434	Thermistor-Type Devices
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements

Table A.1(b) Product Safety Standards for Conductors and Equipment That Do Not Have an Associated Listing Requirement

Article	Standard Number	Standard Title
110	UL 969	Marking and Labeling Systems
	UL 9691	Recommended Practice for Nameplates for Use in Electrical Installations
300	UL 635	Insulating Bushings
314	UL 514C	Conduit, Tubing, and Cable Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
320	UL 514A	Metallic Outlet Boxes
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
322	UL 5	Surface Metal Raceways and Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
324	UL 5	Surface Metal Raceways and Fittings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
330	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
332	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
334	UL 6	Electrical Rigid Metal Conduit — Steel
	UL 6A	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 651	Schedule 40 and 80 Rigid PVC Conduit
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
	UL 2420	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.

Article	Standard Number	Standard Title
335	UL 2250	Instrumentation Tray Cable
337	UL 1565	Positioning Devices
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
340	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
344	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
348	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
350	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
352	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
353	UL 635	Insulating Bushings
355	UL 635	Insulating Bushings
	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
356	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
358	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
362	UL 2239	Hardware for the Support of Conduit, Tubing and Cable
368	UL 857	Busways
392	UL 568	Nonmetallic Cable Tray Systems
400	UL 62	Flexible Cords and Cables
	UL 498	Attachment Plugs and Receptacles
	UL 498B	Receptacles with Integral Switching Means
	UL 498D	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 817	Cord Sets and Power-Supply Cords
	UL 1650	Portable Power Cable
	UL 1680	Stage and Lighting Cables
402	UL 66	Fixture Wire
408	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
424	UL 834	Heating, Water Supply, and Power Boilers — Electric
	UL 1693	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995	Heating and Cooling Equipment
	UL 1996	Electric Duct Heaters
	UL 60335-1	Safety of Household and Similar Electrical Appliances, Part 1: General Requirements
	UL 60335-2-40	Household and Similar Electrical Appliances, Part 2–40

Article	Standard Number	Standard Title
425	UL 834	Heating, Water Supply, and Power Boilers — Electric
426	UL 1588	Roof and Gutter De-Icing Cable Units
427	UL 515	Electrical Resistance Trace Heating for Commercial Applications
	UL 1462	Mobile Home Pipe Heating Cable
	UL 2049	Residential Pipe Heating Cable
430	UL 248-13	Low Voltage Fuses — Part 13: Semiconductor Fuses
445	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
450	UL 50	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E	Enclosures for Electrical Equipment, Environmental Considerations
	UL 248-1	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-8	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1561	Dry-Type General Purpose and Power Transformers
	UL 5085-2	Low Voltage Transformers — Part 2: General Purpose Transformers
460	UL 810	Capacitors
	UL 1283	Electromagnetic Interference Filters
	UL 60384-14	Fixed Capacitors for Use in Electronic Equipment — Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains
470	UL 508	Industrial Control Equipment
	UL 1283	Electromagnetic Interference Filters
500	ANSI/IEEE C2	National Electrical Safety Code, Section 127A, Coal Handling Areas
	API RP 14F	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Division 1 and Division 2 Locations
	API RP 500	Recommended Practice for Classification of Locations of Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASHRAE 15	Safety Standard for Refrigeration Systems.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	IEEE 844.2	Standard for Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance

Article	Standard Number	Standard Title
	IEEE 60079-30-2	IEEE/IEC International Standard for Explosive atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation, and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-12.10	Area Classification in Hazardous (Classified) Dust Locations
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 32	Standard for Drycleaning Facilities
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating and Printing Processes Using Flammable or Combustible Liquids
	NFPA 35	Standard for the Manufacture of Organic Coatings
	NFPA 36	Standard for Solvent Extraction Plants
	NFPA 45	Standard on Fire Protection for Laboratories Using Chemicals
	NFPA 55	Compressed Gases and Cryogenic Fluids Code
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 59	Utility LP-Gas Plant Code
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 499	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	NFPA 780	Standard for the Installation of Lightning Protection Systems
	NFPA 820	Standard for Fire Protection in Wastewater Treatment and Collection Facilities
	UL 60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	UL 120002	Certificate Standard for AEx Equipment for Hazardous (Classified) Locations
	UL 120101	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303	Guide for Combustible Gas Detection as a Method of Protection
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and 22 Hazardous (Classified) Locations
501	UL 62	Flexible Cord and Cable
	UL 504	Mineral-Insulated, Metal-Sheathed Cable

Article	Standard Number	Standard Title
502	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
503	NFPA 505	Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
504	ISA-RP 12.06.01	Recommended Practice for Wiring Methods for Hazardous (Classified) Locations Instrumentation — Part 1: Intrinsic Safety
505	ANSI/API RP 14FZ	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations
	API RP 505	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	EI 15	Model Code of Safe Practice, Part 15: Area Classification Code for Installations Handling Flammable Fluids
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-60079-10-1 (12.24.01)	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive gas atmospheres
	ISA-60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 780	Standard for the Installation of Lightning Protection Systems
	UL 80079-20-1	Explosive Atmospheres — Part 20-1: Material Characteristics for Gas and Vapour Classification — Test Methods and Data

Article	Standard Number	Standard Title
	UL 120101	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303	Guide for Use of Detectors for Flammable Gases
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
506	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	ISA-60079-10-2 (12.10.05)	Explosive Atmospheres — Part 10-2: Classification of Areas — Combustible Dust Atmospheres
	NFPA 499	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	UL RP 121203	Recommended Practice for Portable/Personal Electronic Products Suitable for Use in Class I, Division 2, Class I, Zone 2, Class II, Division 2, Class III, Division 1, Class III, Division 2, Zone 21 and Zone 22 Hazardous (Classified) Locations
511	NFPA 30A	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 88A	Standard for Parking Structures
512	ICC IFC	International Fire Code
	NFPA 1	Fire Code
	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 36	Standard for Solvent Extraction Plants
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 70B	Recommended Practice for Electrical Equipment Maintenance
	NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
513	NFPA 30	Flammable and Combustible Liquids Code
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 409	Standard on Aircraft Hangars
514	NFPA 2	Hydrogen Technologies Code
	NFPA 30A	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 52	Vehicular Natural Gas Fuel Systems Code
	NFPA 58	Liquefied Petroleum Gas Code
	NFPA 59	Utility LP-Gas Plant Code
	NFPA 303	Fire Protection Standard for Marinas and Boatyards
515	NFPA 30	Flammable and Combustible Liquids Code

Article	Standard Number	Standard Title
516	NFPA 13	Standard for the Installation of Sprinkler Systems
	NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34	Standard for Dipping, Coating and Printing Processes Using Flammable or Combustible Liquids
	NFPA 77	Recommended Practice on Static Electricity
	NFPA 91	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
	NFPA 701	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
620	UL 4	Armored Cable
	UL 44	Thermoset-Insulated Wires and Cables
	UL 66	Fixture Wire
	UL 504	Mineral Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 1569	Metal Clad Cable
625	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
630	UL 1276	Welding Cable
650	UL 1651	Optical Fiber Cable
660	UL 62	Flexible Cords and Cables
	UL 817	Cord Sets and Power Supply Cords
668	UL 4	Armored Cable
	UL 62	Flexible Cords and Cables
670	UL 2011	Machinery
675	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 1263	Irrigation Cable
690	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
691	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
692	UL 44	Thermoset-Insulated Wires and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire
	UL 1063	Machine-Tool Wires and Cables
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
694	UL 44	Thermoset-Insulated Wires and Cables
	UL 62	Flexible Cords and Cables
	UL 83	Thermoplastic-Insulated Wires and Cables
	UL 83A	Fluoropolymer Insulated Wire

Article	Standard Number	Standard Title
	UL 1063	Machine-Tool Wires and Cables
	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
700	UL 3001	Distributed Energy Generation and Storage Systems
701	UL 3001	Distributed Energy Generation and Storage Systems
702	UL 3001	Distributed Energy Generation and Storage Systems
705	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
710	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems

Supplemental Information

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Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Oct 13 13:43:51 EDT 2021

Committee Statement

Committee Statement: The annex is revised to reference current safety standards. Part 2 has been added to address product safety standards for conductors and equipment that do not have an associated listing requirement

Response Message: SR-7541-NFPA 70-2021

Public Comment No. 1675-NFPA 70-2021 [Section No. A.1]

Public Comment No. 569-NFPA 70-2021 [Section No. A.1]

Public Comment No. 2165-NFPA 70-2021 [Section No. A.1]

Public Comment No. 1262-NFPA 70-2021 [Section No. A.1]

Public Comment No. 411-NFPA 70-2021 [New Section after A.1]

Second Revision No. 7543-NFPA 70-2021 [Annex K]

Informative Annex K Use of Medical Electrical Equipment in Dwellings and Residential Board-and-Care Occupancies

In recent years there has been a significant increase in home or remote patient use of electrical dependent medical equipment, and it is widely considered that this trend will continue in the coming years. Because of this trend, an investigation of the appropriate interaction of this critical equipment with *NFPA 70*, *National Electrical Code (NEC)* installations, both existing and new, should occur.

Medical electrical equipment (MEE) is equipment that has an applied part that transfers or detects energy to and from a patient. This equipment is provided with a single connection to electrical power and is intended for use by the manufacturer, either by marking on equipment or in instructions, to be used for diagnosis, treatment, or monitoring of a patient or for compensation or alleviation of disease, injury, or disability. The environment for intended use can be best described as a place where the patient lives or is present without continuous supervision or aid by professional workers. The Social Security Administration for Medicare provides a definition for durable medical equipment (DME) that is broader than electrical: equipment that is primarily used to serve a medical purpose and is appropriate for use in the home.

MEE is generally divided into classes relating to means of protection (MOP). With Class I equipment, protection against electric shock relies on ~~protective earth~~ bonding of equipment with an equipment grounding conductor . Class II equipment does not rely on ~~protective earth~~ bonding of equipment as an MOP but instead relies on double or reinforced insulation as an MOP against electric shock. Class II equipment does not have provisions for ~~protective earth~~ bonding of equipment or reliance upon installation conditions. For home use MEE, Class I equipment includes ~~a~~ an equipment grounding ~~connection~~ conductor and must be permanently installed.

MEE evaluated for compliance with the ES 60601-1 series of standards are typically Class II equipment unless they are permanently connected to the building power. While there are varying applications and intended uses of medical equipment, one of the most critical is life support medical equipment. This equipment is intended to actively keep alive or resuscitate a patient. Due to the critical intent of this equipment, interaction with an *NEC* installation is critical. Reliable supply of power and understanding of availability of electrical power should there be an outage are key parameters to consider. This type of medical equipment is often supplied with backup power appropriate for the intended use and critical nature of its function. Life support equipment should be on a circuit with limited or no other loads to prevent overloading and unintended removal of power. It is recommended to supply this equipment with an individual branch circuit. If this is not a feasible option due to current installation conditions, it is recommended to conduct the following analysis and labeling:

(1) Conduct an analysis of the circuit intended to supply the life support equipment including all lighting or other outlets that are on the circuit.

(2) Follow the rules of ~~210.16~~ 210.23(B)(2) limiting MEE loads on this circuit to 50 percent or less.

(3) Determine that adequate loading is available for the reliable supply of power to the life support equipment.

(4) Conduct an analysis around the need for backup power given the availability of the patient to access an alternate supply source should they lose primary power in the intended location of the equipment. This will be affected by the distance to the next available option for electrical power, the mobility of the patient, or access to others able to assist. If there is a concern in this area, then backup power at the primary location is suggested.

(5) In the absence of an alarm integral to the MEE, provide an audible alarm ~~should be provided~~ that monitors the circuit supplying power to the equipment and sets off an alarm when power is lost at the outlet supplying the MEE.

(6) Investigate electrical devices and components in the premises wiring system to ensure that remote control or switching are not allowed. ~~Verify the overcurrent protective device(s) and other fault detection devices do not operate.~~ Confirm continuity of power by energizing equipment, and run through a normal cycle of functions to ensure reliable supply of power.

(7) Label all receptacles available to supply power to other loads on the circuit. The labeling

should read as follows or similar language with the same intent:

WARNING — Power loss risk to

life-support and medical equipment on same circuit.

DO NOT OVERLOAD

When using medical equipment, it is critical to understand the conditions and environment in which it will be used. Locating the equipment in wet or damp locations or near other systems (e.g., water, gas, oxygen, sparks) can present hazards that need to be addressed in the installation. For wet and damp locations, MEE will be marked for use in these locations with an ingress protection IPXX (e.g., IP22) rating on the equipment. In the absence of IP21 or higher markings, the equipment should not be used in wet or damp locations. If the equipment is marked with an Umbrella (Keep Dry) symbol, it is limited to dry locations only.

Supplemental Information

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Committee Statement

Committee Statement: The phrase “protective earth” has been corrected reflect the requirements of 250.4. The reference to 210.16 in list item #2 is changed to 210.23(B)(2) for 50% branch circuit rating. The wording in list item #6 to “verify the overcurrent protective device(s) and other fault detection devices do not operate” is deleted as accomplishing this in practice would be impracticable.

Response Message: SR-7543-NFPA 70-2021 The first paragraph was retained to provide information on the development and application of Informative Annex K.

Public Comment No. 1630-NFPA 70-2021 [Annex K]