National Fire Protection Association

1 Batterymarch Park, Quincy, MA 02169-7471
Phone: 617-770-3000 • Fax: 617-770-0700 • www.nfpa.org

WORKING DRAFT OF NEC CODE-MAKING PANEL 1 MEETING OUTPUT

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

Document: National Electrical Code®

Revision Cycle: A2025

Meeting Dates: January 24 – 26, 2024

Panel Activity: Input Stage

This is a working draft, prepared by NFPA staff, to record the output generated at the Code-Making Panel 1 First Draft Meeting. It includes draft copies of the First Revisions and any Global Revisions.

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

First Revision No. 9168-NFPA 70-2024 [Global Input]

Add new section:

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

Where this *Code* specifies that equipment shall be “in sight from,” “within sight from,” or “within sight of” a building or structure, or other equipment, the specified equipment shall be visible and not more than 15 m (50 ft) from the building, structure, or other equipment.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 15:38:51 EST 2024

Committee Statement

Committee Statement: 110.29 was duplicated and added to become a new 110.39 to ensure the same requirements for over 1000 volts apply as they do for 1000 volts or less for the requirements on "within sight from."

The term “within sight” is used in several sections of the NEC where the reference is a building or structure in addition to equipment.

Response Message: FR-9168-NFPA 70-2024

First Revision No. 9213-NFPA 70-2024 [Global Input]

[For the following sections, please make the necessary changes as shown in the attached word file]

Part II. 1000 Volts, Nominal

110.26 (A) Working Space

110.26(A)(4) Limited Access

110.27(A) Live Parts Guarded Against Accidental Contact

110.28 Enclosure Types

Part III. Over 1000 Volts, Nominal

110.30 General

110.33(A)(2) Guarding

110.34(B) Separation from Low-Voltage Equipment

110.34(C) Locked Rooms or Enclosures

Part IV. Tunnel Installations Over 1000 Volts, Nominal

110.73 Equipment Work Space

110.74(A) 1000 Volts, Nominal

110.74(B) Over 1000 Volts, Nominal

Supplemental Information

File Name	Description	Approved
70_CMP_1_FR_9213_210_2422.docx	Changes to Sections 110	
70_CMP_1_Global_FR_9213_110.docx	For prod use	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Jan 26 09:17:17 EST 2024

Committee Statement

Committee Statement: Sections of Article 110 have been revised to clarify the voltage rating of “not over 1000 volts ac, 1500 volts dc, nominal” where a voltage range is indicated. Voltage range was deleted in the body of the text where not necessary due to the title of the Part of the Article.

Response Message: FR-9213-NFPA 70-2024

Public Input No. 210-NFPA 70-2023 [Section No. 110.26(A)(4)]

Public Input No. 2422-NFPA 70-2023 [Global Input]

Part II. Not Over 1000 Volts ac, 1500 Volts dc, Nominal~~, or Less~~

110.26(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~~ 2024, *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.

Commented [NC1]: Revised by FR-8939

110.26(A)(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:

110.27(A) Live Parts Guarded Against Accidental Contact.

Except as elsewhere required or permitted by this Code, live parts of electrical equipment operating at 50 volts ac/dc to 1000 volts ac, 1500 volts dc, nominal shall be guarded against accidental contact by approved enclosures or by any of the following means:

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.

Part III. Over 1000 Volts ac, 1500 Volts dc, Nominal

110.30 General.

Conductors and equipment used on circuits over 1000 volts ac, 1500 volts dc, nominal, shall comply with Part I of this article and with 110.30 through 110.41, which supplement or modify Part I. In no case shall this part apply to equipment on the supply side of the service point.

110.33(A)(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.

110.34(B) Separation from Low-Voltage Equipment.

Where switches, cutouts, or other equipment operating at not over 1000 volts ac, 1500 volts dc, nominal, ~~or less~~ are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating at 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.

110.34(C) Locked Rooms or Enclosures.

The entrance to all buildings, vaults, rooms, or enclosures containing exposed live parts or exposed conductors ~~operating at over 1000 volts, nominal,~~ shall be kept locked unless such entrances are under the observation of a qualified person at all times.

Part IV. Tunnel Installations Over 1000 Volts ac, 1500 Volts dc, Nominal

110.73 Equipment Work Space.

Where electrical equipment with live parts that is likely to require examination, adjustment, servicing, or maintenance while energized is installed in a manhole, vault, or other enclosure designed for personnel access, the work space and associated requirements in 110.26 shall be met for installations operating at not over 1000 volts ac, 1500 volts dc, nominal ~~or less~~. Where the installation is over 1000 volts ac, 1500 volts dc, nominal, the work space and associated requirements in 110.34 shall be met. A manhole access cover that weighs over 45.4 kg (100 lb) shall be considered as meeting the requirements of 110.26(F) and 110.34(C).

110.74(A) Not Over 1000 Volts ac, 1500 Volts dc, Nominal~~, or Less~~.

Wire bending space for conductors operating not over ~~at~~ 1000 volts ~~or less~~ ac, 1500 volts dc, nominal, shall be provided in accordance with 314.28.

110.74(B) Over 1000 Volts ac, 1500 Volts dc, Nominal.

Conductors operating at over 1000 volts ac, 1500 volts dc, nominal, shall be provided with bending space in accordance with 314.71(A) and (B), as applicable.

First Revision No. 9025-NFPA 70-2024 [Detail]

[Please see attached word file for changes to Annex A]

Supplemental Information

File Name	Description	Approved
70_CMP_1_FR_9025_2589_2579.docx	Annex A PI 2589 & 2579	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 17:15:25 EST 2024

Committee Statement

Committee Statement: The informative Annex A was revised to include new standards, delete withdrawn standards, and update the edition years in compliance with the NEC Style Manual and the Regulations Governing the Development of NFPA Standards.

Response Message: FR-9025-NFPA 70-2024

Public Input No. 2589-NFPA 70-2023 [Annex A]

Public Input No. 2579-NFPA 70-2023 [Definition:]

Annex A

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
	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 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

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

Article	Standard Number	Standard Title
	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	Power Distribution Blocks
	UL 2011	Machinery
	UL 2200	Stationary Engine Generator Assemblies
	UL 2416	Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
	UL 2446	Unitary Boiler Room Systems
	UL 2565	Industrial Metalworking and Woodworking Machine Tools
	UL 2735	Electric Utility Meters
	UL 2745	Meter Socket Adapters for Communications Equipment
	UL 2876	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
	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 153	Portable Electric Luminaires
	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

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

Article	Standard Number	Standard Title
	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 746C	Polymeric Materials — Use in Electrical Equipment Evaluations
	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	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 83B	Switchboard and Switchgear Wires and Cables
	UL 224	Extruded Insulating Tubing
	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 854	Service-Entrance Cables
	UL 1063	Machine-Tool Wires and Cables
	UL 1441	Coated Electrical Sleeving
	UL 1581	Reference Standard for Electrical Wires, Cables, and Flexible Cords
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	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 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
315	ANSI C119.4	Electric Connectors — Connectors for Use between Aluminum-to-Aluminum and Aluminum-to-Copper Conductors Designed

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

Article	Standard Number	Standard Title
		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
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	UL 486A-486B	Wire Connectors
	UL 498	Attachment Plugs and Receptacles
	UL 514A	Metallic Outlet Boxes
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
	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	Mineral-Insulated, Metal-Sheathed Cable
	UL 514B	Conduit, Tubing and Cable Fittings
334	UL 719	Nonmetallic-Sheathed Cables
	UL 2256	Nonmetallic Sheathed Cable Interconnects
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installations
335	UL 2250	Instrumentation Tray Cable
336	UL 514B	Conduit, Tubing, and Cable Fittings
	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

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

Article	Standard Number	Standard Title
	UL 854	Service-Entrance Cables
	UL 514B	Conduit, Tubing, and Cable Fittings
340	UL 493	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 1242	Electrical Intermediate Metal Conduit — Steel
	UL 6	Electrical Rigid Metal Conduit — Steel
344	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
	UL 360	Liquid-Tight Flexible Steel Conduit
350	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 HDPE 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
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
356	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
358	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 797	Electrical Metallic Tubing — Steel
	UL 797A	Electrical Metallic Tubing — Aluminum and Stainless Steel
360	UL 514B	Conduit, Tubing, and Cable Fittings
	UL 1652	Flexible Metallic Tubing
	UL 1653	Electrical Nonmetallic Tubing
362	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
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

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

Article	Standard Number	Standard Title
	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 Power 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
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
396	UL 1072	Medium-Voltage Power Cables
404	UL 20	General-Use Snap Switches
	UL 98	Enclosed and Dead-Front Switches
	UL 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

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

Article	Standard Number	Standard Title
	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
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943B	Appliance Leakage-Current Interrupters
	UL 943C	Special Purpose Ground-Fault Circuit-Interrupters
	UL 970	Retail Fixtures and Merchandising Displays
	UL 1286	Office Furnishings Systems
	UL 1310	Class 2 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 1699A	Outlet Branch Circuit AFCIs See 406.4(D)(4)(1)
	UL 1053	Ground-Fault Sensing and Relaying Equipment See 406.4(D)(8)
	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
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	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 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 1029A	Ignitors and Related Auxiliaries for HID Lamp Ballasts
	UL 1574	Track Lighting Systems

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

Article	Standard Number	Standard Title
	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 8800	Horticultural Lighting Equipment and Systems
411	UL 1310	Class 2 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 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 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	Motor-Operated Water Pumps
	UL 834	Heating, Water Supply, and Power Boilers — Electric
	UL 858	Household Electric Ranges
	UL 859	Household Electric Personal Grooming Appliances
	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

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

Article	Standard Number	Standard Title
	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
	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
	UL 60335-2-40	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60335-2-67	Household and Similar Electrical Appliances — Safety — Part 2-67: Particular Requirements for Floor Treatment Machines, For Commercial Use
	UL 60335-2-68	Household and Similar Electrical Appliances — Safety — Part 2-68: Particular Requirements for Spray Extraction Machines, for Commercial Use
	UL 60335-2-79	Household and Similar Electrical Appliances — Safety — Part 2-79: Particular Requirements for High Pressure Cleaners and Steam Cleaners
	UL 60730-2-9	Automatic Electrical Controls; Part 2: Particular Requirements for Temperature Sensing Controls
	UL 60745-1	Hand-Held Motor-Operated Electric Tools — Safety — Part 1: General Requirements
	UL 60745-2-1	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-1: Particular Requirements for Drills and Impact Drills
	UL 60745-2-2	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-2: Particular Requirements for Screwdrivers and Impact Wrenches
	UL 60745-2-3	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-3: Particular Requirements for Grinders, Polishers, and Disk-Type Sanders
	UL 60745-2-4	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-4: Particular Requirements for Sanders and Polishers Other Than Disk Type
	UL 60745-2-5	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-5: Particular Requirements for Circular Saws
	UL 60745-2-6	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-6: Particular Requirements for Hammers
	UL 60745-2-8	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-8: Particular Requirements for Shears and Nibblers
	UL 60745-2-9	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-9: Particular Requirements for Tappers

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

Article	Standard Number	Standard Title
	UL 60745-2-11	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-11: Particular Requirements for Reciprocating Saws
	UL 60745-2-12	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-12: Particular Requirements For Concrete Vibrators
	UL 60745-2-13	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-13: Particular Requirements For Chain Saws
	UL 60745-2-14	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-14: Particular Requirements for Planers
	UL 60745-2-15	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-15: Particular Requirements for Hedge Trimmers
	UL 60745-2-16	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-16: Particular Requirements for Tackers
	UL 60745-2-17	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-17: Particular Requirements for Routers and Trimmers
	UL 60745-2-18	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-18: Particular Requirements For Strapping Tools
	UL 60745-2-19	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-19: Particular Requirements for Jointers
	UL 60745-2-20	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-20: Particular Requirements for Band Saws
	UL 60745-2-21	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-21: Particular Requirements For Drain Cleaners
	UL 60745-2-22	Hand-Held Motor-Operated electric Tools — Safety — Part 2-22: Particular Requirements for Cut-Off Machines
	UL 60745-2-23	Hand-Held Motor-Operated electric Tools — Safety — Part 2-23: Particular Requirements for Die Grinders and Small Rotary Tools
	UL 62841-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 1: General Requirements
	UL 62841-2-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-1: Particular Requirements For Hand-Held Drills and Impact Drills
	UL 62841-2-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-2: Particular Requirements For Screwdrivers And Impact Wrenches
	UL 62841-2-3	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-3: Particular Requirements For Hand-Held Grinders, Polishers, and Disk-Type Sanders
	UL 62841-2-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-4: Particular Requirements For Hand-Held Sanders And Polishers Other Than Disc Type
	UL 62841-2-5	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-5: Particular Requirements For Hand-Held Circular Saws
	UL 62841-2-8	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-8: Particular Requirements For Hand-Held Shears and Nibblers
	UL 62841-2-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders
	UL 62841-2-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-10: Particular Requirements For Hand-Held Mixers
	UL 62841-2-11	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws
	UL 62841-2-14	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-14: Particular Requirements For Hand-Held Planers

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

Article	Standard Number	Standard Title
	UL 62841-2-17	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-17: Particular Requirements For Hand-Held Routers
	UL 62841-2-21	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-21: Particular Requirements For Hand-Held Drain Cleaners
	UL 62841-3-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1: Particular Requirements For Transportable Table Saws
	UL 62841-3-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-4: Particular Requirements for Transportable Bench Grinders
	UL 62841-3-6	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-6: Particular Requirements For Transportable Diamond Drills with Liquid System
	UL 62841-3-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-9: Particular Requirements For Transportable Mitre Saws
	UL 62841-3-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-10: Particular Requirements for Transportable Cut-Off Machines
	UL 62841-3-12	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-12: Particular Requirements for Transportable Threading Machines
	UL 62841-3-13	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-13: Particular Requirements For Transportable Drills
	UL 62841-3-14	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-14: Particular Requirements for Transportable Drain Cleaners
	UL 62841-3-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1000: Particular Requirements for Transportable Laser Engravers
	UL 62841-4-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1: Particular Requirements for Chain Saws
	UL 62841-4-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-2: Particular Requirements for Hedge Trimmers
	UL 62841-4-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1000: Particular Requirements For Utility Machines
424	UL 499	Electric Heating Appliances
	UL 1042	Electric Baseboard Heating Equipment
	UL 1673	Electric Space Heating Cables
	UL 1693	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995	Heating and Cooling Equipment
	UL 1996	Electric Duct Heaters
	UL 2021	Fixed and Location-Dedicated Electric Room Heaters
	UL 2683	Electric Heating Products for Floor and Ceiling Installation
425	UL 508	Industrial Control Equipment
	UL 2021	Fixed and Location-Dedicated Electric Room Heaters
426	IEEE 515	Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Industrial Applications
	UL 1588	Roof and Gutter De-Icing Cable Units
	UL 2049	Residential Pipe Heating Cable
427	IEEE 515	Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Industrial Applications
	UL 515	Electrical Resistance Heat Tracing for Commercial Applications

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

Article	Standard Number	Standard Title
	UL 2049	Residential Pipe Heating Cable
430	UL 4	Armored Cable
	UL 98	Enclosed and Dead-Front Switches
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A	Medium Voltage Power Conversion Equipment
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 705	Power Ventilators
	UL 745-1	Portable Electric Tools
	UL 845	Motor Control Centers
	UL 987	Stationary and Fixed Electric Tools
	UL 1004-1	Rotating Electrical Machines — General Requirements
	UL 1004-2	Impedance Protected Motors
	UL 1004-3	Thermally Protected Motors
	UL 1004-6	Servo and Stepper Motors
	UL 1004-7	Electronically Protected Motors
	UL 1004-8	Inverter Duty Motors
	UL 1004-9	Form Wound and Medium Voltage Rotating Electrical Machines
	UL 1066	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1569	Metal Clad Cables
	UL 1812	Ducted Heat Recovery Ventilators
	UL 1815	Nonducted Heat Recovery Ventilators
	UL 2565	Industrial Metalworking and Woodworking Machine Tools
	UL 60034-1	Rotating Electrical Machines — Part 1: Rating and Performance
	UL 60335-2-40	Household and Similar Electrical Appliances — Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60730-2-22	Automatic Electrical Controls — Part 2: Particular Requirements for Thermal Motor Protectors
	UL 60745-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 1: General Requirements
	UL 60745-2-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-1: Particular Requirements For Hand-Held Drills and Impact Drills
	UL 60745-2-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-2: Particular Requirements For Screwdrivers And Impact Wrenches
	UL 60745-2-3	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-3: Particular Requirements For Hand-Held Grinders, Polishers, and Disk-Type Sanders
	UL 60745-2-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-4: Particular Requirements For Hand-Held Sanders And Polishers Other Than Disc Type
	UL 60745-2-5	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-5: Particular Requirements For Hand-Held Circular Saws
	UL 60745-2-8	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-8: Particular Requirements For Hand-Held Shears and Nibblers
	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

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

Article	Standard Number	Standard Title
	UL 60947-4-2	Low-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 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62841-2-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders
	UL 62841-2-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-10: Particular Requirements For Hand-Held Mixers
	UL 62841-2-11	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws
	UL 62841-2-14	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-14: Particular Requirements For Hand-Held Planers
	UL 62841-2-17	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-17: Particular Requirements For Hand-Held Routers
	UL 62841-2-21	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-21: Particular Requirements For Hand-Held Drain Cleaners
	UL 62841-3-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1: Particular Requirements For Transportable Table Saws
	UL 62841-3-4	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-4: Particular Requirements for Transportable Bench Grinders
	UL 62841-3-6	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-6: Particular Requirements For Transportable Diamond Drills with Liquid System
	UL 62841-3-9	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-9: Particular Requirements For Transportable Mitre Saws
	UL 62841-3-10	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-10: Particular requirements for Transportable Cut-Off Machines
	UL 62841-3-12	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-12: Particular requirements for Transportable Threading Machines
	UL 62841-3-13	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-13: Particular Requirements For Transportable Drills
	UL 62841-3-14	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-14: Particular requirements for Transportable Drain Cleaners
	UL 62841-3-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1000: Particular Requirements for Transportable Laser Engravers
	UL 62841-4-1	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1: Particular Requirements for Chain Saws
	UL 62841-4-2	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-2: Particular Requirements for Hedge Trimmers
	UL 62841-4-1000	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1000: Particular Requirements For Utility Machines

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

Article	Standard Number	Standard Title
440	UL 98	Enclosed and Dead-Front Switches
	UL 416	Refrigerated Medical Equipment
	UL 484	Room Air Conditioners
	UL 489	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508	Industrial Control Equipment
	UL 541	Refrigerated Vending Machines
	UL 563	Ice Makers
	UL 1429	Pullout Switches
	UL 1995	Heating and Cooling Equipment
	UL 60335-2-24	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers
	UL 60335-2-40	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60335-2-89	Household and Similar Electrical Appliances — Safety — Part 2-89: Particular Requirements for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor
	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	Low-Voltage Switchgear and Controlgear — Part 4-2: Contactors and Motor-Starters — AC Semiconductor Motor Controllers and Starters
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-2: Safety Requirements — Functional
445	UL 508	Industrial Control Equipment
	UL 943	Ground-Fault Circuit-Interrupters
	UL 943C	Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-4	Electric Generators
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200	Stationary Engine Generator Assemblies
450	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 305	Panic Hardware
	UL 340	Tests for Comparative Flammability of Liquids
	UL 60730-2-14	Automatic Electrical Controls; Part 2: Particular Requirements for Electric Actuators
480	UL 10C	Positive Pressure Fire Tests of Door Assemblies
	UL 305	Panic Hardware
	UL 1642	Lithium Batteries
	UL 1973	Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
	UL 1989	Standby Batteries
	UL 2054	Household and Commercial Batteries
	UL 4127	Low Voltage Battery Cable
	UL 4128	Intercell and Intertier Connectors for use in Electrochemical Battery System Applications
490	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A	Medium Voltage Power Conversion Equipment
	~~UL 347B~~	~~Medium Voltage Motor Controllers, Up to 15kV~~
	UL 347C	Medium Voltage Solid State Resistive Load Controllers, Up to 15kV
	UL 1008A	Transfer Switch Equipment, Over 1000 Volts

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

Article	Standard Number	Standard Title
500	FM 121303	Guide for Use of Detectors for Flammable Gases
	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	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 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 698A	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
	UL 1203	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1389	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations
	UL 1836	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 60079-28	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	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection "s"
	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 121303	Guide for Use of Detectors for Flammable Gases
	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 Potentially Flammable or Combustible Process Fluids
501	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations

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

Article	Standard Number	Standard Title
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	Standard for Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	UL 1072	Medium-Voltage Power Cables
	UL 1203	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1277	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 1309A	Cable for Use in Mobile Applications
	UL 1836	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 60079-28	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	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 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	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 Potentially Flammable or Combustible Process Fluids
502	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 783	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823	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 1309A	Cable for Mobile Installations
	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 60079-28	Part 30-1: Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection "s"
	UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

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

Article	Standard Number	Standard Title
503	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	UL 823	Standard for Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
	UL 1836	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 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
504	UL 698A	Standard for Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
	UL 120202	Recommendations for the Preparation, Content, and Organization of Intrinsic Safety Control Drawings
505	FM 121303	Guide for Use of Detectors for Flammable Gases
	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	IEEE 1349	Guide for the Application of Electric Machines in Zone 2 and Class I, Division 2 Hazardous (Classified) Locations
	UL 1309A	Cable for Mobile Installations
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0	Explosive Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-1	Explosive Atmospheres — Part 1: Equipment Protection by Flameproof Enclosures “d”
	UL 60079-2	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	Explosive Atmospheres — Part 6: Equipment Protection by Liquid Immersion “o”
	UL 60079-7	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	Explosive Atmospheres — Part 13: Equipment Protection by Pressurized Room “p” and Artificially Ventilated Room “v”
	UL 60079-15	Explosive Atmospheres — Part 15: Equipment Protection by Type of Protection “n”
	UL 60079-18	Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-26	Explosive Atmospheres — Part 26: Equipment with Equipment Protection Level (EPL) Ga
	UL 60079-28	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

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

Article	Standard Number	Standard Title
	UL 60079-29-4	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1	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 121303	Guide for Use of Detectors for Flammable Gases
	UL 122701	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
506	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	UL 698A	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 2225	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0	Explosive Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-2	Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure "p"
	UL 60079-11	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety "i"
	UL 60079-18	Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation "m"
	UL 60079-25	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-28	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1	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"
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
	UL 844	Luminaires for Use in Hazardous (Classified) Locations
517	AAMI ES 60601-1	Medical electrical equipment — Part 1: General requirements for basic safety and essential performance

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

Article	Standard Number	Standard Title
	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
	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	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 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
	UL 489	**Attachment Plugs and Receptacles**
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	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	Stage and Lighting Cables
	UL 1691	Single Pole Locking-Type Separable Connectors
	UL 1836	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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Table A.1(a) Product Safety Standards for Conductors and Equipment That Have an Associated Listing Requirement

Article	Standard Number	Standard Title
	UL 67	Panelboards
	UL 943	Ground-Fault Circuit Interrupters
	UL 1640	Portable Power-Distribution Equipment
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 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
	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 1462	Mobile Home Pipe Heating Cable
	UL 1598	Luminaires
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108	Low-Voltage Lighting Systems

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

Article	Standard Number	Standard Title
	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	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
	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

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

Article	Standard Number	Standard Title
	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
	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
	UL 1399	Leakage Current Measurement Devices for Use in Marina Applications
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	Wire used in Low Voltage Seasonal Lighting Products In Circuits With a Maximum Available Power of 15W
	UL 1640	Portable Power-Distribution Equipment
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	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	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 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 Power Units
	UL 1660	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1699B	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

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

Article	Standard Number	Standard Title
	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	Distributed Generation Cables
	UL 3703	Solar Trackers
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	UL 7103	Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703	Concentrator Photovoltaic Modules and Assemblies
	UL 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	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 Power Units
	UL 2999	Individual Commercial Office Furnishings
	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
610	UL 62	Flexible Cords and Cables
	UL 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

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

Article	Standard Number	Standard Title
	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
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2202	~~Electric Vehicle (EV)~~ DC Charging ~~System~~ Equipment for Electric Vehicles
	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 9741	Electric Vehicle Power Export Equipment (EVPE)
	UL 60730-1	Automatic Electrical Controls
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
	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	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

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

Article	Standard Number	Standard Title
	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 1424	Cables for Power-Limited Fire-Alarm Circuits
	UL 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
	UL 60950-23	Information Technology Equipment Safety — Part 23: Large Data Storage Equipment
	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 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 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

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

Article	Standard Number	Standard Title
	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
	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
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	Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-10	Pool Pump Motors
	UL 1081	Swimming Pool Pumps, Filters, and Chlorinators
	UL 1241	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 2452	Electric Swimming Pool and Spa Cover Operators
	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
	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
	UL 943	Ground-Fault Circuit-Interrupters
	UL 1053	Ground-Fault Sensing and Relaying Equipment
690	UL 98B	Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19	Low-Voltage Fuses — Part 19: Photovoltaic Fuses

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

Article	Standard Number	Standard Title
	UL 467	Grounding and Bonding Equipment
	UL 489B	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems
	UL 508I	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 3703	Solar Trackers
	UL 3730	Photovoltaic Junction Boxes
	UL 3741	Photovoltaic Hazard Control
	UL 4703	Photovoltaic Wire
	UL 6703	Connectors for Use in Photovoltaic Systems
	UL 7103	Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703	Concentrator Photovoltaic Modules and Assemblies
	UL 8801	Photovoltaic Luminaire Systems
	UL 9703	Distributed Generation Wiring Harnesses
	UL 9741	Electric Vehicle Power Export Equipment (EVPE)
	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
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
	UL 62275	Cable Management Systems — Cable Ties for Electrical Installation
692	UL 2262	Fuel Cell Modules for Use in Portable and Stationary Equipment
	UL 2262A	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	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	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 489C	Molded-Case Circuit Breakers and Molded-Case Switches for Use with Wind Turbines

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

Article	Standard Number	Standard Title
	UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2227	Flexible Motor Supply Cable and Wind Turbine Tray Cable
	UL 2736	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
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
	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	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
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	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
	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
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 3001	Distributed Energy Resource Systems
	UL 3003	Distributed Generation Cables
	UL 3010	Single Site Energy Systems
	UL 6141	Wind Turbines Permitting Entry of Personnel

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

Article	Standard Number	Standard Title
	UL 6142	Small Wind Turbine Systems
	UL 9540	Energy Storage Systems and Equipment
	UL 9741	Electric Vehicle Power Export Equipment (EVPE)
	UL 62109-2	Power Converters for Use in Photovoltaic Power Systems — Part 2: Particular Requirements for Inverters
	UL 62109-1	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements
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	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 9741	Electric Vehicle Power Export Equipment (EVPE)
	UL 62109-1	Power Converters for use in Photovoltaic Power Systems — Part 1: General Requirements
	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

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

Article	Standard Number	Standard Title
	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 1310	Class 2 Power Units
	UL 5085-3	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 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
	UL 60730-1	Automatic Electrical Controls
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
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 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
750	**UL 60730-1**	**Automatic Electrical Controls**
760	UL 268	Smoke Detectors for Fire Alarm Signaling Systems
	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

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

Article	Standard Number	Standard Title
	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 497E	Protectors for Antenna Lead-In Conductors
	UL 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
	UL1724	Outline for Fire Tests for Electrical Circuit Protective Systems
	UL2556	**Wire and Cable Test Methods**
	UL2043	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL2196	Tests for Fire Resistive Cables
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
805	~~UL 444~~	~~Communications Cables~~
	UL 497	Protectors for Paired-Conductor Communications Circuits
	UL 497A	Secondary Protectors for Communications Circuits
	UL 497C	Protectors for Coaxial Communications Circuits
	UL 497E	Protectors for Antenna Lead-In Conductors
	UL 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~~

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

Article	Standard Number	Standard Title
	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 497E	Protectors for Antenna Lead-In Conductors
820	UL 444	Communications Cables
	UL 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 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
	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

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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
210	UL 1053	Ground-Fault Sensing and Relaying Equipment
215	UL 1053	Ground-Fault Sensing and Relaying Equipment
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.
335	UL 2250	Instrumentation Tray Cable

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

Article	Standard Number	Standard Title
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

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

Article	Standard Number	Standard Title
	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
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

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

Article	Standard Number	Standard Title
		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
	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,

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

Article	Standard Number	Standard Title
		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
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

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

Article	Standard Number	Standard Title
		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
	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

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

Article	Standard Number	Standard Title
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

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

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
	UL 1740	**Standard for Robots and Robotic Equipment**
	UL 3100	**Standard for Automated Mobile Platforms (AMPs)**
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

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

Article	Standard Number	Standard Title
	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
	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
	UL 3008	**Automatic Interconnection Switches for Emergency Systems**
701	UL 3001	Distributed Energy Generation and Storage Systems
	UL 3008	**Automatic Interconnection Switches for Emergency 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

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First Revision No. 9041-NFPA 70-2024 [Detail]

Add following reference to Annex A.1(b):

NEMA CY 10000-2023, Cybersecurity Implementation Guidance for Connected Electrical Infrastructure to Informative Annex A.1(b).

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 07:59:31 EST 2024

Committee Statement

Committee Statement: A new reference was added to Informative Annex A.1(b) in accordance with Section 4.2.2.2 of the NEC Style Manual.

Response Message: FR-9041-NFPA 70-2024

First Revision No. 9273-NFPA 70-2024 [Section No. 90.2(C)]

(C) ~~Installations~~ Covered.

This *Code* covers the installation, maintenance, reconditioning, servicing, and removal of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables for the following:

(1) Public and private premises, including buildings, structures, mobile homes, recreational vehicles, and floating buildings

(2) Yards, lots, parking lots, carnivals, and industrial substations

(3) Installations of conductors and equipment that connect to the supply of electricity

(4) Installations used by the electric utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings, that are not an integral part of a generating plant, substation, or control center

(5) Installations supplying shore power to ships and watercraft in marinas and boatyards, including monitoring of leakage current

(6) Installations used to export electric power from vehicles to premises wiring or for bidirectional current flow

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Jan 26 14:54:18 EST 2024

Committee Statement

Committee Statement: textThe text was revised in 90.2(C) in the main paragraph to add maintenance, reconditioning, and servicing to correlate with such requirements in this Code.

Response Message: FR-9273-NFPA 70-2024

Public Input No. 478-NFPA 70-2023 [Section No. 90.2(C)]

First Revision No. 8866-NFPA 70-2024 [Section No. 90.2(F)]

~~(F) Special Permission.~~

~~The authority having jurisdiction for enforcing this *Code* may grant exception for the installation of conductors and equipment that are not under the exclusive control of the electric utilities and are used to connect the electric utility supply system to the service conductors of the premises served, provided such installations are outside a building or structure, or terminate inside at a readily accessible location nearest the point of entrance of the service conductors.~~

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Wed Jan 24 09:41:03 EST 2024

Committee Statement

Committee Statement: List item (F) is deleted as these requirements are addressed in 90.4.
Response Message: FR-8866-NFPA 70-2024

Public Input No. 190-NFPA 70-2023 [Section No. 90.2(F)]

First Revision No. 9191-NFPA 70-2024 [Section No. 90.3]

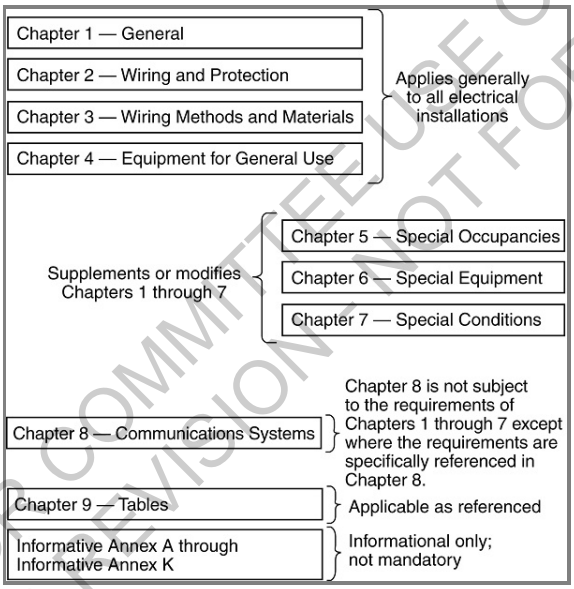
90.3 Code Arrangement.

This *Code* is divided into the introduction and nine chapters, as shown in Figure 90.3. Chapters 1 ~~, 2 , 3 , and~~ through 4 apply generally. Chapters 5 ~~, 6 , and 7 apply to special occupancies, special equipment, or other special conditions and~~ through 8 may supplement or modify the requirements in Chapters 1 through ~~7 .Chapter~~ 8 ~~covers communications systems and is not subject to the requirements of Chapters 1 through 7 except where the requirements are specifically referenced in Chapter~~ 8 .

Chapter 9 consists of tables that are applicable as referenced.

Informative annexes are not part of the requirements of this *Code* but are included for informational purposes only.

Figure 90.3 Code Arrangement.



Supplemental Information

File Name	Description	Approved
70_CMP_1_FR_9191_90_3.docx	Figure for 90.3	

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 16:21:25 EST 2024

Committee Statement

Committee Statement: The text in 90.3 is modified to remove the independence of Chapter 8. The reorganization no longer requires that the communications systems articles be independent from Chapters 1-7.

The titles of the chapters were changed from “special” to “specific” to accurately reflect what is covered within those chapters.

The changes to 90.3 simplifies the current NEC structure, and positions the proposed future NEC structure changes outlined in NEC CC White Paper “Keeping the NEC® Relevant – Is Now the Time to Modernize?” This White Paper provides a roadmap for a future Code structure to address the everchanging landscape of how electrical power is generated, delivered, used, and controlled.

The Panel recognizes that additional chapters are under the purview of the NEC Correlating Committee.

Response Message: FR-9191-NFPA 70-2024

Public Input No. 191-NFPA 70-2023 [Section No. 90.3]

Public Input No. 919-NFPA 70-2023 [Section No. 90.3]

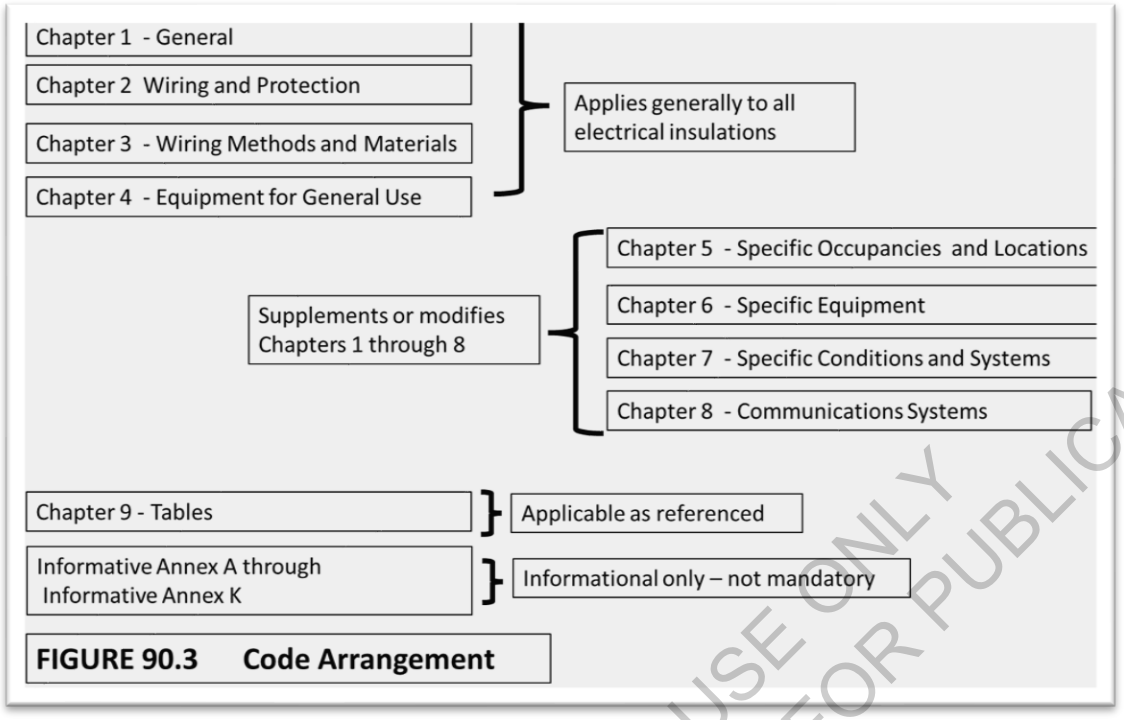
Public Input No. 920-NFPA 70-2023 [Section No. 90.3]

Public Input No. 1559-NFPA 70-2023 [Section No. 90.3]

Public Input No. 3314-NFPA 70-2023 [Section No. 90.3]

Public Input No. 3465-NFPA 70-2023 [Section No. 90.3]

Public Input No. 4099-NFPA 70-2023 [Section No. 90.3]



Editorial notes:

Top righthand box - change "insulations" to "installations"

Lower righthand box on informative annexes - re-letter accordingly after Annex J is deleted.

First Revision No. 8874-NFPA 70-2024 [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*~~ 110.3(C) .

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

Informational Note No. 2: 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 Jan 24 10:29:38 EST 2024

Committee Statement

Committee Statement: Prior to the inclusion of 110.3(C) in the 2017 NEC, there was not a mandatory requirement covering who performs product certification and how the product certification is to align with the NEC. This recommended revision connects 90.7 with 110.3(C). By doing so, some of the language currently in 90.7 is no longer necessary and can be deleted.

Response Message: FR-8874-NFPA 70-2024

Public Input No. 3174-NFPA 70-2023 [Section No. 90.7]

First Revision No. 8953-NFPA 70-2024 [Definition: Accessible, Readily (Readily Accessible).]

Accessible, Readily (Readily Accessible).

Capable of being reached quickly for operation, renewal, or ~~inspections~~ inspection without requiring those to whom ready access is requisite to take actions, such as to use tools (other than keys), to climb over or under, to remove obstacles, or to resort to portable ladders, and so forth. (CMP-1)

Informational Note: Use of keys is a common practice under controlled or supervised conditions and a common alternative to the ready access requirements under such supervised conditions as provided elsewhere in the *NEC*.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Wed Jan 24 13:41:37 EST 2024

Committee Statement

Committee Statement: The term “inspections” was editorially changed to “inspection.”
Response Message: FR-8953-NFPA 70-2024

Public Input No. 1233-NFPA 70-2023 [Definition: Accessible, Readily (Readily Accessible).]

First Revision No. 8968-NFPA 70-2024 [Definition: Enclosure.]

Enclosure.

The case or housing of apparatus ~~,~~ or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage. (CMP-1)

Informational Note: See Table 110.28 for examples of enclosure types.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 14:16:40 EST 2024

Committee Statement

Committee Statement: The comma after “apparatus” was removed to clarify that the phrase "to prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage" applies to both the case or housing of

apparatus and the fence or walls surrounding an installation.

Response Message: FR-8968-NFPA 70-2024

Public Input No. 793-NFPA 70-2023 [Definition: Enclosure.]

First Revision No. 8975-NFPA 70-2024 [Definition: In Sight From (Within Sight From) (Within Sight...]

~~**In Sight From (Within Sight From) (Within Sight).**~~

~~Equipment that is visible and not more than 15 m (50 ft) distant from other equipment is~~ ~~*in sight from*~~ ~~that other equipment. (CMP-1)~~

~~Informational Note:~~ ~~See~~ ~~110.29~~ ~~for additional information.~~

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Wed Jan 24 14:38:11 EST 2024

Committee Statement

Committee Statement: The definition and its associated informational note were deleted as they are no longer necessary. The requirement is provided in 110.29.
Response Message: FR-8975-NFPA 70-2024

Public Input No. 1191-NFPA 70-2023 [Definition: In Sight From (Within Sight From) (Within Sight...]
Public Input No. 1216-NFPA 70-2023 [Definition: In Sight From (Within Sight From) (Within Sight...]
Public Input No. 746-NFPA 70-2023 [Definition: In Sight From (Within Sight From) (Within Sight...]

First Revision No. 8978-NFPA 70-2024 [Definition: Location, Wet. (Wet Location)]

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~~ or 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.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 14:45:19 EST 2024

Committee Statement

Committee Statement: The revision makes it clear that a wet location can be one with only water or only other liquids or a combination of both.

Response Message: FR-8978-NFPA 70-2024

Public Input No. 1071-NFPA 70-2023 [Definition: Location, Wet. (Wet Location)]

Public Input No. 1141-NFPA 70-2023 [Definition: Location, Wet. (Wet Location)]

Public Input No. 1217-NFPA 70-2023 [Definition: Location, Wet. (Wet Location)]

First Revision No. 8980-NFPA 70-2024 [Definition: Premises Wiring (System).]

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:

(1) Wiring from the service point or ~~power source~~ to the outlets

(2) Wiring from and including the power source to the outlets ~~where~~ if 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.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 14:52:06 EST 2024

Committee Statement

Committee Statement: The word “where” was editorially changed to “if” and “power source” was removed from (1) as it is addressed in (2).

Response Message: FR-8980-NFPA 70-2024

Public Input No. 904-NFPA 70-2023 [Definition: Premises Wiring (System).]

First Revision No. 8909-NFPA 70-2024 [Section No. 110.1]

110.1 Scope.

This article covers general requirements for the examination and approval, installation and use, access to and spaces about electrical conductors and equipment; enclosures intended for personnel entry; and tunnel installations.

Informational Note: See ~~Informative Annex J~~ - IICC A1117.1-2017, *Accessible and Usable Buildings and Facilities*, for information regarding ADA accessibility design.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 11:40:01 EST 2024

Committee Statement

Committee Statement: The informative Annex J was deleted by a separate first revision and the informational note in 110.1 was revised to reference the correct standard.

Response Message: FR-8909-NFPA 70-2024

First Revision No. 9040-NFPA 70-2024 [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 ANSI/ISA 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.

Informational Note No. 4: See NEMA CY 10000-2023, Cybersecurity Implementation Guidance for Connected Electrical Infrastructure, for recommendations on how to meet this requirement.

(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 Jan 25 07:51:56 EST 2024

Committee Statement

Committee Statement: The additional Informational Note No. 4 in 110.3(A)(8) provides the user additional guidance on the evaluation process for cybersecurity.

Response Message: FR-9040-NFPA 70-2024

Public Input No. 3403-NFPA 70-2023 [Section No. 110.3(A)]

First Revision No. 9050-NFPA 70-2024 [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, labeling, or identification. The installation and use instructions shall not reduce the requirements within this *Code* .

Informational Note: 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.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 08:37:41 EST 2024

Committee Statement

Committee Statement: The revision makes it clear that product installation and use instructions shall not compromise safety and must also conform to the requirements of this Code.

Response Message: FR-9050-NFPA 70-2024

Public Input No. 1896-NFPA 70-2023 [Section No. 110.3(B)]

Public Input No. 2401-NFPA 70-2023 [Section No. 110.3(B)]

Public Input No. 4259-NFPA 70-2023 [Section No. 110.3(B)]

First Revision No. 9081-NFPA 70-2024 [Section No. 110.10]

110.10 ~~Circuit Impedance~~ 10 Available Fault Current , Short-Circuit Current Ratings, and Other Characteristics.

The overcurrent protective devices, ~~the total impedance, the~~ equipment short-circuit current ratings, and other characteristics of the circuit to be protected shall be selected and coordinated with the available fault current to permit the circuit protective devices used to clear a fault to do so without extensive damage to the electrical equipment of the circuit. ~~This fault shall be assumed to be either between two or more of the circuit conductors or between any circuit conductor and the equipment grounding conductor(s) permitted in 250.118 .~~ Listed equipment applied in accordance with their listing shall be considered to meet the requirements of this section.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 09:58:06 EST 2024

Committee Statement

Committee Statement: The use of the defined term “available fault current” eliminates the need to include the total impedance in the requirement, as the total impedance is already considered when determining the available fault current. By using the term “available fault current” the second sentence of the existing wording is eliminated, as available fault current is an NEC-defined term that covers the types of possible faults.

Response Message: FR-9081-NFPA 70-2024

Public Input No. 3624-NFPA 70-2023 [Section No. 110.10]

First Revision No. 8925-NFPA 70-2024 [Section No. 110.11]

110.11 Deteriorating Agents.

Unless identified for use in the operating environment, no conductors or equipment shall be located in damp or wet locations; where exposed to gases, fumes, vapors, liquids, or other agents that have a deteriorating effect on the conductors or equipment; or where exposed to excessive temperatures.

Informational Note No. 1: See 300.6 for protection against corrosion.

Informational Note No. 2: Some cleaning and lubricating compounds can cause severe deterioration of many plastic materials used for insulating and structural applications in equipment.

Equipment not identified for outdoor use and equipment identified only for indoor use, such as "dry locations," "indoor use only," "damp locations," or enclosure Types 1, 2, 5, 12, 12K, and/or 13, shall be protected against damage from the weather during construction.

Informational Note No. 3: See Table 110.28 for appropriate enclosure-type designations.

Informational Note No. 4: See *NFPA 5000* ~~2015~~ 2024 , *Building Construction and Safety Code*, the *International Building Code (IBC)*, and the *International Residential Code for One- and Two-Family Dwellings (IRC)*, for information for minimum flood provisions.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 13:05:31 EST 2024

Committee Statement

Committee Statement: The Panel reviewed the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10. and made the following revisions.

The Panel reviewed and revised the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10 and updated the edition years and titles of the referenced standards in their first revisions throughout the Code.

CMP-2 reviewed Articles 210 and 220. The Informational Note in 210.12(A) is included to differentiate between different methods of AFCI protection. The Informational note is not in conflict with the NEC Style Manual. All Informational Notes in Article 220 appear to be in compliance with the NEC Style Manual.

Response Message: FR-8925-NFPA 70-2024

Public Input No. 3085-NFPA 70-2023 [Global Input]

Public Input No. 4075-NFPA 70-2023 [Global Input]

First Revision No. 9093-NFPA 70-2024 [Section No. 110.12(C)]

~~(C) Cables and Conductors.~~

~~Cables and conductors installed exposed on the surfaces of ceilings and sidewalls shall be supported by the building structure in such a manner that the cables and conductors will not be damaged by normal building use. Such cables and conductors shall be secured by hardware including straps, staples, cable ties, hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall also conform with 300.4 and 300.11 . Nonmetallic cable ties and other nonmetallic cable accessories used to secure and support cables in other spaces used for environmental air (plenums) shall be listed as having low smoke and heat release properties.~~

~~Informational Note No. 1: See NFPA 90A-2021, *Standard for the Installation of Air-Conditioning and Ventilating Systems* , 4.3.11.2.6.5 and 4.3.11.5.5.6, for discrete combustible components installed in accordance with 300.22(C) .~~

~~Informational Note No. 2: Paint, plaster, cleaners, abrasives, corrosive residues, or other contaminants may result in an undetermined alteration of optical fiber cable properties.~~

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Thu Jan 25 10:34:56 EST 2024

Committee Statement

Committee Statement: The removal of Sub-Section (C) and the related informational notes eliminates repetitive requirements throughout the Code.
Response Message: FR-9093-NFPA 70-2024

Public Input No. 252-NFPA 70-2023 [Section No. 110.12(C)]

First Revision No. 9087-NFPA 70-2024 [Section No. 110.12 [Excluding any Sub-Sections]]

Electrical equipment shall be installed in a professional and skillful manner.

Informational Note: See ANSI/NECA 1-~~2015~~ 2023 , *Standard for Good Workmanship in Electrical Construction,* and other ANSI-approved installation standards for information on accepted industry practices.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 10:13:31 EST 2024

Committee Statement

Committee Statement: The reference to NECA 1 was updated to 2023.

The current language in this section is clear and understandable and complies with the NEC Style Manual.

Response Message: FR-9087-NFPA 70-2024

Public Input No. 1596-NFPA 70-2023 [Section No. 110.12]

First Revision No. 8929-NFPA 70-2024 [Section No. 110.14(D)]

(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-2018 , *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.

Informational Note No. 3: See NFPA 70B-~~2019, Recommended Practice~~ 2023 *Standard for Electrical Equipment Maintenance*, ~~Section 8~~ Section 7 .~~11~~ 2 for additional information for torquing threaded connections and terminations.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Wed Jan 24 13:07:16 EST 2024

Committee Statement

Committee Statement: The Panel reviewed the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10 and the Regulations Governing the Development of NFPA Standards, Section 3.3.7.4. and made the following revisions.

Response Message: FR-8929-NFPA 70-2024

Public Input No. 2904-NFPA 70-2023 [Section No. 110.14(D)]

First Revision No. 9121-NFPA 70-2024 [Section No. 110.15]

110.15 High-Leg Marking.

On a 4-wire, delta-connected system where the midpoint of one phase winding is grounded, only the conductor or busbar having the higher phase voltage to ground shall be durably and permanently marked orange in color by an outer finish ~~that is orange in color~~ or by other effective means such that orange is visible to all accessible points and terminations . Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is also present.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 11:28:10 EST 2024

Committee Statement

Committee Statement: Additional text clarifies the application of the requirement. The color orange must be included in any other effective marking means.

Response Message: FR-9121-NFPA 70-2024

Public Input No. 755-NFPA 70-2023 [Section No. 110.15]

First Revision No. 9124-NFPA 70-2024 [Section No. 110.16]

~~Electrical equipment~~

110.16 Arc-Flash Hazard ~~Warning.~~

~~**(A)** General.~~

Marking.

In other than dwelling units, a permanent arc flash marking shall be field or factory applied to service equipment and feeder supplied equipment , such as switchboards, switchgear, enclosed panelboards, industrial control panels, meter socket enclosures, and motor control centers

~~, that is in other than dwelling units, and is likely to require examination, adjustment, servicing, or maintenance while energized, shall be field or factory marked to warn qualified persons of potential electric arc flash hazards~~

. The marking shall meet the requirements in 110.21(B)

~~and shall~~

, be located so as to be clearly visible to qualified persons

~~before examination, adjustment, servicing, or maintenance of the equipment.~~

~~**(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 applicable industry practice and include the date the label was applied. The label shall meet the requirements of 110.21(B) .~~

and be in accordance with applicable industry practice, containing the following information:

(1) The nominal system voltage

(2) The arc flash boundary

(3) The available incident energy or minimum required level of personal protective equipment

(4) The date the label was applied

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~~

2024 , *Standard for Electrical Safety in the Workplace* , for applicable industry practices for equipment

~~labeling~~

marking . 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.

Supplemental Information

File Name	Description	Approved
NEC_CMP1_FR-9124_110.16.docx		

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Thu Jan 25 12:53:10 EST 2024

Committee Statement

Committee Statement: The revision to the title and reorganization of 110.16 will clarify the marking requirements of electrical equipment on the hazards of arc flash. The expansion to all service and feeder supplied equipment better correlates with recognized industry practices.

Response Message: FR-9124-NFPA 70-2024

Public Input No. 3819-NFPA 70-2023 [Section No. 110.16]

Public Input No. 891-NFPA 70-2023 [Section No. 110.16(B)]

Public Input No. 4207-NFPA 70-2023 [Section No. 110.16(B)]

Public Input No. 71-NFPA 70-2023 [Section No. 110.16(B)]

110.16 Arc-Flash Hazard ~~Warning~~Marking.

~~Electrical~~In other than dwelling units, a permanent arc flash marking shall be field or factory applied to service equipment and feeder supplied equipment, such as switchboards, switchgear, enclosed panelboards, industrial control panels, meter socket enclosures, and motor control centers~~, that is in other than dwelling units, and is likely to require examination, adjustment, servicing, or maintenance while energized, shall be field or factory marked to warn qualified persons of potential electric arc flash hazards~~. The marking shall meet the requirements in 110.21(B~~) and shall~~), be located so as to be clearly visible to qualified persons ~~before examination, adjustment, servicing, or maintenance of~~and be in accordance with applicable industry practice, containing the ~~equipment.~~following information:

(1) The nominal system voltage
(2) The arc flash boundary
(3) The available incident energy or minimum required level of personal protective equipment
(4) The date the label was applied

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~~2024, *Standard for Electrical Safety in the Workplace*, for applicable industry practices for equipment ~~labeling~~marking. 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.

~~**(A) General.**~~ **[Move text to main section]**

~~Electrical equipment, such as switchboards, switchgear, enclosed panelboards, industrial control panels, meter socket enclosures, and motor control centers, that is in other than dwelling units, and is likely to require examination, adjustment, servicing, or maintenance while energized, shall be field or factory marked to warn qualified persons of potential electric arc flash hazards. The marking shall meet the requirements in 110.21(B) and shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.~~

~~**(B) Service Equipment and Feeder Supplied Equipment.**~~ **[Move INs to main section]**

~~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 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 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.~~

First Revision No. 9274-NFPA 70-2024 [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:

(3) Be provided by the original equipment manufacturer

(4) Be designed by an engineer experienced in the design of replacement parts for the type of equipment being serviced or maintained

(5) 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-2023 , ~~*Recommended Practice*~~ *Standard 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_FR-9274_110.17.docx		

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 15:08:00 EST 2024

Committee Statement

Committee Statement: Servicing and maintenance is retained in this section as it is covered in this Code per 90.2(C) [see FR-9273]. The servicing and maintenance requirements differentiate it from reconditioning.

Response Message: FR-9274-NFPA 70-2024

Public Input No. 256-NFPA 70-2023 [Section No. 110.17]

Public Input No. 4205-NFPA 70-2023 [Section No. 110.17]

Public Input No. 501-NFPA 70-2023 [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:
    1. Be provided by the original equipment manufacturer
    2. Be designed by an engineer experienced in the design of replacement parts for the type of equipment being serviced or maintained
    3. 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-2023, ~~*Recommended Practice*~~*Standard for Electrical Equipment Maintenance*, for information related to ~~preventive~~ maintenance for electrical, electronic, and communication systems and equipment.

First Revision No. 9276-NFPA 70-2024 [Section No. 110.20 [Excluding any Sub-Sections]]

Reconditioned equipment shall be permitted except where prohibited elsewhere in this *Code*. Equipment that is restored to operating condition shall be reconditioned with identified replacement parts, verified under applicable standards, that are either provided by the original equipment manufacturer or that are designed by an engineer experienced in the design of replacement parts for the type of equipment being reconditioned.

Informational Note: See Article 100, Definitions for *equipment* .

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 15:39:06 EST 2024

Committee Statement

Committee Statement: The definition for equipment provides examples of equipment. These examples do not include wiring methods, such as cables and conductors.
Response Message: FR-9276-NFPA 70-2024

First Revision No. 9147-NFPA 70-2024 [Section No. 110.22]

110.22 Identification of Disconnecting Means.

(A) General.

Each disconnecting means ~~shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident. In~~ 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~~ shall be legibly marked to indicate its purpose and circuit source unless located and arranged so the ~~identification~~ purpose and ~~location of the circuit~~ source is evident. The marking shall ~~be of sufficient durability to withstand the environment involved.~~ meet the requirements of 110.21(B).

(B) Engineered Series Combination Systems.

Equipment enclosures for circuit breakers or fuses applied in compliance with series combination ratings selected under engineering supervision in accordance with 240.86(A) shall be legibly marked in the field as directed by the engineer to indicate the equipment has been applied with a series combination rating. The marking shall meet the requirements in 110.21(B) and shall be readily visible and state the following:

CAUTION — ENGINEERED SERIES COMBINATION SYSTEM RATED _____ AMPERES. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED.

(C) Tested Series Combination Systems.

Equipment enclosures for circuit breakers or fuses applied in compliance with the series combination ratings marked on the equipment by the manufacturer in accordance with 240.86(B) shall be legibly marked in the field to indicate the equipment has been applied with a series combination rating. The marking shall meet the requirements in 110.21(B) and shall be readily visible and state the following:

CAUTION — SERIES COMBINATION SYSTEM RATED ____ AMPERES. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED.

Informational Note: See IEEE 3004.5-2014 *Recommended Practice for the Application of Low-Voltage Circuit Breakers in Industrial and Commercial Power Systems*, for further information on series tested systems.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Thu Jan 25 14:35:56 EST 2024

Committee Statement

Committee Statement: The revision clarifies the marking requirements for disconnects and references 110.21(B) and marking criteria for the environment and field applied label. Adequate guidance for text format is already provided in the current informational notes in Section 110.21(B).

Response Message: FR-9147-NFPA 70-2024

Public Input No. 179-NFPA 70-2023 [Section No. 110.22(A)]

Public Input No. 1121-NFPA 70-2023 [Section No. 110.22(A)]

Public Input No. 3057-NFPA 70-2023 [Section No. 110.22(A)]

First Revision No. 9157-NFPA 70-2024 [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.~~ comply with 110.21(B). The calculation shall be documented and made available to those authorized to design, install, inspect, maintain, or operate the system.

Informational Note No. 1:~~ 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 Jan 25 15:03:02 EST 2024

Committee Statement

Committee Statement: The reference to NFPA 70E is deleted because it is applicable to work practices and not equipment ratings. The redundant language related to the marking was removed and replaced with a cross-reference to 110.21(B). Adequate guidance for text format is already provided in the current informational notes in Section 110.21(B).

Response Message: FR-9157-NFPA 70-2024

Public Input No. 69-NFPA 70-2023 [Section No. 110.24]

Public Input No. 3058-NFPA 70-2023 [Section No. 110.24(A)]

First Revision No. 9207-NFPA 70-2024 [Section No. 110.26(A)(1)]

(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, if such are exposed; or from the enclosure front or opening, if ~~the~~ such 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 or enclosed live parts on one side of the working space and no exposed or enclosed live or grounded parts on the other side of the working space, or exposed or enclosed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 — Exposed or enclosed 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 or enclosed 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.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 08:24:38 EST 2024

Committee Statement

Committee Statement:	Correlates with similar requirements of 110.34(A) and improves clarity. This revision logically accounts for the fact that enclosed equipment will need to meet the distances in each condition when equipment that is enclosed becomes exposed.
Response Message:	FR-9207-NFPA 70-2024

Public Input No. 504-NFPA 70-2023 [Section No. 110.26(A)(1)]

Public Input No. 42-NFPA 70-2023 [Section No. 110.26(A)(1)]

First Revision No. 9209-NFPA 70-2024 [Section No. 110.26(A)(6)]

(6) Grade, Floor, or Working Platform.

The grade, floor, or platform in the required working space 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.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 08:56:02 EST 2024

Committee Statement

Committee Statement: Deleting “the floor, grade, or platform in the working space shall be” eliminates redundant language and increases clarity.
Response Message: FR-9209-NFPA 70-2024

Public Input No. 351-NFPA 70-2023 [Section No. 110.26(A)(6)]

First Revision No. 8939-NFPA 70-2024 [Section No. 110.26(A) [Excluding any Sub-Sections]]

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~~ 2024 , *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.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 13:23:59 EST 2024

Committee Statement

Committee Statement: The Panel reviewed the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10 and the Regulations Governing the Development of NFPA Standards, Section 3.3.7.4. and made the following revisions.

Response Message: FR-8939-NFPA 70-2024

First Revision No. 9225-NFPA 70-2024 [Section No. 110.26(D)]

(D) Illumination.

Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, enclosed panelboards, or motor control centers installed indoors. Control of all luminaire(s) 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.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 10:08:41 EST 2024

Committee Statement

Committee Statement: The revised wording improves clarity that the control is for the luminaire(s), not to control illumination of the working space.
Response Message: FR-9225-NFPA 70-2024

Public Input No. 3933-NFPA 70-2023 [Section No. 110.26(D)]

First Revision No. 9231-NFPA 70-2024 [Section No. 110.26(E) [Excluding any Sub-Sections]]

All service equipment, switchboards, switchgear, enclosed 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.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 10:55:56 EST 2024

Committee Statement

Committee Statement: Enclosed panelboards" is the correct term to use as a panelboard would be required to be installed in a cabinet, cutout box, or enclosure suitable for a panelboard application.

Response Message: FR-9231-NFPA 70-2024

Public Input No. 233-NFPA 70-2023 [Section No. 110.26(E) [Excluding any Sub-Sections]]

Public Input No. 527-NFPA 70-2023 [Section No. 110.26(E) [Excluding any Sub-Sections]]

First Revision No. 9234-NFPA 70-2024 [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.

Informational Note No. 3: 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: 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: See ~~UL 508A, *Standard for Industrial Control Panels* , for information on determining applicable requirements for evaluating type 4, 4X, and 12 ventilated enclosures.Informational Note No. 7: 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 Jan 26 11:08:34 EST 2024

Committee Statement

Committee Statement: Informational note No. 6 referencing UL 508A for evaluating type 4, 4X and 12 ventilated enclosures is not needed as requirements have been added to UL 50E.

Response Message: FR-9234-NFPA 70-2024

Public Input No. 1631-NFPA 70-2023 [Section No. 110.28]

First Revision No. 9241-NFPA 70-2024 [Section No. 110.29]

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~~ a building or structure, or other equipment, the specified equipment shall be visible and not more than 15 m (50 ft) ~~distant~~ from the building, structure, or other equipment .

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 11:23:54 EST 2024

Committee Statement

Committee Statement: The term "within sight" is used in several sections of the NEC where the reference is a building or structure in addition to equipment.
Response Message: FR-9241-NFPA 70-2024

Public Input No. 3459-NFPA 70-2023 [Section No. 110.29]
Public Input No. 2006-NFPA 70-2023 [Section No. 110.29]
Public Input No. 2384-NFPA 70-2023 [Section No. 110.29]

First Revision No. 9254-NFPA 70-2024 [Section No. 110.31(A)(5)]

(5) Transformers.

Where a transformer is installed in a vault as required by ~~Part II of~~ Article 450, Part II, the vault shall be constructed in accordance ~~with Part III of~~ with Article 450, Part III .

Informational Note No. 1: See ~~ANSI/~~ ASTM E119-~~2018a~~ 2022 , *Method for Fire Tests of Building Construction and Materials*, for additional information, and see NFPA 80-2019, *Standard for Fire Doors and Other Opening Protectives*.

Informational Note No. 2: A typical 3-hour construction is 150 mm (6 in.) thick reinforced concrete.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 12:46:57 EST 2024

Committee Statement

Committee Statement: PI 3156) Reference to ANSI has been removed as all ASTM standards are ANSI standards and edition date of the standard has been revised.

(PI 2622) Text has been revised to comply with the NEC Style Manual.

Response Message: FR-9254-NFPA 70-2024

Public Input No. 2622-NFPA 70-2023 [Section No. 110.31(A)(5)]

Public Input No. 1356-NFPA 70-2023 [Section No. 110.31(A)(5)]

First Revision No. 9255-NFPA 70-2024 [Section No. 110.31(C)(1)]

(1) In Places Accessible to Unqualified Persons.

Outdoor electrical installations that are open to unqualified persons shall comply with ~~Part III of~~ Article 225, Part III .

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 12:50:55 EST 2024

Committee Statement

Committee Statement: Text has been revised to comply with the NEC Style Manual.
Response Message: FR-9255-NFPA 70-2024

Public Input No. 2623-NFPA 70-2023 [Section No. 110.31(C)(1)]

First Revision No. 8942-NFPA 70-2024 [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

Informational Note: See ANSI/IEEE C2-~~2017~~ 2023 , *National Electrical Safety Code*, for clearances of conductors for specific system voltages and typical BIL ratings.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Wed Jan 24 13:27:23 EST 2024

Committee Statement

Committee Statement: The Panel reviewed the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10 and the Regulations Governing the Development of NFPA Standards, Section 3.3.7.4. and made the following revisions.

Response Message: FR-8942-NFPA 70-2024

First Revision No. 9256-NFPA 70-2024 [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 live parts are enclosed. The grade, floor, or platform in the required working space 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 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 or enlcosed live parts on one side of the working space and no exposed or enclosed 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 or enclosed 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 or enclosed live parts on both sides of the working space.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 12:54:01 EST 2024

Committee Statement

Committee Statement: The revision correlates with similar requirements of 110.26(A) and improves clarity. This revision logically accounts for the fact that enclosed equipment will need to meet the distances in each condition when equipment that is enclosed becomes exposed.

Response Message: FR-9256-NFPA 70-2024

Public Input No. 505-NFPA 70-2023 [Section No. 110.34(A)]

First Revision No. 9258-NFPA 70-2024 [Section No. 110.40]

~~Table~~

110.40 ~~Temperature Limitations at Terminations.~~

~~Conductors shall be permitted to be terminated based on the 90°C (194°F) temperature rating and ampacity as given in~~

40 Electrical Connections.

For equipment rated over 1000 Volts nominal, but not more than 2000 V nominal, that is connected using other than Type MV conductors, the requirements of 110.14 shall be applicable. For all equipment connected using Type MV conductors, the requirements of 110.40(A) through (E) shall supersede those of 110.14.

(A) General. Because of different characteristics of dissimilar metals, devices shall be identified for the material of the conductor and shall be properly installed and used. Conductors of dissimilar metals shall not be intermixed where physical contact occurs between dissimilar conductors 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 for more than one conductor shall be so identified.

Connectors and terminals for conductors shall be suitable for the conductor class or classes.

Where a listed Type MV Cable Joint or Type MV Cable Termination is supplied with a connector only the connection means supplied by the manufacturer shall be used for installation.

(B) Terminals . Connection of conductors to terminal parts shall ensure a mechanically secure electrical connection and be made by means of pressure connectors.

(C) Splices . Conductors shall be spliced with splicing devices identified for the use. All splices and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an identified insulating device. Wire connectors or splicing means installed on conductors for direct burial shall be listed for such use.

(**D) Temperature Limitations** . The temperature rating associated with the ampacity or temperature rating 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. Termination of conductors at equipment shall be based on the ampacity for MV-90 conductors as given in table 315.60 (C)(1) through

~~Table~~
table 315.60 (C)(20) , unless

~~otherwise identified.~~
the equipment and the connector assembly is identified for use with 105°C conductors. The use of MV-105 conductors, sized based on the ampacity for MV-90 conductors, shall be permitted.

(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.

(E) 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 NFPA 70B-2023, Standard for Electrical Equipment Maintenance, for additional information for torquing threaded connections and terminations.

Supplemental Information

File Name	Description	Approved

NEC_CMP1_FR-9258_110.40.docx

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:07:12 EST 2024

Committee Statement

Committee Statement: Section 110.40 has been revised to point to 110.14 as it applies to conductors up to 2000V. Appropriate information related to Type MV conductors, which was not previously included in the requirement, has been added to Section 110.40.

The new section in 110.40(D) addresses the submitters concern.

Response Message: FR-9258-NFPA 70-2024

Public Input No. 3965-NFPA 70-2023 [Section No. 110.40]

Public Input No. 958-NFPA 70-2023 [Section No. 110.40]

110.40 Electrical Connections~~Temperature Limitations at Terminations~~.

For equipment rated over 1000 Volts nominal, but not more than 2000 V nominal, that is connected using other than Type MV conductors, the requirements of 110.14 shall be applicable. For all equipment connected using Type MV conductors, the requirements of 110.40(A) through 110.40(E) shall supersede those of 110.14. ~~Conductors shall be permitted to be terminated based on the 90°C (194°F) temperature rating and ampacity as given in Table 315.60(C)(1) through Table 315.60(C)(20), unless otherwise identified.~~

(A) General.

Because of different characteristics of dissimilar metals, devices shall be identified for the material of the conductor and shall be properly installed and used. Conductors of dissimilar metals shall not be intermixed where physical contact occurs between dissimilar conductors 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 for more than one conductor shall be so identified.

Connectors and terminals for conductors shall be suitable for the conductor class or classes.

Where a listed Type MV Cable Joint or Type MV Cable Termination is supplied with a connector only the connection means supplied by the manufacturer shall be used for installation.

(B) Terminals.

Connection of conductors to terminal parts shall ensure a mechanically secure electrical connection and be made by means of pressure connectors.

(C) Splices.

Conductors shall be spliced with splicing devices identified for the use. All splices and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an identified insulating device. Wire connectors or splicing means installed on conductors for direct burial shall be listed for such use.

(D) Temperature Limitations.

The temperature rating associated with the ampacity or temperature rating 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.

Termination of conductors at equipment shall be based on the ampacity for MV-90 conductors as given in Table 315.60 (C)(1) through Table 315.60 (C)(20), unless the equipment and the

connector assembly is identified for use with 105°C conductors. The use of MV-105 conductors, sized based on the ampacity for MV-90 conductors, shall be permitted.

(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.

(E) 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 NFPA 70B-2023, *Standard for Electrical Equipment Maintenance*, for additional information for torquing threaded connections and terminations.

First Revision No. 9261-NFPA 70-2024 [Section No. 110.51(A)]

(A) Covered.

This part shall apply to the installation and use of ~~high-voltage~~ power distribution and utilization equipment that is portable, mobile, or both, such as substations, trailers, cars, mobile shovels, draglines, hoists, drills, dredges, compressors, pumps, conveyors, underground excavators, and the like.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:32:41 EST 2024

Committee Statement

Committee Statement: This correlates the requirement of what is covered in 110.51(A) with the title of Part IV of Article 110
Response Message: FR-9261-NFPA 70-2024

Public Input No. 3769-NFPA 70-2023 [Section No. 110.51(A)]

First Revision No. 9262-NFPA 70-2024 [Section No. 110.52]

110.52 Overcurrent Protection.

Motor-operated equipment shall be protected from overcurrent in accordance with Article 430, Parts III, IV, and V ~~of Article 430~~ . Transformers shall be protected from overcurrent in accordance with 450.3.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:36:33 EST 2024

Committee Statement

Committee Statement: Text has been revised to comply with the NEC style manual.
Response Message: FR-9262-NFPA 70-2024

Public Input No. 2624-NFPA 70-2023 [Section No. 110.52]

First Revision No. 9264-NFPA 70-2024 [Section No. 110.58]

110.58 Disconnecting Means.

A switch or circuit breaker that simultaneously opens all ungrounded conductors of the circuit shall be installed within sight of each transformer or motor location for disconnecting the transformer or motor. The switch or circuit breaker for a transformer shall have an ampere rating not less than the ampacity of the transformer supply conductors. The switch or circuit breaker for a motor shall comply with the applicable requirements of ~~Part IX of~~ Article 430, Part IX .

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:41:06 EST 2024

Committee Statement

Committee Statement: The text is revised to comply with the NEC Style Manual Section 4.1.4, regarding the use of Parts.
Response Message: FR-9264-NFPA 70-2024

Public Input No. 2625-NFPA 70-2023 [Section No. 110.58]

First Revision No. 8945-NFPA 70-2024 [Section No. 110.71]

110.71 Strength.

Manholes, vaults, and their means of access shall be designed under qualified engineering supervision and shall withstand all loads likely to be imposed on the structures.

Informational Note: See ANSI C2-~~2007~~ 2023 , *National Electrical Safety Code,* for additional information on the loading that can be expected to bear on underground enclosures.

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Wed Jan 24 13:29:18 EST 2024

Committee Statement

Committee Statement: The Panel reviewed the informational notes within their purview to comply with the NEC Style Manual Section 2.1.10 and the Regulations Governing the Development of NFPA Standards, Section 3.3.7.4. and made the following revisions.

Response Message: FR-8945-NFPA 70-2024

First Revision No. 9265-NFPA 70-2024 [Section No. 110.72]

110.72 Cabling Work Space.

A clear work space not less than 900 mm (3 ft) wide shall be provided where cables are located on both sides, and not less than 750 mm (2½ ft) where cables are only on one side. The vertical headroom shall be not less than 1.8 m (6 ft) unless the opening is within 300 mm (1 ft), measured horizontally, of the adjacent interior side wall of the enclosure.

Exception: A manhole containing only one or more of the following shall be permitted to have one of the horizontal work space dimensions reduced to 600 mm (2 ft) where the other horizontal clear work space is increased so the sum of the two dimensions is not less than 1.8 m (6 ft):

(1) Optical fiber cables

(2) Power-limited fire alarm circuits supplied in accordance with 760.121

(3) Class 2 or Class 3 remote-control and signaling circuits, or both, supplied in accordance with 725.60

(4) Class 4 fault-managed power circuits supplied in accordance with 726.121

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Jan 26 13:45:47 EST 2024

Committee Statement

Committee Statement: Class 4 circuits have at least the same fire and life safety requirements as a Class 2 circuits.

As such, Class 4 circuits have been added to the exception.

Response Message: FR-9265-NFPA 70-2024

Public Input No. 3881-NFPA 70-2023 [Section No. 110.72]

First Revision No. 9266-NFPA 70-2024 [Section No. 110.74(B)]

(B) Over 1000 Volts, Nominal.

Conductors operating at over 1000 volts shall be provided with bending space in accordance with ~~314.71(A) and (B)~~ 305.5 , as applicable.

Exception: Where ~~314.71(B)~~ - 305.5 applies, each row or column of ducts on one wall of the enclosure shall be calculated individually, and the single row or column that provides the maximum distance shall be used.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:51:10 EST 2024

Committee Statement

Committee Statement: Reference to 314.71(A) an (B) has been corrected to 305.5 for the sizing of a box.
Response Message: FR-9266-NFPA 70-2024

Public Input No. 1680-NFPA 70-2023 [Section No. 110.74(B)]

First Revision No. 9268-NFPA 70-2024 [Section No. 110.75(A)]

(A) Dimensions.

Rectangular access openings shall not be less than 650 mm × 550 mm (26 in. × 22 in.). Round access openings in a manhole shall be not less than 650 mm (26 in.) in diameter.

Exception: A manhole that has a fixed ladder that does not obstruct the opening or that contains only one or more of the following shall be permitted to reduce the minimum cover diameter to 600 mm (2 ft):

(1) Optical fiber cables

(2) Power-limited fire alarm circuits supplied in accordance with 760.121

(3) Class 2 or Class 3 remote-control and signaling circuits, or both, supplied in accordance with 725.60

(4) Class 4 fault-managed power circuits supplied in accordance with 726.121

Submitter Information Verification

Committee: NEC-P01

Submittal Date: Fri Jan 26 13:54:43 EST 2024

Committee Statement

Committee Statement: Class 4 circuits have at least the same fire and life safety requirements as a Class 2 circuits.

As such, Class 4 circuits have been added to the exception.

Response Message: FR-9268-NFPA 70-2024

Public Input No. 3883-NFPA 70-2023 [Section No. 110.75(A)]

First Revision No. 9269-NFPA 70-2024 [Section No. 110.75(C)]

(C) Location.

Manhole openings for personnel shall be located where they are not directly above electrical equipment or conductors ~~in~~ inside the manhole enclosure. Where this is not practicable, either a protective barrier or a fixed ladder shall be provided.

Submitter Information Verification

Committee: NEC-P01
Submittal Date: Fri Jan 26 13:57:47 EST 2024

Committee Statement

Committee Statement: The revised text clarifies the application of the requirement.
Response Message: FR-9269-NFPA 70-2024

Public Input No. 3765-NFPA 70-2023 [Section No. 110.75(C)]

First Revision No. 8898-NFPA 70-2024 [Annex J]

Informative Annex J ADA Standards for Accessible Design

This informative annex is not a part of the requirements of this NFPA document, but is included for informational purposes only.

The provisions cited in Informative Annex J are intended to assist the users of the *Code* in properly considering the various electrical design constraints of other building systems and are part of the 2010 ADA Standards for Accessible Design. They are the same provisions as those found in ANSI/ICC A117.1-2009, *Accessible and Usable Buildings and Facilities* .

J.1 *Protruding Objects.*

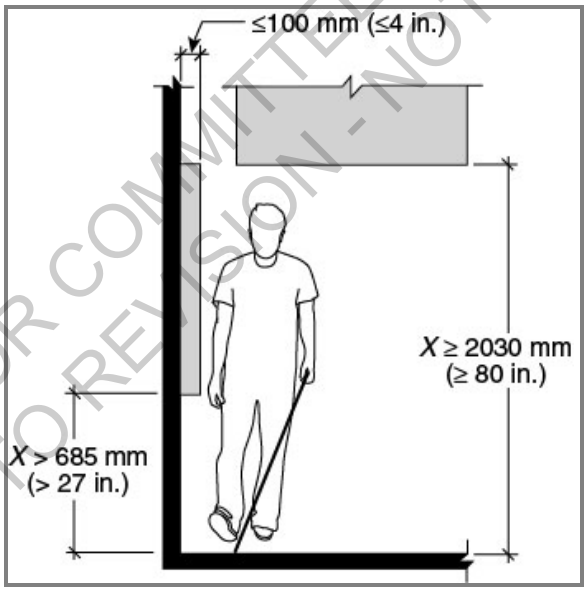
Protruding objects shall comply with Section J.2 .

J.2 *Protrusion Limits.*

Objects with leading edges more than 685 mm (27 in.) and not more than 2030 mm (80 in.) above the finish floor or ground shall protrude a maximum of 100 mm (4 in.) horizontally into the circulation path. *(See Figure J.2 .)*

Exception: Handrails shall be permitted to protrude 115 mm (4½ in.) maximum.

Figure J.2 Limits of Protruding Objects.

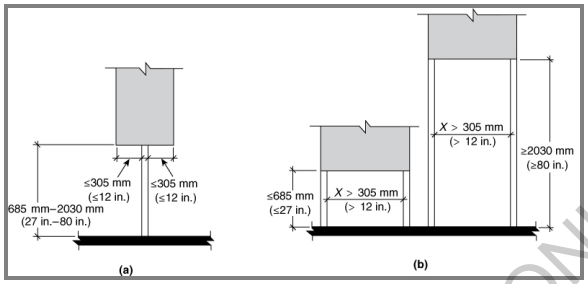


J.3 *Post-Mounted Objects.*

Freestanding objects mounted on posts or pylons shall overhang circulation paths 305 mm (12 in.) maximum where located 685 mm (27 in.) minimum and 2030 mm (80 in.) maximum above the finish floor or ground. Where a sign or other obstruction is mounted between posts or pylons, and the clear distance between the posts or pylons is greater than 305 mm (12 in.), the lowest edge of such sign or obstruction shall be 685 mm (27 in.) maximum or 2030 mm (80 in.) minimum above the finish floor or ground. *(See Figure J.3 .)*

Exception: The sloping portions of handrails serving stairs and ramps shall not be required to comply with Section J.3 .

Figure J.3 Post-Mounted Protruding Objects.

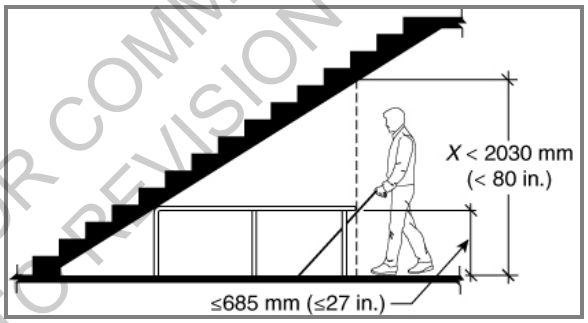


J.4 *Vertical Clearance.*

Vertical clearance shall be 2030 mm (80 in.) high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 2030 mm (80 in.) high. The leading edge of such guardrail or barrier shall be located 685 mm (27 in.) maximum above the finish floor or ground. *(See Figure J.4 .)*

Exception: Door closers and door stops shall be permitted to be 1980 mm (78 in.) minimum above the finish floor or ground.

Figure J.4 Vertical Clearance.



J.5 *Required Clear Width.*

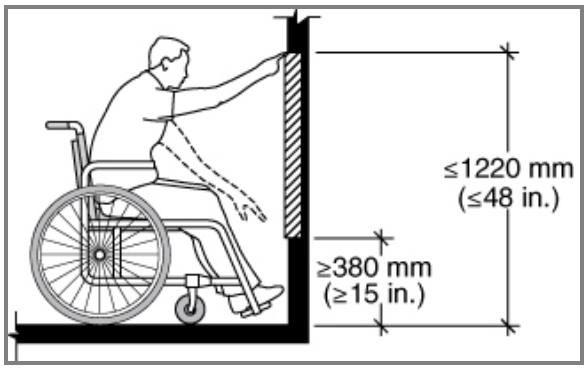
Protruding objects shall not reduce the clear width required for accessible routes.

J.6 *Forward Reach.*

J.6.1 Unobstructed.

Where a forward reach is unobstructed, the high forward reach shall be 1220 mm (48 in.) maximum, and the low forward reach shall be 380 mm (15 in.) minimum above the finish floor or ground. *(See Figure J.6.1 .)*

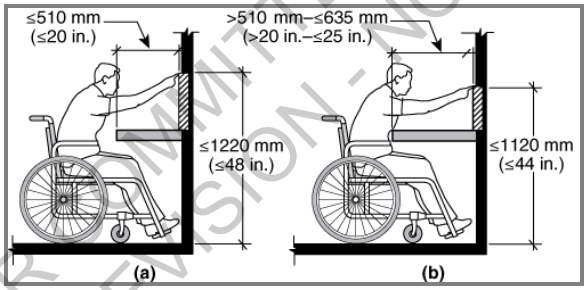
Figure J.6.1 Unobstructed Forward Reach.



J.6.2 Obstructed High Reach.

Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 1220 mm (48 in.) maximum where the reach depth is 510 mm (20 in.) maximum. Where the reach depth exceeds 510 mm (20 in.), the high forward reach shall be 1120 mm (44 in.) maximum, and the reach depth shall be 635 mm (25 in.) maximum. *(See Figure J.6.2 .)*

Figure J.6.2 Obstructed High Forward Reach.



J.7 *Side Reach.*

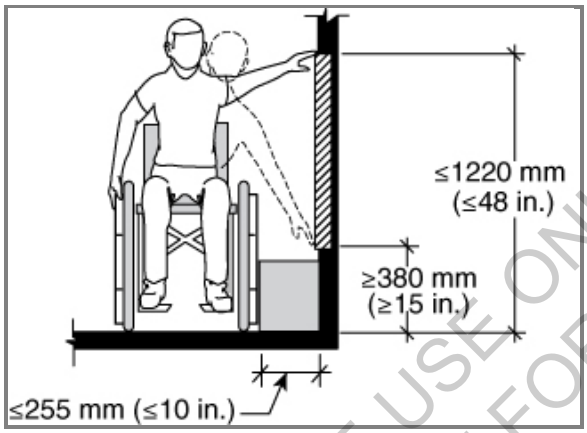
~~**J.7.1** *Unobstructed.*~~

~~Where a clear floor or ground space allows a parallel approach to an element, and the side reach is unobstructed, the high side reach shall be 1220 mm (48 in.) maximum, and the low side reach shall be 380 mm (15 in.) minimum above the finish floor or ground. *(See Figure J.7.1 .)*~~

~~*Exception No. 1: An obstruction shall be permitted between the clear floor or ground space and the element where the depth of the obstruction is 255 mm (10 in.) maximum.*~~

~~*Exception No. 2: Operable parts of fuel dispensers shall be permitted to be 1370 mm (54 in.) maximum, measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.*~~

~~**Figure J.7.1 Unobstructed Side Reach.**~~



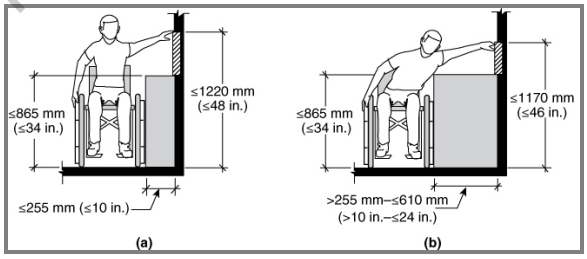
~~**J.7.2** *Obstructed High Reach.*~~

~~Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 865 mm (34 in.) maximum, and the depth of the obstruction shall be 610 mm (24 in.) maximum. The high side reach shall be 1220 mm (48 in.) maximum for a reach depth of 255 mm (10 in.) maximum. Where the reach depth exceeds 255 mm (10 in.), the high side reach shall be 1170 mm (46 in.) maximum for a reach depth of 610 mm (24 in.) maximum. *(See Figure J.7.2 .)*~~

~~*Exception No. 1: The top of washing machines and clothes dryers shall be permitted to be 915 mm (36 in.) maximum above the finish floor.*~~

~~*Exception No. 2: Operable parts of fuel dispensers shall be permitted to be 1370 mm (54 in.) maximum, measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.*~~

~~**Figure J.7.2 Obstructed High Side Reach.**~~



Submitter Information Verification

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Committee Statement

Committee Statement: The informative Annex J was deleted because the information it contained was outdated.

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