



Public Comment No. 1641-NFPA 70-2024 [Global Input]

This Global Public Comment is for CMP-1 to review the use of the terms “overcurrent”, “overcurrent protective devices” and “overcurrent protection”.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP-1_OCPD_TG-4_CMP-10.pdf	CMP-1_OCPD_TG-4 CMP-10	
All_CMP_Comments_Files_from_CMP-10_TG-4.pdf	All CMP Comments Files from CMP-10 TG-4	

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Task Group formed under the purview of Code Making Panel 10 consisting of Randy Dollar, Thomas Domitrovich, Jason Doty, Diane Lynch, Alan Manche, Nathan Philips, David Williams, and Danish Zia. This Public Comment, along with other Public Comments, was developed with the goal of improving usability and accuracy on requirements associated with overcurrent protective devices.

The Task Group reviewed all instances of the term “overcurrent”, “overcurrent protective devices” and “overcurrent protection” and provided recommended changes to align proposed and current defined terms.

For consistency, the task group chose to use the full defined term “overcurrent protective device” in the title of all sections or subdivisions and the acronym “OCPD” or “OCPDs” when used in the body of each code section.

The term overcurrent protection applies to the application of an overcurrent protective device OCPD, to protect conductors and equipment.

Two documents are attached: One for your specific code panel and the other is a comprehensive document illustrating all of the code-wide comments made by this task group.

The current term “Overcurrent Protective Device, Branch-Circuit” is being deleted and the new defined term “Overcurrent Protective Device (OCPD)” will be used instead.

The following are the proposed terms being submitted to CMP-10.

PC 1639 Overcurrent Protection.
Automatic interruption of an overcurrent

PC 1636 Overcurrent Protective Device (OCPD).
A device capable of providing protection over the full range of overcurrent between its rated current and its interrupting rating.
(CMP-10)

Informational Note 1: Prior editions of NFPA 70 included the defined term “branch circuit overcurrent protective device” for overcurrent protective devices suitable for providing protection for service, feeder and branch circuits. This term has been revised to a generalized term of “overcurrent protective device” (OCPD). The specific requirements using this term may include modifiers (such as branch OCPD, feeder OCPD, service OCPD) to specify location or application of the OCPD, or to specify variations (such as supplementary OCPD).

Informational Note 2: See 240.7 for a list of overcurrent protective devices suitable for providing protection for service, feeder, branch circuits and equipment.

Related Item

• Global PI 4050 • PC 1636 • PC 1639

Submitter Information Verification

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Submittal Date: Sun Aug 25 21:27:17 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7575-NFPA 70-2024](#)

Statement: Committee accepted the recommended changes made by CMP-10. See table attached to SR 7575 for the specific places these changes occur.

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-1			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
1	Article 110		
	110.10.	overcurrent protective devices	OCPDs
	110.10.	circuit protective devices	Fine as is
	110.26(C)(2)	overcurrent devices	OCPD
	110.26(C)(3)	overcurrent devices	OCPD
	110.52	Overcurrent protection	Fine as is
	110.52	Overcurrent	Motor-operated Equipment shall be provided with overcurrent protection
	110.52	Overcurrent	Transformers shall be provided with overcurrent protection

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-1			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
1	Article 110		
	110.10.	overcurrent protective devices	OCPDs
	110.10.	circuit protective devices	Fine as is
	110.26(C)(2)	overcurrent devices	OCPD
	110.26(C)(3)	overcurrent devices	OCPD
	110.52	Overcurrent protection	Fine as is
	110.52	Overcurrent	Motor-operated Equipment shall be provided with overcurrent protection
	110.52	Overcurrent	Transformers shall be provided with overcurrent protection

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-2			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
2	Article 100		
	Branch Circuit (Branch-Circuit)	overcurrent device	overcurrent protective device (OCPD)
2	Article 120		
	120.5(E)	overcurrent device	OCPD
	120.7(B)	overcurrent protective device	OCPD
	120.87(3)	Overcurrent protection	Fine as is
2	Article 210		
	210.4(A)	branch-circuit overcurrent protective device, OCPD	Fine as is
	210.4(C)	branch-circuit OCPD	Fine as is
	210.11(B)	branch-circuit OCPD	Fine as is
	210.12(A)	branch-circuit OCPD (X-8)	Fine as is
	210.18	overcurrent device OCPD (X-2)	Fine as is
	210.19(A)(1)EX	branch-circuit OCPD	Fine as is
	210.20.	Overcurrent protection	Fine as is
	210.20.	branch-circuit OCPD	Fine as is
	210.20(A)	branch-circuit OCPD	Fine as is
	210.20(C)	branch-circuit OCPD	Fine as is
	T-210.24	Overcurrent protection	Fine as is
2	Annex D		
	D3. (X2)	Overcurrent Protection	CMP-2 To review references to OCPD and the revised terms.
	D3a. (X8)	Branch-Circuit OCPD	CMP-2 to Review
	D3a.	Overcurrent Protection	CMP-2 to Review
	D3a. (X2)	Branch-Circuit OCPD	CMP-2 to Review

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-3			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
3	Article 100		
	Fault Managed Power.	Overcurrent protection	Fine as is
	Fire Alarm Circuit	Overcurrent device	overcurrent protective device (OCPD)
3	Article 300		
	300.5-T	Overcurrent Protection	Fine as is
	300.17(l)	Overcurrent Device	OCPD
	300.28(C)(3). (X5)	Overcurrent Protection	Fine as is
3	Article 590		
	590.6(A)	Overcurrent Protection	Fine as is
	590.6(B)	be protected from Overcurrent	shall be provided with overcurrent protection
	590.9. Title	Overcurrent protective device	Fine as is
	590.9(A)	Overcurrent protective devices	OCPDs
	590.9(B) Title	Service Overcurrent protective devices	Fine as is
	590.9(B)	Overcurrent protective devices	OCPDs
3	Article 721		
	721.50(A)	Overcurrent	Fine as is
3	Article 722		
	722.1	Overcurrent Protection	Fine as is
3	Article 724	Class 1	
	724.40(B). (X3)	Overcurrent Devices	OCPDs
	724.40(B). (X2)	Overcurrent Device	OCPD
	724.40(B). (X2)	Overcurrent Protection	Fine as is
	724.43. (X4)	Overcurrent Protection	Fine as is
	724.45	Overcurrent Device	OCPD
	724.45. (X3)	Overcurrent Devices	OCPDs
	724.45(A)	Overcurrent Devices	OCPDs
	724.45(B)	Overcurrent Protection	Fine as is
	724.45(B)	Overcurrent Device	OCPD
	724.45(C). (X2)	Overcurrent protective devices	OCPDs
	724.45(D)	Overcurrent Protection	Fine as is
	724.45(E)	Overcurrent Protection	Fine as is
3	Article 725		
	725.1 In	Overcurrent Protection	Fine as is

	725.127	Overcurrent Device	OCPD
3	Article 760		
	760.41(B)	Overcurrent protective device	OCPD
	760.41(B)	Overcurrent protection devices	OCPDs
	760.43. (X3)	Overcurrent Protection	Fine as is
	760.45. Title	Overcurrent device	Overcurrent protective device
	760.45	Overcurrent protection devices	OCPDs
	760.45 Ex 1 & 2	Overcurrent Protection	Fine as is
	760.121(B)	Branch-Circuit Overcurrent protective device	OCPD
	760.121(B)	Overcurrent protection devices	OCPDs
	760.127	Overcurrent Protection	Fine as is
	760.127	Overcurrent Device	OCPD
3	Article 794		
	794.1	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-4			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
4	Article 690		
	690.2	PV dc Overcurrent protective devices	PV dc OCPDs
	690.8	Overcurrent Device	OCPD and OCPDs
	690.9. Title	Overcurrent Protection	Fine as is
	690.9(A). (X2)	be protected from Overcurrent	shall be provided with overcurrent protection
	690.9(A)(1). Title	Overcurrent Protection	Fine as is
	690.9(A)(1).	Overcurrent protective devices	OCPDs
	690.9(A)(2). Title	Overcurrent Protection	Fine as is
	690.9(A) (2)	be protected from Overcurrent	shall be provided with overcurrent protection
	690.9(A) (2) In	Overcurrent protection	Fine as is
	690.9(A) (2) In	Overcurrent device	OCPD
	690.9(A)(3)	Overcurrent	Fine as is
	690.9(B)	shall be permitted to prevent overcurrent of conductors	Fine as is
	690.9(B)	Overcurrent device	OCPD and OCPDs
	690.9(C)	Overcurrent protective device and Devices	OCPD and OCPDs
	690.31(E)	Overcurrent protective devices	OCPDs
	690.45	Overcurrent protective device	OCPD
	690.45	Overcurrent Device	OCPD
4	Article 692		
	692.8. Title	Overcurrent Device	Overcurrent Protective Devices
	692.8	Overcurrent protective device	OCPDs
	692.9	Overcurrent Protection	Fine as is
	692.9	Overcurrent Devices	OCPDs
4	Article 694		
	694.7(D)	Overcurrent Device	OCPD
	694.12(B). Title	Overcurrent Device	Overcurrent Protective Device
	694.12(B)(2). Title	Overcurrent Devices	Overcurrent Protective Devices
	694.12(B)(2)	Overcurrent Devices	OCPDs
	694.15	Overcurrent Protection	Fine as is
	694.15	Overcurrent Devices	OCPDs
	694.15 In	Overcurrent Protection	Fine as is
	694.15(B)(1)	Overcurrent Protection	Fine as is
	694.15(C)	Overcurrent Devices	OCPDs

4	Article 705		
	705.11(C). Title	Overcurrent Protection	Fine as is
	705.11(C)	be protected from overcurrent	have overcurrent protection
	705.11(C)(1). (1) (2) (3)	Overcurrent protective device	OCPD
	705.11(C)(2)	Overcurrent protection devices	OCPDs
	705.12(A)(2). (X4)	Overcurrent Device	OCPD
	705.12(A)(3)	Overcurrent Devices	OCPDs
	705.12(B)	(Multiple) Overcurrent Device and (s)	OCPD. And OCPDs
	705.12(B)	(Warning labels) Overcurrent Device and (s)	Overcurrent Protective Device and Devices
	705.28(B)Ex.1	Overcurrent Devices	OCPDs
	705.28(B)Ex.3	Overcurrent Device	OCPD
	705.30. Title	Overcurrent Protection	Fine as is
	705.30(A). (X2)	Overcurrent Protection	Fine as is
	705.30(A)	Overcurrent Devices	OCPDs
	705.30.(C)	Overcurrent Devices	OCPDs
	705.30.(F)	Overcurrent Protection	Fine as is
	705.70.	Overcurrent Devices	OCPDs
	705.70.	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-5			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
5	Article 100		
	Ground-Fault Current Path, Effective	overcurrent protective device	overcurrent protective device (OCPD)
	Ground-Fault Protection of Equipment	overcurrent device	overcurrent protective device (OCPD)
5	Article 200		
	200.10(E)	overcurrent device	OCPD
5	Article 250		
	250.4(A)(5). Title	Overcurrent protective Device	Fine as is
	250.4(A)(5)	Overcurrent Device	OCPD
	250.4(B)(4)	Overcurrent Devices	OCPDs
	250.30(A)(1)	Overcurrent Device	OCPD
	250.30(A)(1)	Overcurrent Devices	OCPDs
	250.32(B)(2). (X4)	Overcurrent Protection	Fine as is
	250.32(C)(2). (X4)	Overcurrent Protection	Fine as is
	250.35(B)	Overcurrent Protection	Fine as is
	250.36(D)	Overcurrent Device	Fine as is
	250.36(E)(1)	Overcurrent Device	OCPD
	250.102(B)(2)	Overcurrent Protection	Fine as is
	250.102(D). (X3)	Overcurrent Devices	OCPDs
	250.118(A)(5)	Overcurrent Devices	OCPDs
	250.118(A)(6)	Overcurrent Devices	OCPDs
	250.118(A)(7)	Overcurrent Devices	OCPDs
	250.122(C)	Overcurrent Device	OCPD
	250.122(F)(1). (X3)	Overcurrent protective device	OCPD
	250.122(G)	Overcurrent Device	OCPD
	250.142. (X2)	Overcurrent Device	OCPD
	250.148	Overcurrent Device	OCPD
	250.164	Overcurrent Device	OCPD
	250.166	Overcurrent Protection	Fine as is
	250.169	Overcurrent Devices	OCPD
5	Article 270		
	270.4(A)(5)	Overcurrent Device	OCPD
	270.4(B)(4)	Overcurrent Devices	OCPDs
	270.30(A)(1)	Overcurrent Devices	OCPDs

	270.32(B)(2). (X4)	Overcurrent Protection	Fine as is
	270.32(C)(2). (X4)	Overcurrent Protection	Fine as is
	270.35(B)	Overcurrent Protection	Fine as is
	270.35(B)	Overcurrent protective device	OCPD
	270.36(D)	Overcurrent Device	OCPD
	270.36(E)	Overcurrent Devices	OCPDs
	270.102(C)(2)	Overcurrent Protection	Fine as is
	270.102(D)	Overcurrent Device	OCPDs
	270.114(C)(3)	Overcurrent setting	CMP to review Language based on new terms
	270.118	Overcurrent Devices	OCPDs
	270.142	Overcurrent Devices	OCPDs
	270.148(B)	Overcurrent Device	OCPD
	270.164(B)	Overcurrent Device	OCPD
	270.166(A)	Overcurrent Protection	Fine as is
	270.169	Overcurrent Devices	OCPDs

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-6			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
6	Article 310		
	310.10(G).	Overcurrent Protection	Fine as is
	310.15(A)	Overcurrent Protection	Fine as is
	310.16-T	Overcurrent Protection	Fine as is
	310.17-T	Overcurrent Protection	Fine as is
6	Article 335		
	335.90.	Overcurrent Protection	Fine as is
6	Article 382		
	382.4	Supplementary Overcurrent Protection	Supplementary Overcurrent Protective Device
6	Article 400		
	400.16	Overcurrent Protection	Fine as is
	400.16	protected against Overcurrent	shall be provided with overcurrent protection
6	Article 402		
	402.14 (X2)	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-7			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
7	Article 100		
	Service Equipment, Mobile Home	overcurrent protective devices	overcurrent protective devices (OCPDs)
7	Article 545		
	545.24	Branch-circuit overcurrent protective device	Branch-circuit OCPD
	545.24(B) Title	Branch Circuit Overcurrent Protection Device	Overcurrent protective devices
	545.24(B)	a Branch Circuit Overcurrent Protective Device	an OCPD
7	Article 547		
	547.41(A)(6). (X2)	Overcurrent Protection	Fine as is
	547.41(B)	Overcurrent Protection	Fine as is
	547.42	Overcurrent Protection	Fine as is
7	Article 550		
	550.11(B). Title	Branch-Circuit protective equipment	Branch-Circuit Overcurrent Protection
	550.11(B)	Overcurrent Protection	Fine as is
	550.11(B)	Branch-Circuit Overcurrent Devices	OCPDs
	550.11(B)	Overcurrent protection size	OCPD rating
	550.15(E)	Branch-circuit overcurrent protective device	OCPD
	550.32	Overcurrent Protection	Fine as is
7	Article 551		
	551.31(A)	Overcurrent protective device	OCPD
	551.31(C)	Overcurrent protective device	OCPD
	551.31(D)	Overcurrent Protection	Fine as is
	551.42	Overcurrent Protection	Fine as is
	551.43. Title	Branch-Circuit protection	Branch-Circuit Overcurrent Protection
	551.43(A)	Branch Circuit Overcurrent Devices	Branch-Circuit OCPDs
	551.43(A)(3)	Overcurrent Protection	Fine as is
	551.45(C)	Overcurrent protective device	OCPD
	551.47(Q)	Overcurrent protective device	OCPD
	551.47(R)	Overcurrent Protection	Fine as is
	551.47(S)	Overcurrent Protection	Fine as is
	551.74	Overcurrent Protection	Fine as is
7	Article 552		
	552.10.(E) Title	Overcurrent Protection	Fine as is
	552.10(E)(1)	Overcurrent protective devices	OCPDs

	T-552.10(E)(1)	Overcurrent Protection	Fine as is
	552.10(E)(4). (X2)	Overcurrent protective device	OCPD
	552.42(A)	Branch Circuit Overcurrent Devices	OCPDs
	552.42(A)	Overcurrent Protection	Fine as is
	552.45(C)	Overcurrent protective device	OCPD
	552.46(A) IN	Overcurrent Protection	Fine as is
	552.47(P)	Overcurrent protective device	OCPD
	552.47(Q)	Overcurrent Protection	Fine as is
7	Article 555		
	555.53	Overcurrent protective device	OCPD
7	Article 675		
	675.6	Branch Circuit Overcurrent Protective Device	OCPD
	675.7	Branch Circuit Overcurrent Protective Devices	OCPDs
	675.8	Overcurrent Protection	Fine as is
7	Article 682		
	682.15(B)	Feeder Overcurrent protective device	Feeder OCPD

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-8			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
8	Article 312		
	312.11. Title	Overcurrent Devices	Overcurrent Protective Device
	312.11	Overcurrent Devices	OCPDs
	312.11(A). (X3)	Overcurrent Device	OCPDs
	312.11(B)	Overcurrent Devices	OCPDs
	312.11(B)(1)	Overcurrent Device	OCPD
8	Article 366		
	366.12	Overcurrent Devices	OCPDs
	366.56(D)	Overcurrent Protection	Fine as is
8	Article 368		
	368.17(A). Title	Overcurrent Protection	Fine as is
	368.17	Overcurrent Protection	Fine as is
	368.17(A)	Protected against Overcurrent	shall be provided with overcurrent protection
	368.17(B). (X2)	Overcurrent Protection	Fine as is
	368.17(B)	Overcurrent Device	OCPD
	368.17(C)	Overcurrent Devices	OCPDs
	368.17(C)Ex.2	Branch-Circuit Overcurrent Device	Branch-Circuit OCPD
	368.17(C)Ex.3	Overcurrent Device	OCPD
	368.17(C)Ex.4	Branch-Circuit overcurrent plug-in device	CMP to review Language based on new terms
	368.17(D). Title	Overcurrent Protection	Fine as is
	368.17(D)	Protected against Overcurrent	shall be provided with overcurrent protection
8	Article 370		
	370.23. Title	Overcurrent Protection	Fine as is
	370.23	Protected against Overcurrent	shall be provided with overcurrent protection
8	Article 371		
	371.17. Title	Overcurrent Protection	Fine as is
	371.17	Overcurrent Protection	Fine as is
	371.17 (A)-(C). Titles	Overcurrent Protection	Fine as is
	371.17(A)-(C)	Protected against Overcurrent	shall be provided with overcurrent protection
	371.17(D)	Protected against Overcurrent	shall be provided with overcurrent protection
	371.17(F)	Overcurrent	shall be provided with overcurrent protection
	371.17(G)	Overcurrent Protection	
	371.17(G)Ex	Overcurrent Protection	Fine as is
	371.17(G)Ex	Overcurrent Device	OCPD

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-9			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
9	Article 265		
	265.18	Overcurrent Device	OCPD
	265.20.	Overcurrent Protection	Fine as is
	265.20.	Overcurrent protective devices	OCPDs
	265.20.	Overcurrent Devices	OCPDs
9	Article 266		
	266.1	Overcurrent Protection	Fine as is
	266.5	Overcurrent Protection	Fine as is
	266.5	Protected against overcurrent	shall be provided with overcurrent protection
	266.5	Overcurrent Device	OCPD
9	Article 268		
	268.2. (X2)	Overcurrent Protection	Fine as is
	268.70(F)	Overcurrent Devices	OCPDs
	268.82. (X4)	Overcurrent Protection	Fine as is
	Art. 268 Part VII	Overcurrent Protection	Fine as is
	268.90.	Overcurrent Device	OCPD
	268.90.	Overcurrent Devices	OCPDs
	268.91	Overcurrent Device	OCPD
	268.92	Overcurrent Devices	OCPDs
	268.93	Overcurrent Device	OCPD
9	Article 450		
	450.5 (previously 450.3). (X3)	overcurrent protection	Fine As Is
	450.5(A) and Table. (X3)	overcurrent protection	Fine As Is
	Table 450.5(A) Footnote 2. (X4)	overcurrent device	OCPD
	450.5(B)	overcurrent protection	Fine As Is
	Table 450.5(B) and Table (X2)	overcurrent protection	OCPD
	Table 450.5(B) Footnote 2. (X3)	overcurrent device	OCPD
	Table 450.5(B) Footnote 3	overcurrent protection	OCPD
	450.6(A) Title	overcurrent protection	Fine As Is
	450.6(A) (X3)	overcurrent device	OCPD
	450.6(A) Exception	overcurrent device	OCPD
	450.7(A)(1). (X2)	overcurrent protection	OCPD
	450.7(A)(2). Title	overcurrent protection	Fine As Is

		overcurrent sensing device	Fine As Is
	450.7(A)(2)	overcurrent protection	OCPD
		overcurrent device	OCPD
		branch or feeder protective devices	branch or feeder OCPDs
	450.7(A)(3)	overcurrent device	OCPD
	450.7(B)(2)	overcurrent protection	Fine As Is
	450.7(B)(2)(a)	overcurrent protective device	OCPD
	450.7(B)(2)(b)	overcurrent protection	OCPD
	450.7(B)(2)(b)	overcurrents	Fine As Is
	450.7(B)(2)(b) Exception	overcurrent device	OCPD
	450.8(A). (X2)	overcurrent protection	Fine As Is
	450.8(A)(1)	overcurrent protection	Fine As Is
	450.8(A)(2)	overcurrent protection	Fine As Is
	450.8(A)(3)	protective device	OCPD
	450.8(A)(4)(a)	protective device	OCPD
	450.8(B). Title	Overcurrent Protection	Fine As Is
	450.8(B)	overcurrent device	OCPD
	450.9	overcurrent protection	Fine As Is
	450.9	protective devices (2x)	OCPDs
	450.23(A)(1)(d) Informational Note	overcurrent protection	OCPD
	450.23(B)(1) Informational Note 2	overcurrent protection	OCPD
9	Article 495		
	495.62. Title	Overcurrent Protection	Fine As Is
	495.72	Overcurrent Relay	Fine As Is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-10			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
10	Article 100		
	Circuit Breaker	Overcurrent	Fine as is
	Coordination, Selective. (Selective Coordination)	Overcurrent condition	Fine as is
	Coordination, Selective. (Selective Coordination)	overcurrent protective devices	overcurrent protective devices (OCPDs)
	Coordination, Selective. (Selective Coordination)	overcurrents	Fine as is
	Coordination, Selective. (Selective Coordination)	overcurrent protective device	overcurrent protective device (OCPD)
	Current Limiting (as applied to overcurrent protection devices)	overcurrent protection devices	overcurrent protective devices (OCPDs)
	Feeder	final branch-circuit overcurrent protective device	overcurrent protective device (OCPD)
	Fuse	overcurrent protective device	overcurrent protective device (OCPD)
	Fuse	overcurrent	Fine as is
	Fuse, Electronically Actuated	overcurrent protective device	overcurrent protective device (OCPD)
	Fuse, Electronically Actuated	overcurrent	Fine as is
	Overcurrent	Overcurrent protection	Fine as is
	Overcurrent Protective Device, Branch-Circuit	Revise with the term Overcurrent Protective Device. (OCPD)	
	Overcurrent Protective Device, Supplementary (need to Revise term with acronym)	overcurrent protective device	overcurrent protective device (OCPD)
	Panelboard	overcurrent devices	overcurrent protective devices (OCPDs)
	Surge-Protective Device (SPD). (X2)	overcurrent device. (X2)	overcurrent protective device (OCPD)
	Switchboard	overcurrent	overcurrent protective devices (OCPDs)
	Tap Conductor	Overcurrent protection	Fine as is
10	Article 215		
	215.1	Overcurrent protection	Fine as is
	215.4(A)(1)Ex.1	overcurrent devices protecting the feeders	feeder OCPD
	215.4(A)(1)Ex.3	overcurrent device	OCPD
	215.5 Title	Overcurrent protection	Fine as is
	215.5	Feeders shall be protected against overcurrent	Feeders shall be provided with overcurrent protection in accordance with Article 240, Parts I
	215.5	overcurrent device	OCPD
	215.5Ex	overcurrent device protecting the feeders	feeder OCPDs
	215.5Ex	overcurrent device	OCPD

	215.18(B)	branch circuit overcurrent devices	OCPDs
10	Article 225		
	225.40. Title	Overcurrent protective devices	Fine as is
	225.40.	feeder overcurrent device (x2)	feeder OCPD
	225.40.	branch circuit overcurrent devices	Branch circuit OCPDs
	225.42(B)	branch circuit overcurrent devices	OCPDs
10	Article 230		
	230.7 Ex.2	Overcurrent protection	Fine as is
	230.42(A)(1)	overcurrent device (X3)	OCPD
	230.82(6)	Overcurrent protection	Fine as is
	230.82(7)	Overcurrent protection	Fine as is
	230.82(8)	Overcurrent protection	Fine as is
	230.82(9)	Overcurrent protection	Fine as is
	230.82(10)	Overcurrent protection	Fine as is
	230 Part VII	Overcurrent protection	Fine as is
	230.90(A)	overcurrent device	OCPD
	230.90(A)Ex.3	overcurrent device	OCPD
	230.90(B)	overcurrent device	OCPD
	230.91	overcurrent device (X2)	OCPD
	230.92	overcurrent device (X4)	OCPDs and OCPD
	230.93	overcurrent device	OCPD
	230.94	overcurrent device (X3)	OCPD
	230.94	Overcurrent protection (X2)	Fine as is
	230.95(A)	overcurrent device	OCPD
	230.95(B)	overcurrent device	OCPD
10	Article 240		
	240	Overcurrent Protection	Fine as is
	240.1 (X3)	Overcurrent protection	Fine as is
	240.2	branch-circuit Overcurrent protective devices	branch-circuit Overcurrent protective devices
	240.4. Title	Protection of Conductors	Overcurrent Protection of Conductors
	240.4	Protected against overcurrent	shall be provided with overcurrent protection in accordance with
	240.4(B). Title	Overcurrent devices	Overcurrent protective Devices
	240.4(B)	Overcurrent device	OCPD
	240.4(B)	Overcurrent protective device	OCPD

	240.4(C). Title	Overcurrent devices	Overcurrent protective Devices
	240.4(C). (X2)	Overcurrent device.	OCPD
	240.4(D)	Overcurrent Protection	Fine as is
	240.4(D)(1)	Overcurrent protection	Fine as is
	240.4(D)(1)(2)		(a) OCPDs in accordance with 240.7 shall be marked for use with 18 AWG copper conductor (b) Delete (c) change to (b)
	240.4(D)(2)	Overcurrent protection	Fine as is
	240.4(D)(2)(2)		(a) OCPDs in accordance with 240.7 shall be marked for use with 16 AWG copper conductor (b) Delete (c) change to (b)
	240.4(D)(3)	Overcurrent protection	Fine as is
	240.4(D)(3)(2)		(a) Fuses and circuit breakers in accordance with 240.7 marked for use with 14 AWG copper-clad aluminum conductor (b) Delete
	240.4(D)(3)(2)		OCPDs in accordance with 240.7 shall be marked for use with 14 AWG copper-clad aluminum conductor
	240.4(E)	Protected against overcurrent	shall be permitted to have overcurrent protection in accordance with the following
	240.4(F)	Overcurrent protection	Fine as is
	240.4(F)	Overcurrent protective device	OCPD
	240.4(G). (X2)	Overcurrent protection	Fine as is
	240.4(H)	Protected against overcurrent	shall be provided with overcurrent protection in accordance with
	240.5	Protected against overcurrent	shall be provided with overcurrent protection in accordance with
	240.5(A)	Overcurrent device	OCPD
	240.5(A)	Protected against overcurrent	Fixture wires shall be provided with overcurrent protection in accordance with
	240.5(A)	Supplementary overcurrent protection	Fine as is
	240.5(B) Title	Branch-circuit overcurrent device.	Branch-Circuit Overcurrent protective Devices

	240.9	Protection of conductors against overcurrent	Fine as is
	240.10. Title	Supplementary Overcurrent protection	Fine as is
	240.10.	Supplementary overcurrent protection	Fine as is
	240.10.	Branch-Circuit overcurrent devices	OCPDs
	240.10.	Supplementary overcurrent devices	Supplementary OCPDs
	240.11. (X2)	Feeder overcurrent protective devices.	Feeder OCPDs
	240.11. (X2)	Service overcurrent protective device.	Service OCPD
	240.15(A). Title	Overcurrent device	Overcurrent protective device required
	240.15(A)	Overcurrent device	OCPD
	240.15(A)	Overcurrent trip. Overcurrent relay	Fine as is
	240.15(B) Title	Overcurrent device	Circuit breaker as Overcurrent protective device
	240.16	Branch circuit overcurrent protective devices	OCPDs
	240.21	Overcurrent Protection	Fine as is
	240.21	overcurrent protective device	OCPD
	240.21 (A)	Overcurrent Protection	Fine as is
	240.21 (B)	Overcurrent Protection	Fine as is
	240.21 (B) (1) (1) (b)	Overcurrent device(s)	OCPDs
	240.21 (B) (1) (1) (b)	overcurrent protective device	OCPD
	240.21 (B)(1) (1) (4)	Overcurrent device	OCPD
	240.21 (B) (1)(1) (4) In	Overcurrent Protection	Fine as is
	240.21 (B) (2) (1)	Overcurrent device	OCPD
	240.21 (B) (2) (2)	Overcurrent devices	OCPDs
	240.21 (B) (3) (1)	Overcurrent device	OCPD
	240.21 (B) (3) (2)	Overcurrent device	OCPD
	240.21 (B) (4) (3)	Overcurrent device	OCPD
	240.21 (B) (4) (4)	Overcurrent device	OCPD
	240.21 (B) (4) (4)	Overcurrent devices	OCPDs
	240.21 (B) (5) (2)	Overcurrent device	OCPD
	240.21 (B) (5) (2)	Overcurrent devices	OCPDs
	240.21 (B) (5) (3)	Overcurrent device	OCPD
	240.21 (C). (X2)	Overcurrent Protection	Fine As Is
	240.21 (C) (1). Title	Title change	Overcurrent Protective Device
	240.21 (C) (1)	"...protected by overcurrent protection..."	Fine As Is
	240.21 (C) (1)	Overcurrent protective device	OCPD
	240.21 (C) (2) (1) (b)	Overcurrent device(s)	OCPDs

	240.21 (C) (2) (1) (b)	Overcurrent device	OCPD
	240.21 (C) (2) (4)	Overcurrent device	OCPD
	240.21 (C) (2) (4)	Overcurrent device	OCPD
	240.21 (C) (2) (4)	Overcurrent protection	Fine as is
	240.21 (C) (3) (2)	Overcurrent devices	OCPDs
	240.21 (C) (3) (3)	Overcurrent devices	OCPDs
	240.21 (C) (4) (2)	Overcurrent device	OCPD
	240.21 (C) (4) (2)	Overcurrent devices	OCPDs
	240.21 (C) (4) (3)	Overcurrent device	OCPD
	240.21 (C) (5)	Overcurrent Protection	Fine As Is
	240.21 (C) (6) (1)	Overcurrent device	OCPD
	240.21 (D)	Overcurrent devices	OCPDs
	240.21 (E)	.shall be permitted to be protected against overcurrent.	"..shall be permitted to have overcurrent protection.."
	240.21 (F)	.shall be permitted to be protected against overcurrent.	"..shall be permitted to have overcurrent protection.."
	240.21 (H). (X2)	Overcurrent Protection	Fine As Is
	240.22. (X2)	Overcurrent device	OCPD
	240.24(A)	Supplementary overcurrent protection	Fine as is
	240.24(A). (X4)	Overcurrent protective devices	OCPDs
	240.24(B)	Overcurrent devices	OCPDs
	240.24(B)(1). Title	Feeder overcurrent protective devices	Feeder OCPDs
	240.24(B)(1)	Service overcurrent protective devices	Service OCPDs
	240.24(B)(2). TITLE	Branch-circuit overcurrent protective device	Fine as is
	240.24(B)(2).	Branch-circuit overcurrent protective device	Branch-Circuit OCPD
	240.24(C)	Overcurrent protective devices	OCPDs
	240.24(D)	Overcurrent protective devices	OCPDs
	240.24(E)	Overcurrent protective devices	OCPDs
	240.24(E)	Supplementary overcurrent protection	Fine as is
	240.24(E) (X2)	Overcurrent protective devices	OCPDs
	240.24(F)	Overcurrent protective devices	OCPDs
	240.30(A)	Overcurrent devices	OCPDs
	240.32	Overcurrent devices	OCPDs
	240.33	Overcurrent devices	OCPDs
	240.86	Overcurrent device	OCPD
	240.86(B)	Overcurrent device	OCPD
	240.86(C)	Overcurrent device	OCPD

	240.87	Overcurrent device	OCPD
	240.90.	Overcurrent protection	Fine as is
	240.91(B). (X2)	Overcurrent device	OCPD
	240.92	Overcurrent device	OCPD
	240.92(A)	be protected	shall be provided with overcurrent protection
	240.92(C)	Overcurrent protection	Fine as is
	240.92(C)(1)(1)	Overcurrent device	OCPD
	240.92(C)(1)(2)	protective devices	Fine as is
	240.92(C)(1)(3)	Overcurrent devices	OCPDs
	240.92(C)(2)(1)	Overcurrent device	OCPD
	240.92(C)(2)(2) (X3)	Overcurrent devices	OCPDs
	240.92(C)(2)(3)	Overcurrent relaying	Fine as is
	240.92(C)(2)(4)	Overcurrent device	OCPD
	240.92(D)	Overcurrent protection	Fine as is
	240.92(D)(2). (X3)	Overcurrent devices	OCPDs
	240.92(D)(4)	Overcurrent device	OCPD
	240.92(E)	Overcurrent device	OCPD
	240.92(E)	Overcurrent protection	Fine as is
10	Article 242		
	242.14(ABC)	Overcurrent device	OCPD
	242.16	Overcurrent protection	Branch-circuit OCPD
10	Article 404		
	404.5	Overcurrent Devices	OCPDs
10	Article 408		
	408.4(A)	Overcurrent device	OCPD
	408.6 (X2)	Overcurrent protection devices	OCPDs
	408.36. Title	Overcurrent protection	Fine as is
	408.36. (X2)	Overcurrent protective device	OCPD
	408.36. (X3)	Overcurrent devices	OCPDs
	408.36(A)	Overcurrent protection	Fine as is
	408.36(B)	Overcurrent protection	Fine as is
	408.36(C)	Overcurrent device	OCPD
	408.36(D)	Overcurrent protection devices	OCPDs
	408.52	Overcurrent devices	OCPDs
	408.54	Overcurrent devices	OCPDs

	408.55	Overcurrent devices	OCPDs
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CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-11			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
11	Article 409		
	409.21. TITLE	Overcurrent Protection	Fine as is
	409.21(A)	Overcurrent Protection	Fine as is
	409.21(B)	Protection	Overcurrent protection
	409.21(B)	overcurrent protective device	OCPD
	409.21(B)	Overcurrent Protection	Fine as is
	409.21(C). (X2)	overcurrent protective device	OCPD
	409.104	Overcurrent Devices	OCPDs
11	Article 430		
	430.10(A) In.	Overcurrent Device	OCPD
	430.22(G)(1)(1)	Overcurrent Protection	Fine as is
	430.22(G)(1)(2)	Overcurrent Protection	Fine as is
	430.22(G)(2)(1)	Overcurrent Protection	Fine as is
	430.22(G)(2)(2)	Overcurrent Protection	Fine as is
	430.28	Branch-Circuit protective device	OCPD
	430.28	Overcurrent Device	OCPD
	430.51	Overcurrent	Fine as is
	430.53(C)(5)	Overcurrent Protection	Fine as is
	430.55	Overcurrent Protection	Fine as is
	430.61	Overcurrents	Fine as is
	430.62(A)Ex.2	Feeder Overcurrent protective device	Feeder OCPD
	430.62(A)Ex.2	Overcurrent Protection	Fine as is
	430.62(B)	Feeder Overcurrent protective device	Feeder OCPD
	430.63Ex.	Feeder Overcurrent device	Feeder OCPD
	430.63Ex.	Overcurrent Protection	Fine as is
	430.72. Title	Overcurrent Protection	Fine as is
	430.72(A)	protected against overcurrent	shall be provided with overcurrent protection in accordance with
	430.72(A)	Branch-circuit overcurrent protective devices	OCPDs
	430.72(A)	protected against overcurrent	shall be provided with overcurrent protection in accordance with
	430.72(B). (X2)	Overcurrent Protection	Fine as is
	430.72(B)	Overcurrent Device	OCPD

	430.72(B)	Overcurrent Protection	Fine as is
	430.72(B)(1) (X3)	Overcurrent Protection	Fine as is
	430.72(B)(2) Title	Branch-circuit overcurrent protective device	Fine as is
	430.72(B)(2) (X2)	protective devices	OCPDs
	430.72(C)Ex.	Overcurrent Protection	Fine as is
	430.72(C)(3)	Overcurrent Devices	OCPDs
	430.72(C)(4)	Overcurrent Device	OCPD
	430.72(C)(5)	Protection	Overcurrent protection
	430.87	Overcurrent Device	OCPD
	430.94. (X2)	Overcurrent Protection	Fine as is
	430.94. (X3)	Overcurrent protective device	OCPD
	430.109(A)(7)	Overcurrent protection	Fine as is
	430.109(B)	Branch-circuit overcurrent device	branch-circuit OCPD
	430.111(A). (X2)	Overcurrent Device	Fine as is
	430.112 Ex.	Branch circuit protective device	Suggest CMP to Review
	430.206. Title	Overcurrent protection	Fine as is
	430.206(B)(2)	considered to have Overcurrent	Overload
	430.206(C)	Fault-Current protection	Suggest CMP to Review
	430.207	Overcurrent (overload)Relays	Fine as is
	430.207	Overcurrent Relays	Fine as is
11	Article 440		
	440.21	Overcurrent	Fine as is
	440.21	Overcurrent Protection	Fine as is
	440.22(B)(2)Ex.	Overcurrent device	OCPD
	440.52(B)	Overcurrent	shall be provided with overcurrent protection
11	Article 460		
	460.9. Title	Overcurrent Protection	Fine As Is
	460.9. (X3)	Overcurrent Device	OCPD
	460.25	Overcurrent Protection	Fine As Is
	460.28(B)	Overcurrent Device	OCPD

CMP-10 TG-4 Review of Overcurrent Language for the Articles undeer the purview of CMP-12			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
12	Article 610		
	610. Part V	Overcurrent Protection	Fine as is
	610.41(A)	Overcurrent Devices	OCPDs
	610.43(A)(1)	Branch Circuit Overcurrent Device	OCPD
	610.53 Title	Overcurrent Protection	Fine as is
	610.53	be protected from Overcurrent	shall be provided with overcurrent protection
	610.53	Overcurrent Devices	OCPDs
	610.53(B)	Branch Circuit Overcurrent Devices	OCPDs
12	Article 620		
	620.12(A)(4)	Overcurrent Protection	Fine as is
	620.22(A)(2) Title	Overcurrent protective device	Fine as is
	620.22(A)(2)	Overcurrent Device protecting	branch-circuit OCPD
	620.22(A)(2)	Overcurrent Device	OCPD
	620.22(B)	Overcurrent Device protecting	branch-circuit OCPD
	620.22(B)	Overcurrent Device	OCPD
	620.25 Title	Overcurrent Devices	Overcurrent Protective Devices
	620.25. (X2)	Overcurrent Devices	OCPDs
	620.53	Overcurrent protective device	OCPD
	620.54	Overcurrent protective device	OCPD
	620.55	Overcurrent protective device	OCPD
	Art 620 Part VII	Overcurrent Protection	Fine as is
	620.61	Overcurrent Protection	Fine as is
	620.61(A). (X2)	be protected against Overcurrent	shall be provided with overcurrent protection
	620.62(A)	Overcurrent protective devices, (OCPD)	OCPDs
	620.62(B)	OCPDs	Fine as is
	620.62(C)	OCPDs. And. Overcurrent Devices	Fine as is. And. OCPDs
	620.62	Overcurrent protective devices	OCPDs
	620.65. (X3)	Overcurrent Devices	OCPDs
12	Article 625		
	625.60(C). (X4)	Overcurrent Protection	Fine as is
12	Article 627		
	627.41	Overcurrent Protection	Fine as is
	627.41(A)	Overcurrent Protection	Fine as is

	627.41(B)	Overcurrent Devices	OCPDs
12	Article 630		
	630.12	Overcurrent Protection	Fine as is
	630.12	Overcurrent Device	OCPD
	630.12(A). (X2)	Overcurrent Protection	Fine as is
	630.12(A). (X5)	Overcurrent Device	OCPD
	630.13	Overcurrent Protection	Fine as is
	630.32	Overcurrent Protection	Fine as is
	630.32	Overcurrent Device	OCPD
12	Article 640		
	640.9(C)	Overcurrent Protection	Fine as is
	640.22	Overcurrent protection devices	OCPDs
	640.22	Overcurrent Devices	OCPDs
	640.43	Overcurrent protection devices	OCPDs
12	Article 645		
	645.27	Overcurrent protective devices, (OCPD)	OCPDs
	645.27	Overcurrent protective devices	OCPDs
12	Article 646		
	646.7. (X11)	Overcurrent Protection	Fine as is
12	Article 647		
	647.5	Overcurrent Protection	Fine as is
12	Article 650		
	650.9	Overcurrent Protection	Fine as is
	650.9	Overcurrent Device	OCPD
12	Article 660		
	660.7	Overcurrent Protection	Fine as is
	660.7(A)	Overcurrent protective devices	OCPDs
	660.7(B)	Overcurrent Devices	OCPDs
	660.7(B)	Overcurrent Protection	Fine as is
	660.9	Overcurrent Devices	OCPDs
12	Article 665		
	665.24	Overcurrent Protection	Fine as is
12	Article 668		
	668.4(C)(2)	Overcurrent Protection	Fine as is
	668.21	Overcurrent Protection	Fine as is

	668.21	Overcurrent Device	OCPD
12	Article 669		
	669.9	Overcurrent Protection	Fine as is
	669.9	be protected from Overcurrent	shall be provided with overcurrent protection
12	Article 670		
	670.1	Overcurrent Protection	Fine as is
	670.4(B). (X3)	Overcurrent Protection	Fine as is
	670.5. (X4)	Overcurrent Protection	Fine as is
	670.5(C). (X2)	Overcurrent protective device	OCPD
12	Article 685		
	685.10.	Overcurrent Devices	OCPDs

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-13			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
13	Article 100		
	Emerg. Power Supply Systems (EPSS)	overcurrent protection devices	overcurrent protective devices (OCPDs)
	Transfer-Switch B-C Emerg. Ltg.	branch-circuit overcurrent device	branch-circuit overcurrent protective device (OCPD)
13	Article 130		
	130.80(C)	overcurrent devices	OCPDs
	130.80(C)	branch-circuit overcurrent device	OCPD
13	Article 445		
	445.11	Overcurrent protective Relay	Fine as is
	445.12. Title	Overcurrent Protection	Fine as is
	445.12(A)	Overcurrent protective means	Overcurrent protection means
	445.12(B)	Overcurrent Protection	Fine as is
	445.12(B) (X2)	Overcurrent Device	OCPD
	445.12(C)	Overcurrent Device	OCPD
	445.12(D)	Overcurrent Devices	OCPDs
	445.12(E). (X3)	Overcurrent Devices	OCPDs
	445.13(A). (X2)	Overcurrent Protection	Fine as is
	445.13(B). Title	Overcurrent protection	Fine as is
	445.13(B).	Overcurrent protective device	OCPD
	445.13(B)	Overcurrent Relay	Fine as is
13	Article 455		
	455.7	Overcurrent Protection	Fine As Is
	455.7	protected from Overcurrent	shall be provided with overcurrent protection in accordance with
	455.7(A)	Overcurrent Protection	Fine As Is
	455.7(B)	Overcurrent Protection	Fine As Is
13	Article 480		
	480.4(B) IN.2	Overcurrent Protection	Fine As Is
	480.6. (X2)	Overcurrent Protection	Fine As Is
	480.7	Overcurrent Device	OCPD
13	Article 695		
	695.4(C)	Overcurrent protective devices	OCPDs
	695.4(H). Title	Overcurrent Device Selection	Overcurrent Protective Device Selection
	695.4(H)	Overcurrent Devices	OCPDs

	695.5	Overcurrent Device	OCPD
	695.5	Overcurrent protective devices	OCPDs
	695.5	Overcurrent Protection	Fine as is
	695.6	Overcurrent protective devices	OCPDs
	695.6	Overcurrent Devices	OCPD
	695.6	Overcurrent Protection	Fine as is
	695.7(A)(2)	Overcurrent Devices	OCPDs
	695.7	Overcurrent Protection	Fine as is
13	Article 700		
	700.4(F)(8)	Overcurrent protective devices, (OCPD)	OCPDs
	700.6(E)	Overcurrent protective device	OCPD
	700.10(B). (X6)	Overcurrent Protection	Fine as is
	700.10(B)(6)(b)(ii)	Overcurrent protective device	OCPD
	700.10(B)(6)(e)	Overcurrent protective devices	OCPDs
	Art. 700 Part VI	Overcurrent Protection	Fine as is
	700.30.	Branch-circuit overcurrent devices	OCPDs
	700.32(A)	Overcurrent protective devices, (OCPDs)	OCPDs
	700.32(A) In	Overcurrent Protection	Fine as is
	700.32(C)	Overcurrent Devices	OCPDs
13	Article 701		
	701.6(C)	Overcurrent protective device	OCPD
	701.10(B)(1). (X5)	Overcurrent Protection	Fine as is
	701.10(B)(1)	Overcurrent protective device	OCPD
	Art. 701. Part IV	Overcurrent Protection	OCPDs
	701.30.	Branch-Circuit Overcurrent devices	Branch-Circuit OCPDs
	701.32(A). (X2)	Overcurrent protective devices, OCPDs	OCPDs
	701.32(B). (X3)	OCPDs	Fine as is
	701.32(C). (X2)	OCPDs	Fine as is
	701.32(C)Ex	Overcurrent Devices	OCPDs
	701.32(C) In 2	OCPD and OCPDs	Fine as is
13	Article 702		
	702.5(C)	Overcurrent protective device	OCPD
13	Article 706		
	706.15(E)(1)	Overcurrent Device	OCPD
	706.30(B)	Overcurrent Devices	OCPDs

	706.31 Title	Overcurrent Protection	Fine as is
	706.31(A)	shall be protected at the source from overcurrent.	shall be provided with overcurrent protection at the source
	706.31(A)	shall be protected from overcurrent.	shall be provided with overcurrent protection
	706.31(A) In	Overcurrent Device	OCPD
	706.31(B). Title	Overcurrent Device	Overcurrent Protective Device
	706.31(B)	Overcurrent protective devices	OCPDs
	706.31(B)	Overcurrent devices	OCPDs
	706.31(C)	Overcurrent protective devices	OCPDs
	706.31(E)	Overcurrent Protection	Fine as is
	706.33(B)(2)	Overcurrent Device	OCPD
13	Article 708		
	708.10(B)	Overcurrent Protection	Fine as is
	708.24(E)	Overcurrent protective device	OCPD
	Art. 708. Part IV	Overcurrent Protection	Fine as is
	708.50.	Feeder- and Branch-circuit overcurrent devices	Feeder- and Branch-circuit OCPDs
	708.52(B)	Overcurrent Devices	OCPDs
	708.54(A)	Overcurrent protective devices, (OCPD)	OCPDs
	708.54(A). (B). (C)	OCPDs	Fine as is
	708.54	Overcurrent Devices	OCPDs

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-14			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
14	Article 500		
	500.30(A)(2)	Branch Circuit Overcurrent Protection	OCPD
	500.30.	Overcurrent Protection	Fine as is
14	Article 501		
	501.105(B)(5)	Overcurrent Protection	Fine as is
	501.125(B)(2)	Motor Overcurrent	Fine as is
14	Article 502		
	502.120(A)	Overcurrent Devices	OCPDs
	502.120(B)(1)	Overcurrent Devices	OCPDs
	502.125	Motor Overcurrent	Fine as is
14	Article 505		
	505.30(A)(2)	Branch Circuit Overcurrent Protection	OCPD
	505.30.	Overcurrent Protection	Fine as is
14	Article 506		
	506.30.	Branch Circuit Overcurrent Protection	OCPD
	506.30.	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-15			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
15	Article 100		
	Bull Switch	Overcurrent protection	Fine as is
15	Article 517		
	517.17(B)	Overcurrent protective devices	OCPDs
	517.31(G). (X5)	Overcurrent protective devices	OCPDs
	517.31(G)	Overcurrent	Fine as is
	517.33((C). (X5)	Overcurrent protective devices	OCPDs
	517.42(F)	Overcurrent protective devices	OCPDs
	517.42(F)	Overcurrent	Fine as is
	517.73	Overcurrent Protection	Fine as is
	517.73(A)	Overcurrent protective devices	OCPDs
	517.73(B)	Overcurrent protective devices	OCPDs
	517.73(B)	Overcurrent Protection	Fine as is
	517.74(B)	Overcurrent protective devices	OCPDs
	517.160(A)(2)	Overcurrent Protection	Fine as is
	517.160(A)(2)	Overcurrent protective device	OCPD
	517.160(A)(2)	be protected against Overcurrent	be provided with overcurrent protection
	517.160(A)(3)	Overcurrent protective devices	OCPDs
	517.160(B)(1)	Overcurrent protective devices	OCPDs
15	Article 518		
	518.7(A)(1)	Overcurrent Protection	Fine as is
	518.17(A)(1) and (2)	Overcurrent Devices	OCPDs
15	Article 520		
	520.9	Branch Circuit Overcurrent Device	OCPD
	520.21	Overcurrent protective devices	OCPDs
	520.25. (X3)	Overcurrent Protection	Fine as is
	520.26	Overcurrent protective devices	OCPD
	520.26. (X3)	Overcurrent Protection	Fine as is
	520.27. (X2)	Overcurrent Device	OCPD
	520.44-T	Overcurrent Devices	OCPD
	520.50(C)	Overcurrent Protection	Fine as is
	520.50.	Branch-circuit overcurrent protective device	OCPDs
	520.52	Overcurrent Protection	Fine as is

	520.53(A)	Overcurrent protective devices	OCPDs
	520.53(D)	Overcurrent Protection	Fine as is
	520.54	Overcurrent Devices	OCPDs
	520.54(D)	Overcurrent Device	OCPD
	520.54(D)(1) and (2)	Overcurrent protective devices	OCPD
	520.54(E)	Overcurrent protective device	OCPD
	520.54(E). (X4)	Overcurrent protection device	OCPD
	520.54(E)	Overcurrent Devices	OCPDs
	520.54(K)	Overcurrent Device	OCPD
	520.68	Overcurrent protective device	OCPD
	520.68(3)	Overcurrent Device	OCPD
	520.68(4)	Overcurrent protective device	OCPD
	520.68(6)	Overcurrent Devices	OCPDs
	520.68(C)	Overcurrent Protection	Fine as is
15	Article 522		
	522.10(A)(2). (X3)	Overcurrent Devices	OCPDs
	522.10(A)(2)	Overcurrent protective device	OCPD
	522.10(B). (X4)	Overcurrent Devices	OCPDs
	522.23. (X3)	Overcurrent Protection	Fine as is
15	Article 525		
	525.12	Overcurrent Device	OCPD
	525.23(B)	Overcurrent Device	OCPD
	525.23(C). (X2)	Overcurrent Protection	Fine as is
15	Article 530		
	530.9(A)	Branch-circuit overcurrent device	Branch-circuit OCPD
	530.10(C)	Overcurrent Protection	Fine as is
	530.23 and (A)	Overcurrent Protection	Fine as is
	530.23(B)	Overcurrent protective devices	OCPDs
	530.23(D)	Overcurrent Protection	Fine as is
	530.42	Overcurrent Protection	Fine as is
15	Article 540		
	540.11(B)	Overcurrent Devices	OCPDs

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-16			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
16	Article 830		
	830.15. (X4)	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles under the purview of CMP-17			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
17	Article 422		
	422.5(C)	Branch-circuit overcurrent protective device	Branch-Circuit OCPD
	422.11. Title	Overcurrent Protection	Fine as is
	422.11	protected against overcurrent	shall be provided with overcurrent protection
	422.11(A)	Overcurrent Protection	Fine as is
	422.11(A)	Branch-circuit overcurrent protective device	Branch-Circuit OCPD
	422.11(B)	Overcurrent Protection	OCPDs
	422.11(C)	Overcurrent Protection	OCPDs
	422.11(D)	Overcurrent protective devices	OCPDs
	422.11(E)	Overcurrent Protection	Fine as is
	422.11(E)(1)	Overcurrent Protection	Fine as is
	422.11(E)(2)	Overcurrent Protection	Fine as is
	422.11(E)(3)	Overcurrent Protection	OCPD
	422.11(E)(3)	Overcurrent Device	OCPD
	422.11(F)(1)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	422.11(F)(1)	Overcurrent Protective Devices	OCPDs
	422.11(G)	Overcurrent Protective Devices	OCPDs
	422.13	Overcurrent Protection	Fine as is
	422.31(A)	Branch-circuit overcurrent protective device	Branch-Circuit OCPD
	422.60(A)	Overcurrent Protection	Fine as is
	422.62(B)(1). (X2)	Overcurrent protective device	OCPD
17	Article 424		
	424.19	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	424.19(A)	Supplementary Overcurrent Protection	Fine as is
	424.19(A)	Supplementary Overcurrent Protection	Fine as is
	424.19(A)	Supplementary Overcurrent Protective Device(s)	Supplementary OCPDs
	424.19(B)	Supplementary Overcurrent Protection	Fine as is
	424.22	Overcurrent Protection	Fine as is
	424.22(A)	Overcurrent Protection	Fine as is
	424.22(A)	protected against overcurrent	"..shall be permitted to have overcurrent protection.."
	424.22(B)	Supplementary Overcurrent Protective Device	Supplementary OCPD
	424.22(C). Title	Overcurrent Protective Devices	Fine as is
	424.22(C)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs

	424.22(C)	Overcurrent Protection	Fine as is
	424.22(C)	Supplementary Overcurrent Protection	Fine as is
	424.22(D) (X2)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	424.22(E). (X3)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	424.72	Overcurrent Protection	Fine as is
	424.72(A)	Overcurrent protective device	OCPD
	424.72(B)	Overcurrent protective device	OCPD
	424.72(C). Title	Supplementary Overcurrent Protective Devices	Fine as is
	424.72(C)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	424.72(C)	Overcurrent Protection	Fine as is
	424.72(D). Title	Supplementary Overcurrent Protective Devices	Fine as is
	424.72(D).	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	424.72(D)	Overcurrent protective device	OCPD
	424.72(E)	Supplementary Overcurrent Protective Devices. (X3)	Supplementary OCPDs
	424.82	Overcurrent protective devices	OCPDs
17	Article 425		
	425.19	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.19(A). (X2)	Supplementary Overcurrent Protection	Fine as is
	425.19(A)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.19(B)	Supplementary Overcurrent Protection	Fine as is
	425.22. Title	Overcurrent Protection	Fine as is
	425.22(A)	Overcurrent Protection	Fine as is
	425.22(A)	protected against overcurrent	"..shall be permitted to have overcurrent protection.."
	425.22(B)	Supplementary Overcurrent Protective Device	Supplementary OCPD
	425.22(C). Title	Overcurrent Protective Devices	Fine as is
	425.22(C)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.22(C). (X2)	Supplementary Overcurrent Protection	Fine as is
	425.22(D). Title	Supplementary Overcurrent Protective Devices	Fine as is
	425.22(D). (X2)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.22(E) (X3)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.72	Overcurrent Protection	Fine as is
	425.72(A)	Overcurrent protective device	OCPD
	425.72(B)	Overcurrent protective device	OCPD
	425.72(C). Title	Supplementary Overcurrent Protective Devices	Fine as is
	425.72(C)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs

	425.72(C)	Overcurrent Protection	Fine as is
	425.72(D)	Overcurrent protection	Fine as is
	425.72(E). Title	Supplementary Overcurrent Protective Devices	Fine as is
	425.72(E)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.72(E)	Overcurrent Protective Devices	OCPD
	425.72(F). (X3)	Supplementary Overcurrent Protective Devices	Supplementary OCPDs
	425.82	Overcurrent protective devices	OCPDs
17	Article 427		
	427.57	Overcurrent Protection	Fine as is
	427.57	considered protected against Overcurrent	considered to have overcurrent protection
17	Article 680		
	680.10.(A)& (B)(2)	Overcurrent protective devices	OCPDs
	680.23(F)(2)	Overcurrent Protection	Fine as is

CMP-10 TG-4 Review of Overcurrent Language for the Articles undeer the purview of CMP-18			
CMP	NEC Section (using First Draft of 2026 NEC)	Current Language	"New" Language
18	Article 393		
	393.45. Title	Overcurrent Protection	Overcurrent Protection
	393.45(A)	Overcurrent Protection	Fine as is
18	Article 406		
	406.46(F)	Overcurrent Device	OCPD
18	Article 410		
	410.59(A)	Branch-circuit overcurrent devices	Branch-Circuit OCPD
	410.153	Overcurrent Protection	Fine as is
18	Article 600		
	600.41	Overcurrent	CMP to Review



Public Comment No. 327-NFPA 70-2024 [Global Input]

CMP 1 has deleted the definition for “In Sight From”, and the requirements that were part of that definition are now located in 110.29. This global Correlating Committee Note directs all CMP’s to review occurrences of the phrase “in sight from”, “within sight from”, and “within sight” and consider whether references to 110.29 or 110.39 should be included.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_26.pdf	NEC_CN26	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 26 appeared in the First Draft Report on First Revision No. 9187.

CMP 1 has deleted the definition for “In Sight From”, and the requirements that were part of that definition are now located in 110.29. This global Correlating Committee Note directs all CMP’s to review occurrences of the phrase “in sight from”, “within sight from”, and “within sight” and consider whether references to 110.29 or 110.39 should be included.

Related Item

- First Revision No. 9187

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 29 17:05:29 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: There are no references within the purview of Panel 1, therefore no action was taken on this comment.



Public Comment No. 63-NFPA 70-2024 [Global Input]

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

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

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

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

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

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

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

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

Equipment, Portable (portable equipment). Plug and cord connected equipment, or battery powered equipment, that is capable of being relocated with or without mechanical assistance to another location for use. (CMP-1)

~~Portable.~~

~~A device intended for indoor or outdoor use that is designed to be hand-carried from location to location, or easily transported without the use of other devices or equipment. (625) (CMP-12)~~

~~Portable.~~

~~X-ray equipment designed to be hand-carried. (660) (CMP-12)~~

~~Portable (as applied to equipment).~~

~~Equipment that is actually moved or can easily be moved from one place to another in normal use. (680) (CMP-17)~~

Portable.— Capable of being relocated with or without mechanical assistance to another location for use. (CMP-1)

Type your content here ...

Statement of Problem and Substantiation for Public Comment

Currently, the definitions in Article 100 contain multiple definitions for the terms "portable equipment" and Portable." A task group consisting of the CMP chairs from CMP12, CMP14, CMP15, and CMP17 created the combined definitions shown in the public comment to eliminate the redundant definitions and create simple, single definitions of each term that can be utilized throughout the Code. Terms that use "portable" but tied to specific equipment - for example, "portable structure," "portable substation" - are unaffected by this comment as those terms are specific to a piece of equipment and not general in nature.

Related Item

- First Draft Report

Submitter Information Verification

Submitter Full Name: Joseph Bablo

Organization: UL Solutions

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Submittal Date: Mon Jul 15 10:31:11 EDT 2024

Committee: NEC-P01

Committee Statement

**Committee
Action:**

Rejected

Resolution: The terms "portable" and "portable equipment" can vary based on the type of equipment. The term "mechanical assistance" is too broad and not defined in the context of this recommendation.



Statement of Problem and Substantiation for Public Comment

The new First Draft restrictions on reconditioned equipment seem to have overlooked the scope and purpose of the NEC. Adding the superfluous term "to be installed" also does not conform to 3.1.1, 3.1.2, and 3.5.1.1 of the NEC Style Manual.

*FR-•FR- •FR-•PI- •FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-•FR-
9197 9236 7868 3713 8938 7970 8831 8941 8944 8947 7925 7585 8136 8148 8984 8293 8362 8348 8360 7614 7658 7734 7746 8150 7717

Committee: NEC-P01

Resolution: This recommendation introduces new information. Accordingly, this comment is held per 4.4.8.3.2, Basis for Reject But Hold, in the Regulations Governing the Development of NFPA Standards.



Public Comment No. 21-NFPA 70-2024 [Section No. 90.2]

90.2– Use and Application 2 Scope and Application of Document .

~~(G)– Installations Covered:~~

This

~~(A)– Practical Safeguarding:~~

The purpose of this code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code is not intended as a design specification or an instruction manual for untrained persons.

~~(B)– Adequacy:~~

This code contains provisions that are considered necessary for safety. Compliance therewith and proper maintenance result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use.

Informational Note: Hazards often occur because of overloading of wiring systems by methods or usage not in conformity with this code. This occurs because initial wiring did not provide for increases in the use of electricity. An initial adequate installation and reasonable provisions for system changes provide for future increases in the use of electricity.

Document Scope

(1) Covered. This code covers the installation 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

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2).

-Installations

Not Covered.

- This code does not cover the following:

- (1) Installations in ships, watercraft other than floating buildings, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles

Informational Note: Although the scope of this code indicates that the code does not cover installations in ships, portions of this code are incorporated by reference into Title 46, Code of Federal Regulations, Parts 110-113.

- (2) Installations underground in mines and self-propelled mobile surface mining machinery and its attendant electrical trailing cable
- (3) Installations of railways for generation, transformation, transmission, energy storage, or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communications purposes
- (4) Installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations
- (5) Installations under the exclusive control of an electric utility where such installations
 - (6) - Consist of service drops or service laterals, and associated metering, or
 - (7) - Are on property owned or leased by the electric utility for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy, or
 - (8) - Are located in legally established easements or rights-of-way, or
 - (9) - Are located by other written agreements either designated by or recognized by public service commissions, utility commissions, or other regulatory agencies having jurisdiction for such installations. These written agreements shall be limited to installations for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy where legally established easements or rights-of-way cannot be obtained. These installations shall be limited to federal lands, Native American reservations through the U.S. Department of the Interior Bureau of Indian Affairs, military bases, lands controlled by port authorities and state agencies and departments, and lands owned by railroads.

Informational Note to (4) and (5): Examples of utilities may include those entities that are typically designated or recognized by governmental law or regulation by public service/utility commissions and that install, operate, and maintain electric supply (such as generation, transmission, or distribution systems) or communications systems (such as telephone, CATV, Internet, satellite, or data services). Utilities may be subject to compliance with codes and standards covering their regulated activities as adopted under governmental law or regulation. Additional information can be found through consultation with the appropriate governmental bodies, such as state regulatory commissions, the Federal Energy Regulatory Commission, and the Federal Communications Commission.

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E)-

B)- Practical Safeguarding:

The purpose of this code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code is not intended as a design specification or an instruction manual for untrained persons:

(C)_ Adequacy.

This code contains provisions that are considered necessary for safety. Compliance therewith and proper maintenance result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use.

Informational Note: Hazards often occur because of overloading of wiring systems by methods or usage not in conformity with this code. This occurs because initial wiring did not provide for increases in the use of electricity. An initial adequate installation and reasonable provisions for system changes provide for future increases in the use of electricity.

(D) Relation to Other International Standards.

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

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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
PLH_Word_Document_Layout_for_Public_Comment_21.docx		

Statement of Problem and Substantiation for Public Comment

This recommendation is in response to direction from the Correlating Committee via Correlating Committee Note No. 91 which was created during its First Draft review of the work of Code Panel 1 and approved unanimously in the related ballot. This recommendation is an editorial restructuring which restores a scope statement for the NEC that was lost by adding a scope for Article 90 in 90.1 to comply with the NEC Style Manual. Terra may not have accurately captured how this recommendation was intended. Accordingly, I also submitted the proposed editorial restructuring in an attached Word document.

Related Item

- CN-91

Submitter Information Verification

Submitter Full Name: Palmer Hickman
Organization: Electrical Training Alliance
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 10 11:13:15 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7512-NFPA 70-2024
Statement: A scope of the NEC is added to Article 90 to comply with the NEC Style Manual section 2.1.4.4.

This revision removes the phrase “and proper maintenance” both to comply with 3.2.1 of the NEC Style Manual with “proper” as an unenforceable vague term and removes the word “maintenance” that is an activity covered after an installation with requirements that are covered in NFPA 70B.

Informational Note to (4) and (5) are revised to comply with the NEC Style Manual.

This is the way this proposed revision is intended to appear:

90.2 Scope and Application of Document.

(A) Document Scope

(1) Covered

This code covers the installation 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

(2) Not Covered

This code does not cover the following:

- (1) Installations in ships, watercraft other than floating buildings, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles

Informational Note: Although the scope of this code indicates that the code does not cover installations in ships, portions of this code are incorporated by reference into Title 46, Code of Federal Regulations, Parts 110–113.

- (2) Installations underground in mines and self-propelled mobile surface mining machinery and its attendant electrical trailing cable
- (3) Installations of railways for generation, transformation, transmission, energy storage, or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communications purposes
- (4) Installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations
- (5) Installations under the exclusive control of an electric utility where such installations

- a. Consist of service drops or service laterals, and associated metering, or
- b. Are on property owned or leased by the electric utility for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy, or
- c. Are located in legally established easements or rights-of-way, or
- d. Are located by other written agreements either designated by or recognized by public service commissions, utility commissions, or other regulatory agencies having jurisdiction for such installations. These written agreements shall be limited to installations for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy where legally established easements or rights-of-way cannot be obtained. These installations shall be limited to federal lands, Native American reservations through the U.S. Department of the Interior Bureau of Indian Affairs, military bases, lands controlled by port authorities and state agencies and departments, and lands owned by railroads.

Informational Note to (4) and (5): Examples of utilities may include those entities that are typically designated or recognized by governmental law or regulation by public service/utility commissions and that install, operate, and maintain electric supply (such as generation, transmission, or distribution systems) or communications systems (such as telephone, CATV, Internet, satellite, or data services). Utilities may be subject to compliance with codes and standards covering their regulated activities as adopted under governmental law or regulation. Additional information can be found through consultation with the appropriate governmental bodies, such as state regulatory commissions, the Federal Energy Regulatory Commission, and the Federal Communications Commission.

(B) Practical Safeguarding.

The purpose of this code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code is not intended as a design specification or an instruction manual for untrained persons.

(C) Adequacy.

This code contains provisions that are considered necessary for safety. Compliance therewith and proper maintenance result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use.

(D) Relation to Other International Standards.

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

Informational Note: See IEC 60364-1, Low-voltage Electrical Installations – Part 1: Fundamental Principles, Assessment of General Characteristics, Definitions, Section 131, for fundamental principles of protection for safety that encompass protection against electric shock, protection

against thermal effects, protection against overcurrent, protection against fault currents, and protection against overvoltage. All of these potential hazards are addressed by the requirements in this code.



Public Comment No. 1129-NFPA 70-2024 [New Section after 90.2(A)]

Qualified Person

Consistently long standing there has been a fundamental issue regarding how an AHJ enforces the scattered qualified persons requirements within the NEC. Licensing, certifications, and training are more important now than they ever have been in the electrical industry. Significant language was added to the NEC in 2023 to accompany the existing 142 uses of “qualified persons” language. While service and maintenance are nothing new to the electrical industry, the addition of 110.17 completes the trilogy of interweaving NFPA 70, NFPA 70E Standard for Electrical Safety in the Workplace and NFPA 70B Standard for Electrical Equipment Maintenance. However, the use and requirement of “qualified persons” is still inconsistent from article to article resulting in the perceived responsibility of the qualified person differing from system to system. Throughout the country, sections and portions of each system are NOT performed by qualified persons and the argument by those unqualified performing the work is based on the language or lack thereof for total inclusion of all “parts” of the system requiring training in the construction and installation of the electrical system.

2026 saw 17 PI's in an attempt to promote uniformity with qualified persons language across the NEC. The consensus from CMP to CMP was a statement for qualified persons is more appropriate in Article 90 and/or Article 110. To draw a parallel from the enforceable qualified persons language in electrical safety and maintenance, to those in the NEC, a general requirement for qualified persons in Article 90.2(A) or Article 110 would then require that ALL electrical work under the scope of the NEC, including but not limited to the construction, installation, commissioning, and maintenance be performed by qualified persons.

As technology enhances and electrical systems become more complex and interconnected with energy systems outside traditional utility, the verification of construction, installation, commissioning, and maintenance by a qualified person becomes even more imperative.

This public comment is made in support of adding a “general” requirement in Article 90 or Article 110, in reference to all aspects of electrical work covered under the purview of the NEC being performed by qualified persons.

Finally, with the addition of 110.17 in NFPA 70 and the recent evolution of NFPA 70B moving to a standard, I would like to introduce the thought of amending the NEC Article 100 definition of Qualified Person to include commissioning, and at minimum maintenance. Ultimately reading:

Qualified Person. One who has skills and knowledge related to the construction, commissioning, maintenance, and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Statement of Problem and Substantiation for Public Comment

Consistently long standing there has been a fundamental issue regarding how an AHJ enforces the scattered qualified persons requirements within the NEC. Licensing, certifications, and training are more important now than they ever have been in the electrical industry. Significant language was added to the NEC in 2023 to accompany the existing 142 uses of “qualified persons” language. While service and maintenance are nothing new to the electrical industry, the addition of 110.17 completes the trilogy of interweaving NFPA 70, NFPA 70E Standard for Electrical Safety in the Workplace and NFPA 70B Standard for Electrical Equipment Maintenance. However, the use and requirement of “qualified persons” is still inconsistent from article to article resulting in the perceived responsibility of the qualified person differing from system to system. Throughout the country, sections and portions of each system are NOT performed by qualified persons and the argument by those unqualified performing the work is based on the language or lack thereof for total inclusion of all “parts” of the system requiring training in the construction and installation of the electrical system.

2026 saw 17 PI's in an attempt to promote uniformity with qualified persons language across the NEC. The consensus from CMP to CMP was a statement for qualified persons is more appropriate in Article 90 and/or Article 110. To draw a parallel from the enforceable qualified persons language in electrical safety and maintenance, to those in the NEC, a general requirement for qualified persons in Article 90.2(A) or Article 110 would then require that ALL electrical work under the scope of the NEC, including but not limited to the construction, installation, commissioning, and maintenance be performed by qualified persons.

As technology enhances and electrical systems become more complex and interconnected with energy systems outside traditional utility, the verification of construction, installation, commissioning, and maintenance by a qualified person becomes even more imperative.

This public comment is made in support of adding a “general” requirement in Article 90 or Article 110, in reference to all aspects of electrical work covered under the purview of the NEC being performed by qualified persons.

Finally, with the addition of 110.17 in NFPA 70 and the recent evolution of NFPA 70B moving to a standard, I would like to introduce the thought of amending the NEC Article 100 definition of Qualified Person to include commissioning, and at minimum maintenance. Ultimately reading:

Qualified Person. One who has skills and knowledge related to the construction, commissioning, maintenance, and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Related Item

- PI 1817, PI 1818, PI 1819, PI 1820

Submitter Information Verification

Submitter Full Name: George Mostardini
Organization: IBEW Local 134
Affiliation: IBEW
Street Address:
City:
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Zip:
Submittal Date: Thu Aug 15 19:01:22 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: The recommendation attempts to add a definition into Article 90 as a requirement. This change would violate the NEC Style Manual 2.1.2.5.



Public Comment No. 1834-NFPA 70-2024 [Section No. 90.2(A)]

(A) Practical Safeguarding.

The purpose of this code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code is not intended as a design specification or an instruction manual for ~~untrained~~ persons unqualified persons.

Informational Note: See article 100 for the definition of qualified person and unqualified person

Statement of Problem and Substantiation for Public Comment

This PC is being submitted in response to the resolution of PI-1557. The committee resolution statement stated the defined term of qualified person does not include the application of code requirements. As such 2 companion PCs were submitted revising the definition of Qualified Person to include the application of code requirements as well as create a new definition for the NEC for unqualified persons. The term unqualified person is already defined in NFPA 70E so this will also create consistency between the documents. Adding an informational note pointing to these definitions will aid users in determining what the purpose of this section.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1852-NFPA 70-2024 [Definition: Qualified Person.]	
<u>Related Item</u>	
• PI-1557	

Submitter Information Verification

Submitter Full Name: Jeff Noren
Organization: National Electrical Contractors Association
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City:
State:
Zip:
Submittal Date: Tue Aug 27 16:22:19 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: The existing terminology is well-established and well understood. The recommendation has not adequately substantiated that the existing term is problematic.



Public Comment No. 41-NFPA 70-2024 [Section No. 90.2(B)]

(B) Adequacy.

This code contains provisions that are considered necessary for safety. Compliance ~~therewith and proper maintenance result therewith~~ result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use.

Informational Note: Hazards often occur because of overloading of wiring systems by methods or usage not in conformity with this code. This occurs because initial wiring did not provide for increases in the use of electricity. An initial adequate installation and reasonable provisions for system changes provide for future increases in the use of electricity.

Statement of Problem and Substantiation for Public Comment

The phrase "and proper maintenance" is deleted in this recommendation to comply with the final action of Committee Input No. 9273 and Section and Table 3.2.1, Possibly Unenforceable and Vague Terms, in the NEC Style Manual. The word "proper" used in this context is unenforceable and vague. Further, while there is not a definitive statement as to why the NEC does not cover maintenance as this passed at the meeting and the committee statement explained why maintenance was covered by the NEC, of the explanation of negative votes that created this Committee Input stated that "I do not agree the National Electrical Code (NEC) should state that it "covers maintenance and servicing" when, in fact it does not."

Related Item

- Committee Input No. 9273

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 11 16:57:36 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7512-NFPA 70-2024](#)

Statement: A scope of the NEC is added to Article 90 to comply with the NEC Style Manual section 2.1.4.4.

This revision removes the phrase "and proper maintenance" both to comply with 3.2.1 of the NEC Style Manual with "proper" as an unenforceable vague term and removes the word "maintenance" that is an activity covered after an installation with requirements that are covered in NFPA 70B.

Informational Note to (4) and (5) are revised to comply with the NEC Style Manual.



Public Comment No. 851-NFPA 70-2024 [Section No. 90.2(B)]

(B) Adequacy.

This code contains provisions that are considered necessary for safety. Compliance therewith ~~and proper maintenance~~ result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use.

Informational Note: Hazards often occur because of overloading of wiring systems by methods or usage not in conformity with this code. This occurs because initial wiring did not provide for increases in the use of electricity. An initial adequate installation and reasonable provisions for system changes provide for future increases in the use of electricity.

Statement of Problem and Substantiation for Public Comment

Maintenance was not included as something that is covered by the NEC. Accordingly, this section should only address the installation as a means to ensure a safe installation for correlation with that action that did not add maintenance to what is covered by the NEC. Maintenance is something that occurs at some point after the the installation.

Related Item

- CI-9273

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 16:21:42 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7512-NFPA 70-2024](#)

Statement: A scope of the NEC is added to Article 90 to comply with the NEC Style Manual section 2.1.4.4.

This revision removes the phrase “and proper maintenance” both to comply with 3.2.1 of the NEC Style Manual with “proper” as an unenforceable vague term and removes the word “maintenance” that is an activity covered after an installation with requirements that are covered in NFPA 70B.

Informational Note to (4) and (5) are revised to comply with the NEC Style Manual.



Public Comment No. 1335-NFPA 70-2024 [Section No. 90.2(C)]

(C) Installations Covered.

This code covers the installation, reinstallation, 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

Statement of Problem and Substantiation for Public Comment

This comment is being submitted on behalf of the Minnesota Department of Labor and Industry. Currently, the Department's inspection staff includes 14-office/field staff, 50-state field inspectors, 4-virtual inspectors and 22 plus contract electrical inspectors that complete over 170,000 electrical inspections annually.

Please reconsider PI 478 and add the word "reinstallation". The word adds clarity to the scope of NEC when it comes to replacing or repairing electrical installations. For example, we have many sections in the NEC that have code requirement when an installer is "replacing" electrical equipment. Technically, those installations are not addressed in the scope statement.

Related Item

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

Submitter Information Verification

Submitter Full Name: Dean Hunter

Organization: Minnesota Department of Labor

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 20 17:07:38 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The code covers installations whether installed initially or removed and installed again which the submitter has considered "reinstalled."



Public Comment No. 1442-NFPA 70-2024 [Section No. 90.2(C)]

~~(C) – Installations – Covered.~~

~~This code covers the installation and removal of electrical equipment, conductors, and utilization equipment, and raceways, the removal where required elsewhere in this code; including, signaling and communications conductors, equipment, and raceways; and optical fiber cables and equipment 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~~

Statement of Problem and Substantiation for Public Comment

The code making panel previously stated that all equipment is included so there is no need to spell everything out, the addition of utilization equipment is necessary to clarify inclusion even when not part of an installation the NFPA 70 applies, e.g when the utilization equipment is being fabricated and not part of an electrical installation but is still required to meet the NFPA-70 standard. This language also follows the OSHA language and bring clarity to this often misplaced application of the use of utilization equipment vs just equipment.

§ 1910.302 Electric utilization systems.

(a) Scope -

(1) Covered. The provisions of §§ 1910.302 through 1910.308 cover electrical installations and utilization equipment installed or used within or on buildings, structures, and other premises, including: ~~~

Related Item

- Public Input No. 3779

Submitter Information Verification

Submitter Full Name: Alfio Torrisi

Organization: Triad National Security, LLC.

Street Address:

City:

State:

Zip:

Submittal Date: Thu Aug 22 18:31:43 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The submitter has not adequately substantiated why the existing wording is problematic. Further, the proposed revision does not add clarity.



Public Comment No. 2068-NFPA 70-2024 [Section No. 90.2(C)]

(C) Installations Covered.

This code covers the installation, 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

Statement of Problem and Substantiation for Public Comment

The terms "reconditioning" and "servicing" have been added to the Scope since there are requirements in the NEC for reconditioning and servicing. Maintenance was not added to correlate with the definition of servicing.

However, if maintenance is added, a definition would be needed in Article 100. Proposed definition: Maintenance: the process of maintaining electrical systems and equipment to address risk of failure, breakdown or malfunctions and improve safety and reliability.

Related Item

- CI-9273

Submitter Information Verification

Submitter Full Name: Daniel Neeser

Organization: Eaton Bussmann Division

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 17:53:47 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: There is no need to add "reconditioning" or "servicing" to what is covered by the NEC as 110.20 covers reconditioning as a general requirement.



Public Comment No. 444-NFPA 70-2024 [Section No. 90.2(C)]

(C) Installations Covered.

This code covers the installation 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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_91.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 91 appeared in the First Draft Report.

The Correlating Committee directs CMP 1 to review the ballot comments related to developing a document scope section in 90.2. Prior to the 2023 edition of the NEC, Section 90.2 was titled "Scope".

Related Item

- Correlating Committee Note No. 91

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 17:38:05 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7512-NFPA 70-2024](#)

Statement: A scope of the NEC is added to Article 90 to comply with the NEC Style Manual section 2.1.4.4.

This revision removes the phrase "and proper maintenance" both to comply with 3.2.1 of the NEC Style Manual with "proper" as an unenforceable vague term and removes the word "maintenance" that is an activity covered after an installation with requirements that are covered in NFPA 70B.

Informational Note to (4) and (5) are revised to comply with the NEC Style Manual.



Correlating Committee Note No. 91-NFPA 70-2024 [Section No. 90.2(C)]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 10:29:28 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP 1 to review the ballot comments related to developing a document scope section in 90.2. Prior to the 2023 edition of the NEC, Section 90.2 was titled "Scope".

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 445-NFPA 70-2024 [Section No. 90.2(D)]

(D) Installations Not Covered.

This code does not cover the following:

- (1) Installations in ships, watercraft other than floating buildings, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles

Informational Note: Although the scope of this code indicates that the code does not cover installations in ships, portions of this code are incorporated by reference into Title 46, Code of Federal Regulations, Parts 110–113.
- (2) Installations underground in mines and self-propelled mobile surface mining machinery and its attendant electrical trailing cable
- (3) Installations of railways for generation, transformation, transmission, energy storage, or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communications purposes
- (4) Installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations
- (5) Installations under the exclusive control of an electric utility where such installations

- a. Consist of service drops or service laterals, and associated metering, or
- b. Are on property owned or leased by the electric utility for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy, or
- c. Are located in legally established easements or rights-of-way, or
- d. Are located by other written agreements either designated by or recognized by public service commissions, utility commissions, or other regulatory agencies having jurisdiction for such installations. These written agreements shall be limited to installations for the purpose of communications, metering, generation, control, transformation, transmission, energy storage, or distribution of electric energy where legally established easements or rights-of-way cannot be obtained. These installations shall be limited to federal lands, Native American reservations through the U.S. Department of the Interior Bureau of Indian Affairs, military bases, lands controlled by port authorities and state agencies and departments, and lands owned by railroads.

Informational Note to (4) and (5): Examples of utilities may include those entities that are typically designated or recognized by governmental law or regulation by public service/utility commissions and that install, operate, and maintain electric supply (such as generation, transmission, or distribution systems) or communications systems (such as telephone, CATV, Internet, satellite, or data services). Utilities may be subject to compliance with codes and standards covering their regulated activities as adopted under governmental law or regulation. Additional information can be found through consultation with the appropriate governmental bodies, such as state regulatory commissions, the Federal Energy Regulatory Commission, and the Federal Communications Commission.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_92.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 92 appeared in the First Draft Report.

The Correlating Committee directs CMP-1 to revise the informational note to comply with the NEC Style Manual Section 2.1.10.1 on information in the note that supports the requirement.

Related Item

- Correlating Committee Note No. 92

Submitter Information Verification

Submitter Full Name: CC Notes
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jul 30 17:40:23 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7512-NFPA 70-2024](#)

Statement: A scope of the NEC is added to Article 90 to comply with the NEC Style Manual section 2.1.4.4.

This revision removes the phrase “and proper maintenance” both to comply with 3.2.1 of the NEC Style Manual with “proper” as an unenforceable vague term and removes the word “maintenance” that is an activity covered after an installation with requirements that are covered in NFPA 70B.

Informational Note to (4) and (5) are revised to comply with the NEC Style Manual.



Correlating Committee Note No. 92-NFPA 70-2024 [Section No. 90.2(D)]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 10:31:28 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to revise the informational note to comply with the NEC Style Manual Section 2.1.10.1 on information in the note that supports the requirement.

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1837-NFPA 70-2024 [New Section after 90.2(E)]

(F) Maintenance and Reconditioning of Equipment

Appropriate elements of maintenance and reconditioning of electrical equipment shall be covered in this code in accordance with the following:

(1) Covered

- a. The recognition of the need for proper maintenance or reconditioning of electrical equipment where the lack thereof, compromises the equipment adequacy.
- b. The recognition of the need for proper maintenance or reconditioning of electrical equipment where the lack thereof, compromises the practical safeguarding of persons and property.
- c. The determination of electrical equipment that is to be reconditioned.
- d. The determination of electrical equipment that is not permitted to be reconditioned.
- e. The required identification of electrical equipment that has been reconditioned.

(2) Not Covered

- a. What constitutes proper electrical equipment maintenance or reconditioning as covered by other industry standards or manufacturer installation instructions.
- b. The intervals at which electrical equipment maintenance is to be performed.

Informational Note No. 1: See NFPA 70B-2026, Standard for *Electrical Equipment Maintenance* and the manufacturer's installation instructions for more information on what constitutes proper maintenance.

Informational Note No. 2: See the NEMA Policy on Reconditioned Electrical Equipment and the manufacturers documentation for more information on what electrical equipment is permitted to be reconditioned.

Statement of Problem and Substantiation for Public Comment

The introduction of section 110.17 in 2023 NEC brought the current scope creep issue in the NEC to the forefront. We have requirements throughout the document that address maintenance and reconditioning of electrical equipment. Adding the language in new proposed subpart (F) of 90.2 spells out the extent maintenance and reconditioning is covered by the NEC, resolving the scope creep issues, and limiting the application to those scenarios where it relates to the adequacy of equipment, and practical safeguarding of persons or property.

Related Item

- CCN-102

Submitter Information Verification

Submitter Full Name: Jeff Noren

Organization: National Electrical Contractors Association

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 16:28:12 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The recommendation does not comply with 3.2.1 of the NEC Style Manual as it contains unenforceable and vague terms. Further, the activities mentioned in the recommendation are addressed by NFPA 70B.



Public Comment No. 1217-NFPA 70-2024 [Section No. 90.2(E)]

(E) Relation to Other International Standards.

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

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

(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.

Statement of Problem and Substantiation for Public Comment

This comment seeks to retain the language of the 2023 NEC as it relates to special permission.

The CMP indicates that this material is redundant to 90.4, but it is not. Section 90.4 allows the AHJ to waive specific, individual requirements if equivalent safety objectives can be assured. This section allows the AHJ to waive compliance with the entire document. Customer-owned substations are more popular than ever before, and the majority of AHJs are not comfortable inspecting them. Not only are we seeing more medium and high voltage services, but the voltages and sophistication of these installations are increasing as well. Several of my clients have a service point in excess of 230kV. The AHJ needs the ability to waive the NEC in its entirety and defer to outside expertise, often in the form of the serving utility to assist in these installations. Removing this language could be a very serious step backwards in electrical safety.

Related Item

- FR 8866

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Self-employed

Street Address:

City:

State:

Zip:

Submission Date: Sat Aug 17 17:07:38 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: Mandatory application by governmental bodies provides the necessary language to enforce and waive specific requirements. The statement by the submitter that "[t]he majority of AHJ's are not comfortable inspecting customer owned substations" has not been adequately substantiated.



Public Comment No. 1783-NFPA 70-2024 [Section No. 90.3]

90.3 Code Arrangement.

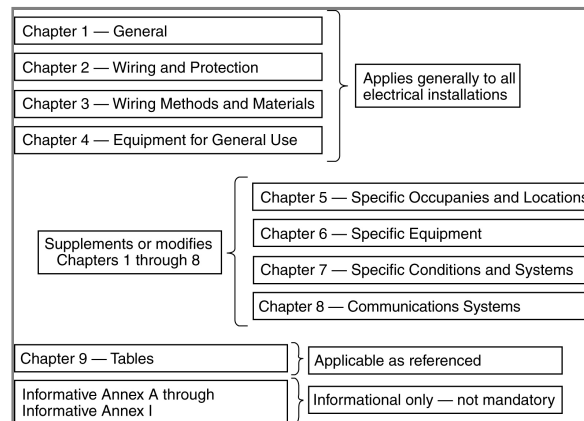
This code is divided into the introduction and nine chapters, as shown in Figure 90.3. Chapters 1 through 4 apply generally. Chapters 5 through 8 may supplement or modify the requirements in Chapters 1 through 4.

Chapter 8 covers the 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.



Statement of Problem and Substantiation for Public Comment

The original purpose of the NEC was to protect people and property. These changes do neither in fact the unintended consequences may have the opposite effect. Class 4 Fault Managed Power is intrinsically safe and is not a danger to property or a cause of injury to people. There is no justification for this change. I would further argue that the committee should have gone further and moved fiber optic cable to chapter 8 for the same reason. Class 2 is power limited and also safe from fire ignition. The unintended consequences will raise construction costs during a century when communications is growing in importance to everyone. With increased costs for permitting, licensing and inspections General Contractors will encourage states to adopt other codes and abandon the NFPA entirely or never adopt this change. The independence of Chapter 8 is entirely rational and sensible.

Related Public Comments for This Document

Related Comment	Relationship
Public Comment No. 1788-NFPA 70-2024 [Article 722]	
Related Item	
• chapter 8 changes	

Submitter Information Verification

Submitter Full Name: Patrick Mahoney
Organization: AECOM
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 27 11:14:46 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Rejected

Action:

Resolution: The submitter has not adequately substantiated why there is a need for Chapter 8 to be an independent NEC chapter. The statement from the submitter that "the unintended consequences will raise construction costs and encourage general contractors to adopt other codes" has not been substantiated.



Public Comment No. 446-NFPA 70-2024 [Section No. 90.3]

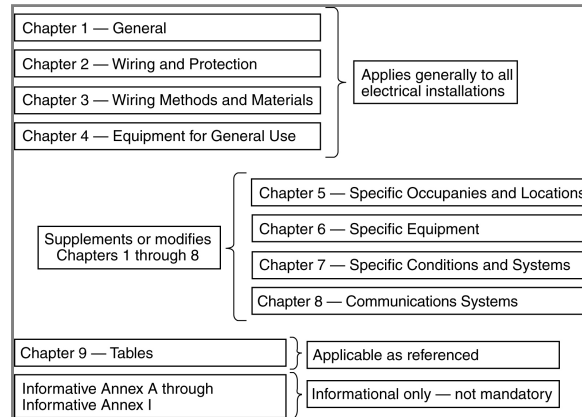
90.3 Code Arrangement.

This code is divided into the introduction and nine chapters, as shown in Figure 90.3. Chapters 1 through 4 apply generally. Chapters 5 through 8 may supplement or modify the requirements in Chapters 1 through 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.



Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_93.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 93 appeared in the First Draft Report on First Revision No. 9191.

The Correlating Committee directs the CMP-1 to review Figure 90.3 Code Arrangement to reflect the changes to 90.3 and the omission of Chapter 8 in the textbox "supplements or modifies". Additionally, the references to the Informational Annexes omits Annex K.

Related Item

- First Revision No. 9191

Submitter Information Verification

Submitter Full Name: CC Notes
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 30 17:42:14 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-7520-NFPA 70-2024](#)
Statement: Figure 90.3 is revised for correlation.

(In the references, revise as follows; Informative Annex A through Informative Annex K.)



Correlating Committee Note No. 93-NFPA 70-2024 [Section No. 90.3]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 10:38:10 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs the CMP-1 to review Figure 90.3 Code Arrangement to reflect the changes to 90.3 and the omission of Chapter 8 in the text box “supplements or modifies”. Additionally, the references to the Informational Annexes omits Annex K.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

10 Affirmative All

0 Affirmative with Comments

1 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.

Negative with Comment

Bowmer, Trevor N.

The changes suggested by the CN-93 are already completed in the 90.3 section as shown currently in Terra. No further changes are required.



Public Comment No. 447-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.

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 in accordance with 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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_95.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 95 appeared in the First Draft Report on First Revision No. 8874.

The Correlating Committee directs the CMP-1 to review FR 8874 and consider removing Informational Note 1 because it is referenced in the requirement.

Related Item

- First Revision No. 8874

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 17:43:34 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7523-NFPA 70-2024

Statement: Existing Informational Note No. 1 is deleted because it is

referenced in the requirement. The remaining Informational Notes are renumbered as Informational Notes No. 1 and No. 2.



Correlating Committee Note No. 95-NFPA 70-2024 [Section No. 90.7]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:02:29 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs the CMP-1 to review FR 8874 and consider removing Informational Note 1 because it is referenced in the requirement.

First Revision No. 8874-NFPA 70-2024 [Section No. 90.7]

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 449-NFPA 70-2024 [Section No. 90.9(D)]

(D) Compliance.

Conversion from inch-pound units to SI units shall be permitted to be an approximate conversion. Compliance with the numbers shown in either the SI system or the inch-pound system shall constitute compliance with this code.

Informational Note No. 1: Hard conversion is considered a change in dimensions or properties of an item into new sizes that might or might not be interchangeable with the sizes used in the original measurement. Soft conversion is considered a direct mathematical conversion and involves a change in the description of an existing measurement but not in the actual dimension.

Informational Note No. 2: SI conversions are based on IEEE/ASTM SI 10-1997, *Standard for the Use of the International System of Units (SI): The Modern Metric System*.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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CN_97.pdf		
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Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 97 appeared in the First Draft Report.

The Correlating Committee directs the CMP-1 to review Informational Note No. 2 for the correct title and edition to comply with the Regulations Governing the Development of NFPA Standards 3.3.6.2.

Related Item

- Correlating Committee Note No. 97

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 17:46:22 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7525-NFPA 70-2024](#)

Statement: Informational Note No. 2 is revised by changing the IEEE/ASTM SI 10 date to 2016 to comply with 3.3.6.2 of the Regulations Governing the Development of NFPA Standards.



Correlating Committee Note No. 97-NFPA 70-2024 [Section No. 90.9(D)]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:06:31 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs the CMP-1 to review Informational Note No. 2 for the correct title and edition to comply with the Regulations Governing the Development of NFPA Standards 3.3.6.2.

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 12-NFPA 70-2024 [Definition: Accessible (as applied to equipment).]

Accessible (as applied to equipment).

Capable of being reached for operation, renewal, and inspection. (CMP-1)

Informational Note: See the applicable building code and ICC A117.1-2017, Accessible and Usable Buildings and Facilities, for information regarding accessibility for people with disabilities.

Statement of Problem and Substantiation for Public Comment

The NFPA Disability Access Review and Advisory Committee (DARAC) requests an update to this section. This change is related to the elimination of the Informational Note in Article 110.1. DARAC suggests that this is a more relevant location for this note, and is more likely to be found for users of this code seeking information on accessible design. This is therefore related to FR8909 and FR8899, which removed Annex J, previously referenced in 110.1

Related Item

- FR8909, FR8898, PC15

Submitter Information Verification

Submitter Full Name: Jessica Hubert

Organization: Guardian Services Inc.

Affiliation: Disability Access Review Advisory Committee

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 10 10:30:38 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: Disability access is a separate issue than “accessible” as applied to equipment. The NEC does not require ADA as that is a building codes issue. Per 2.1.10.1, Usage, of the NEC Style Manual, if an informational note is needed to explain the text of the document, consideration shall be given to rewriting the text of the document to make the rule clear.



Public Comment No. 1025-NFPA 70-2024 [Definition: Accessible, Readily. (Readily Accessible)]

Accessible, Readily. (Readily Accessible)

Capable of being reached quickly for operation, renewal, or inspection ~~without requiring those to whom ready access is requisite to take~~ by those who require ready access. In this case, quickly means without having 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.

Statement of Problem and Substantiation for Public Comment

The existing sentence is technically correct, but it is difficult to read. I have been in many classes where 'readily accessible' is taught as having to be accessible for everyone, not just the person who needs it (the worker). When i teach this definition, i spend a good deal of time on the phrase "...to whom ready access is requisite...", explaining that this means "to those who require it." I have heard many state that they just skipped over those words because the words didn't make sense to them. This PI/PC is an attempt to make "technically correct" language more understandable for those who use the Code. Splitting the existing sentence into two sentences prevents having a very long and complicated single sentence.

Related Item

- 2134-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Eric Stromberg
Organization: Los Alamos National Laboratory
Affiliation: Self
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 11 15:11:57 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7547-NFPA 70-2024
Statement: The definition is revised for clarity and the parenthesis is removed to comply with the NEC Style Manual 3.5.1.1.



Public Comment No. 9-NFPA 70-2024 [Definition: Accessible, Readily. (Readily Accessible)]

Accessible, Readily. (Readily Accessible)

Capable of being reached quickly for operation, renewal, or 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*.

Informational Note: [See the applicable building code and ICC A117.1-2017, Accessible and Usable Buildings and Facilities for information regarding people with disabilities.](#)

Statement of Problem and Substantiation for Public Comment

The NFPA Disability Access Review and Advisory Committee (DARAC) requests an update to this section. This change is related to the elimination of the Informational Note in Article 110.1. DARAC suggests that this is a more relevant location for this note and is more likely to be found for users of this code seeking information on accessible design. This is therefore related to FR 8909, FR 8898 which was removed Annex J, previously referenced in 110.1.

Related Item

- FR 8953, FR 8909, FR 8898, PI 1233

Submitter Information Verification

Submitter Full Name: Jessica Hubert

Organization: Guardian Services Inc.

Affiliation: Disability Access Review Advisory Committee

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 10 10:19:26 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: Disability access is a separate issue than “readily accessible” as applied to equipment. The NEC does not require ADA as that is a building codes issue. Per 2.1.10.1, Usage, of the NEC Style Manual, if an informational note is needed to explain the text of the document, consideration shall be given to rewriting the text of the document to make the rule clear.



Public Comment No. 2058-NFPA 70-2024 [Definition: Disconnecting Means.]

Disconnecting Means.

A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply. A disconnecting means shall not be considered an outlet if part of a listed assembly. (CMP-1)

Statement of Problem and Substantiation for Public Comment

The proposed sentence provides clarity of when the load side of a disconnecting means is not considered an outlet.

Related Item

- PI #1774

Submitter Information Verification

Submitter Full Name: James Stallcup

Organization: Stallcup Electrical Education

Affiliation: Stallcup Electrical Education

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 17:27:44 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The recommended text does not meet 2.1.2.5 of the NEC Style Manual as it contains a requirement.



Public Comment No. 1886-NFPA 70-2024 [Definition: Enclosure.]

Enclosure.

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

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

Statement of Problem and Substantiation for Public Comment

The case or housing enclosing a piece of electronic or electrical equipment is often an integral part of the equipment and also offers a very different type of protection from fences and walls surrounding an electrical installation. The current definition equates cases, housings, fences and walls as all the same type of protection.

Related Item

- FR8969

Submitter Information Verification

Submitter Full Name: Trevor Bowmer

Organization: Bunya Telecom Consulting, LLC

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 20:45:17 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The proposed revision does not improve clarity.



Public Comment No. 1901-NFPA 70-2024 [Definition: Enclosure.]

Enclosure.

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

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

Statement of Problem and Substantiation for Public Comment

In its First Draft Meeting of the NFPA 70E Technical Committee held in July 2024, the committee modified the definition of "Enclosure" that was found to be grammatically acceptable to the committee. These changes are reflected in this public comment. "Accidentally" is changed to "unintentional" to also align with the NFPA 70E definition.

Related Item

- FR 8968

Submitter Information Verification

Submitter Full Name: Louis Barrios
Organization: Shell Global Solutions
Affiliation: American Chemistry Council
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 27 22:09:55 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7551-NFPA 70-2024
Statement: This revision editorially corrects this definition to state what an enclosure, by definition as written, protects. "Accidentally" is changed to "unintentional" to also align with the NFPA 70E definition. The revision also recognizes that it can be one or the other stated condition or both.



Public Comment No. 855-NFPA 70-2024 [Definition: Enclosure.]

Enclosure.

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

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

Statement of Problem and Substantiation for Public Comment

This revision editorially corrects this requirement to state what an enclosure, by definition as written, protects. It is not an either or - it can be both. This recommendation recognizes that it can be one or the other or both.

Related Item

- PI-793

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 16:40:48 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7551-NFPA 70-2024

Statement: This revision editorially corrects this definition to state what an enclosure, by definition as written, protects. "Accidentally" is changed to "unintentional" to also align with the NFPA 70E definition. The revision also recognizes that it can be one or the other stated condition or both.



Public Comment No. 1746-NFPA 70-2024 [Definition: Equipment.]

Equipment.

A general term, ~~including for items used as a part of or in connection with an electrical installation, such as fittings, devices, appliances, luminaires, apparatus, machinery, and the like used as a part of, or in connection with, an electrical installation.~~ and machinery, other than wiring methods.. (CMP-1)

Statement of Problem and Substantiation for Public Comment

During consideration of the Public Inputs submitted to CMP-6, it became apparent that there was some confusion by code users regarding whether wiring methods are included under the umbrella term "equipment." CMP-6 clarified that wiring methods are not equipment, and revising the definition for equipment will be helpful for Code users. This will help differentiate code requirements for equipment (like panelboards) and wiring methods (like NM cable).

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1745-NFPA 70-2024 [New Definition after Definition: Wiring Device.]	
<u>Related Item</u>	
• PI 604	

Submitter Information Verification

Submitter Full Name: Christel Hunter
Organization: Cerro Wire
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 26 23:18:52 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: The definition for equipment provides examples of equipment. These examples do not include wiring methods, such as cables and conductors.



Public Comment No. 489-NFPA 70-2024 [Definition: Fixed (as applied to equipment).]

Fixed (as applied to equipment).

Equipment that is fastened or otherwise secured at a specific location. (CMP-17)

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_136.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 136 appeared in the First Draft Report on First Revision No. 9009.

The Correlating Committee directs CMP-1 to review the definition “Fixed (as applied to equipment)” that is being reassigned from CMP-17 to CMP-1 as the term applies throughout the code.

Related Item

- First Revision No. 9009

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 19:51:57 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7557-NFPA 70-2024](#)

Statement: The parenetical reference was changed to CMP 1 as the definition applies throughout the Code.



Correlating Committee Note No. 136-NFPA 70-2024 [Definition: Fixed (as applied to equipment).]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 15:46:06 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to review the definition “Fixed (as applied to equipment)” that is being reassigned from CMP-17 to CMP-1 as the term applies throughout the code.

First Revision No. 9009-NFPA 70-2024 [Definition: Fixed (as applied to equipment).]

Ballot Results

✔ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1540-NFPA 70-2024 [Definition: Listed.]

Listed.

Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose. (CMP-1)

Informational Note 1 : The means for identifying listed equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. Use of the system employed by the listing organization allows the authority having jurisdiction to identify a listed product.

Informational Note 2: Listed can be further qualified by listing for a location (e.g. Classified, wet, or dry) or listed for an application (e.g. grounding, bonding, terminating).

Statement of Problem and Substantiation for Public Comment

Resolution to PI-3293 says that the content of the proposed note is included in the definition, but in fact, it is not. The clarification that the proposed note provides would be helpful.

Related Item

- PI-3293

Submitter Information Verification

Submitter Full Name: Glen Edwards

Organization: Detector Electronics Corporation

Affiliation: International Society of Automation (ISA)

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 23 17:14:05 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The Panel reiterates its position the content of the proposed note is already included in the definition.



Public Comment No. 1154-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 or water mixed with 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.

Statement of Problem and Substantiation for Public Comment

This public comment seeks to revert to the original 2023 NEC language.

Changing “and” to “or” has significant impacts on the use of products and listing that are acceptable for Wet Locations. For example, a Liquidtight Fitting is listed for use with machine oil whereas a Wet Location fitting is not. By stating “or” there will be an acceptance of these fittings with machine oil. The 2023 NEC language intended for there to be a water mixture with other liquid.

The proposed language clarifies these concerns and that water, or a water and other liquids are acceptable.

Related Item

- FR8978

Submitter Information Verification

Submitter Full Name: Megan Hayes

Organization: NEMA

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 16 09:06:32 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The proposed revision does not add clarity.



Public Comment No. 2063-NFPA 70-2024 [Definition: Outlet.]

Outlet.

A point on the wiring system at which current is taken to supply utilization equipment. An outlet is provided at the wiring compartment for hard-wired utilization equipment. (CMP-1)

Statement of Problem and Substantiation for Public Comment

The new proposed sentence provides clarity that hard-wired utilization equipment (whether indoor or outdoor) has been tested per OSHA 1910.7 to meet listing and labeling requirements.

Related Item

• PI #174 • PI #452

Submitter Information Verification

Submitter Full Name: James Stallcup

Organization: Stallcup Electrical Education

Affiliation: Stallcup Electrical Education

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 17:34:46 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The proposed wording does not improve clarity.



Public Comment No. 56-NFPA 70-2024 [Definition: Outlet.]

Outlet.

A point on the wiring system ~~at which current is taken to supply utilization equipment, where the branch circuit conductors are connected to a receptacle, a luminaire, a lampholder, or utilization equipment.~~ (CMP-1)

Statement of Problem and Substantiation for Public Comment

This definition needs clarification as it is not being correctly applied in the field and a recognized code instructor is teaching that hardwired equipment is not supplied by an outlet. The following is from the substantiation for proposal 452:

"There have been many opinions on where the outlet is located for hard-wired utilization equipment, I personally believe there is no outlet, this is nothing more than a termination. However, clarification from Code Making Panel 1 based on the intent of the definition for an outlet, would be helpful."

Also see PI 453 which proposed adding an Informational Note that would have said:

"Informational Note: Hard-wired equipment has no outlet, only cord-and-plug connected utilization equipment (appliances) have an outlet, see definition of branch circuit, appliance and branch circuit, general purpose."

The substantiation for that said:

"I have maintained and always believed there is no outlet, this is nothing more than a termination. If an outlet is present, a substantiation from Code Making Panel 2 of where the outlet is located would be helpful."

This the wording in this Public Comment is similar to that accepted by CMP 18 in a revision to the term "receptacle outlet and would make the terms consistent with each other.

Related Item

• Public Input No. 174-NFPA 70-2023

• Public Input No. 452-NFPA 70-2023

• Public Input No. 3141-NFPA 70-2023

• Public Input No. 453-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Don Ganiere

Organization: none

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jul 14 14:17:36 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7561-NFPA 70-2024](#)

Statement: The revision improves clarity and it also aligns with the definition of a branch circuit.



Public Comment No. 1852-NFPA 70-2024 [Definition: Qualified Person.]

Qualified Person.

One who has skills and knowledge related to the construction ~~and operation of the electrical equipment and installations~~ and operation and installation of electrical equipment, including the application of the requirements of this code, and has received safety training to recognize and avoid the hazards involved. (CMP-1)

Informational Note: See NFPA 70E-2024, *Standard for Electrical Safety in the Workplace*, for electrical safety training requirements.

Statement of Problem and Substantiation for Public Comment

PI-1557 was submitted during the 1st draft to help ensure individuals were qualified in the application of the NEC requirements as specified in 90.2. The Committee's response in resolving PI-1557 was that the definition of qualified persons does not include the application of code requirements. This public comment seeks to revise the definition of qualified person to include the application of NEC requirements in the definition. See companion PC related to 90.2(A).

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1834-NFPA 70-2024 [Section No. 90.2(A)]	
<u>Related Item</u>	
• PI-1557	

Submitter Information Verification

Submitter Full Name: Jeff Noren
Organization: National Electrical Contractors Association
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 27 17:28:17 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7569-NFPA 70-2024
Statement: The text was editorially revised for clarity.



Public Comment No. 1665-NFPA 70-2024 [Definition: Reconditioned Equipment.]

Reconditioned Equipment.

Electromechanical systems, equipment, apparatus, or components that are restored to operating conditions for other than the present end user. This process differs from normal servicing or repair of equipment that remains within a facility, or replacement of listed equipment on a one-to-one basis. (CMP-1)

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

Statement of Problem and Substantiation for Public Comment

The current vague definition of Reconditioned Equipment is often misinterpreted as applying to motor repair whereby a motor is sent off to a motor repair shop to be rewound or simply have the bearings changed. Motors have long been repaired at motor repair shops by reverse engineering the motor winding and rewinding it using industry practices and knowledge gained from careful tear-down of the equipment. This process of repairing motors should not fall under the purview of the NEC® reconditioning restrictions, except in the case of Division 1 listed explosionproof or dust-ignitionproof motors where CMP14 restricts the process to ensure that the proper checks are made on the motor to ensure the protection method. The restrictions on "reconditioning" were inserted in the code to restrict the purchasing of "scrap" equipment and selling it back into the market without proper checks on the equipment to ensure its safe to reinstall. A motor sent to a motor repair shop for bearing change or rewind is so evaluated to ensure it may safely be returned to service and is often tested at the repair shop prior to re-installation at the owner's facility. This definition needs to be further clarified as shown, and as proposed in Public Input 3634 to reduce this confusion.

Related Item

- Public Input No 3634

Submitter Information Verification

Submitter Full Name: Richard Holub

Organization: The DuPont Company, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 07:26:36 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The submitted public comment does not improve clarity, and the present user may have equipment reconditioned and then reinstalled. The definition of servicing contains an informational note that it includes repair.



Public Comment No. 1792-NFPA 70-2024 [Definition: Reconditioned Equipment.]

Reconditioned Equipment.

Electromechanical systems, equipment, apparatus, or components that are restored to operating conditions for other than the present end user. This process differs from normal servicing or repair of equipment that remains within a facility, or replacement of listed equipment on a one-to-one basis. (CMP-1)

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

Statement of Problem and Substantiation for Public Comment

Reconsider PI 3634.

Reconditioned or Reconditioned Equipment has confused the user of the NEC. Reconditioned was never intended to impact the servicing or repair of equipment currently installed even if it needed to go outside the facility for repair such as motors. Reconditioned was originally intended to address equipment that was repaired and resold and installed as a new piece of equipment. The code was silent on this issue and inspectors needed it to be addressed.

Related Item

- PI 3634

Submitter Information Verification

Submitter Full Name: David Kendall

Organization: ABB Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 11:46:59 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The submitted public comment does not improve clarity, and the present user may have equipment reconditioned and then reinstalled. The definition of servicing contains an informational note that it includes repair.



Public Comment No. 963-NFPA 70-2024 [New Definition after Definition: Disconnecting Means.]

TITLE OF NEW CONTENT

Dissimilar Metals.

Metals that, when placed together in direct electrical contact in the presence of an electrolyte, create a condition for galvanic corrosion that could inhibit the conductivity of electrical connections.

Statement of Problem and Substantiation for Public Comment

A definition for dissimilar metals is needed to interpret and correctly apply the requirement in the charging paragraph of 110.14. Committee Statements addressing previously submitted Public Inputs and Public Comments indicate a fundamental misunderstanding of the meaning of the term "dissimilar." There are 6 references to dissimilar metals in the NEC. A definition will help the Code user understand the potential deleterious effects of having dissimilar metals in direct contact with one another while in the presence of an electrolyte.

The definition was created by taking into account definitions of dissimilar metals from multiple sources. In the field of materials science, the phrase "dissimilar metals" shows up in the context of galvanic corrosion and in the context of joining metals together. Examples and their sources are given below:

- AMPP (The Association for Materials Protection and Performance, a leading authority on corrosion and corrosion control) defines "dissimilar metals" as "different metals that could form an anode-cathode relationship in an electrolyte when connected by an electron-conducting (usually metallic) path."
- The Department of Defense Standard Practice: Dissimilar Metals (MIL-STD-889C) states that "[t]his standard defines metals as dissimilar when two metal specimens are in contact or otherwise electrically connected to each other in a conductive solution and capable of generating an electric current."
- The chapter "Welding of Dissimilar Metals" in the book "Welding of Metallic Materials: Methods, Metallurgy, and Performance" states that "[i]n broad technical terms, dissimilar welding of alloys/metallic materials can be classified in three different categories as given below (with increasing complexity).
 - o Joining of the same metal in different alloy forms, such as joining of two different grades of steels or two different series of aluminum alloys.
 - o Joining of the same metal in a different crystallographic form such as joining of austenitic steels to ferritic varieties.
 - o Joining of two entirely different chemical species such as Fe [iron] to Al [aluminum], Fe [iron] to Ti [titanium]."

Citations:

- "Corrosion Terminology - D's." The Association for Materials Protection and Performance (AAMP). <https://www.ampp.org/technical-research/what-is-corrosion/corrosion-terminology-glossary/corrosion-terminology-d>.
- The Department of Defense Standard Practice: Dissimilar Metals, MIL-STD-889C. §3.1. August 2016. http://everyspec.com/MIL-STD/MIL-STD-0800-0899/MIL-STD-889C_55344/.
- Ganguly, S. 2023. Welding of Dissimilar Metals. In Welding of Metallic Materials: Methods, Metallurgy, and Performance, edited by Fuad Khoshnaw, p. 317. Elsevier.

Related Item

- Public Input No. 907

Submitter Information Verification

Submitter Full Name: John Kovacik

Organization: Trusted Safety Solutions LLC

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 23:42:44 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: A definition dissimilar metals is not needed. The term is well understood.



Public Comment No. 1051-NFPA 70-2024 [New Definition after Definition: Identified (as applied to

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)

Statement of Problem and Substantiation for Public Comment

We believe this term is important to users and more appropriately located as a definition in Article 100. There are numerous definitions that have numerical values to describe the term as a statement of fact. See defined terms for voltage, splash pads, simple apparatus to name a few examples of terms that can only be defined with certain numeric parameters like "visible within 50 feet" in the definition for "Within Sight". Where these terms are used within this code "In Sight From" (Within Sight From) (Within Sight) a user is more likely to search for the definition in article 100 rather than article 110 to understand how to apply the requirement.

Related Public Comments for This Document

Related Comment

[Public Comment No. 1048-NFPA 70-2024 \[Section No. 110.29\]](#)

[Public Comment No. 1048-NFPA 70-2024 \[Section No. 110.29\]](#)

Related Item

• FR-8975

Relationship

Submitter Information Verification

Submitter Full Name: David Hittinger

Organization: Independent Electrical Contractors

Affiliation: IEC Codes and Standards

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 12 21:18:27 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The text is more appropriately located in Article 110 as requirements are not permitted in a definition per the NEC Style Manual.



Public Comment No. 1462-NFPA 70-2024 [New Definition after Definition: Live Parts.]

Life Safety Equipment (as applied to Cybersecurity)

Building systems intended to be utilized during an evacuation, relocation, shelter in place, or utilized to obtain help in responses to an emergency that could reasonably jeopardize the health and safety of occupants.

Informational Note: In the context of cybersecurity, life safety systems include (but may not be limited to) the following systems: fire alarm, fire suppression, mass notification, two-way rescue assistance, fire pumps, HVAC, access control, elevators, escalators, moving walkways, lift, stairway, chair lifts, emergency call systems, telephone, emergency power, emergency lighting, and video security.

Statement of Problem and Substantiation for Public Comment

This public comment is submitted on behalf of the NFPA Cybersecurity Advisory Committee. Section 110.3(A)(8) requires cybersecurity for network connected "life safety equipment" without defining what "life safety equipment" is. Additionally, neither NFPA 72 nor NFPA 101 define exactly what life safety equipment is. Clearly it includes fire alarm and mass notification systems, but it is not clear what other systems are affected by this requirement. This PC seeks to resolve this, but specifically in the context of cybersecurity to limit unintended consequences. The Informational note is intended to provide a non-limiting but comprehensive list of systems that meet the criteria for life-safety equipment. We purposely left off medical devices as it relates to cybersecurity because these requirements may be better represented in NFPA 99. But the committee might consider other systems such as defibrators' or other safety equipment. Note, for any of this equipment to be subject to Section 110.3(A)(8), it would still need to be "network-connected".

Related Item

- PI-3375

Submitter Information Verification

Submitter Full Name: Michael Pallett

Organization: Pallett Corner Consulting

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 23 09:32:38 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: This Life safety equipment may be better addressed in other NFPA Codes and Standards.



Public Comment No. 1618-NFPA 70-2024 [New Definition after Definition: Photovoltaic Cell (PV).

TITLE OF NEW CONTENT

Type your content here ...

Physical Damage

Damage that creates a risk to the function or safety or wiring or equipment.

Statement of Problem and Substantiation for Public Comment

The response to PI 1371 was "Physical Damage is a subjective term that is not enforceable."

NFPA 70 uses the term more than 200 times, so there is a clear expectation that the risk be considered in installation and enforcement. It seems that there are 220-odd assumptions that the term is enforceable. Offering a definition will never remove subjectivity from the process of evaluating this risk; it will make the criterion clearer. This could result in more consistent enforcement.

Various definitions include characteristics that are not measurable but are included because they are useful in guiding judgments that must be made. Consider two examples:

"Readily Accessible" includes the term "reached quickly"; "quickly" makes this clearly a subjective judgment, but it helps installers and inspectors evaluate, for example, what to characterize as an obstacle.

More broadly, definitions such as that of "Appliance" offer examples. The term "such as" tells us these are not exhaustive lists but serve to guide judgement.

Related Item

- PI1371

Submitter Information Verification

Submitter Full Name: David E Shapiro

Organization: Safety First Electrical

Street Address:

City:

State:

Zip:

Submittal Date: Sat Aug 24 20:45:30 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The definition suggested is too broad as it includes damage other than physical. A single definition for physical damage to cover all uses does not improve clarity or usability. The context of the term "physical damage" is better identified within the particular requirement.



Public Comment No. 1842-NFPA 70-2024 [New Definition after Definition: Unit Equipment.]

Unqualified Person

A person who is not a qualified person.

Statement of Problem and Substantiation for Public Comment

This definition is in response to the resolution of PI 1557 as well as to use defined terminology consistently throughout the NEC document. Currently section 90.2(a) uses the undefined term "Untrained persons". Adding this definition would allow us to use a defined term "Unqualified Person" in section 90.2, this definition is also used in NFPA 70E which creates consistency between the documents.

Related Item

- PI-1557

Submitter Information Verification

Submitter Full Name: Jeff Noren

Organization: National Electrical Contractors Association

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 16:48:22 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: Adding the term is unnecessary as it is understood that one who does not meet the definition of a qualified person would thus be considered an unqualified person.



Public Comment No. 1745-NFPA 70-2024 [New Definition after Definition: Wiring Device.]

Wiring Methods

Raceways, cables, and support methods that provide protection or support for premises wiring system conductors.

Statement of Problem and Substantiation for Public Comment

During consideration of the Public Inputs submitted to CMP-6, it became apparent that there was some confusion by code users regarding whether wiring methods are included under the umbrella term "equipment." CMP-6 clarified that wiring methods are not equipment, and including a definition for wiring methods will be helpful for Code users. This will help differentiate code requirements for equipment (like panelboards) and wiring methods (like NM cable).

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1746-NFPA 70-2024 [Definition: Equipment.]	
<u>Related Item</u>	
• PI 604	

Submitter Information Verification

Submitter Full Name: Christel Hunter
Organization: Cerro Wire
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 26 23:04:22 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: Wiring methods are already addressed in the content of Chapter 3 of the NEC and therefore does not need to be defined.



Public Comment No. 15-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 ICC A117.1-2017, *Accessible and Usable Buildings and Facilities*, for information regarding ADA accessibility design.~~

Statement of Problem and Substantiation for Public Comment

The NFPA Disability Access Review and Advisory Committee (DARAC) requests an update to this section. Article 110 does not represent any requirements relevant to ICC A117.1, nor does it represent accessibility requirement in the context of accessibility for people with disabilities. As such a reference to the former Annex J and ICC A117.1 should be removed. We suggest moving this to the definition for Accessible (as applied to equipment) and Readily Accessible.

Related Item

- FR8909, FR8898, PC9, PC12

Submitter Information Verification

Submitter Full Name: Jessica Hubert
Organization: Guardian Services Inc.
Affiliation: Disability Access Review Advisory Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 10 10:44:43 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Accepted
Resolution: SR-7599-NFPA 70-2024
Statement: NFPA 70 does not reference any requirements relevant to ICC A117.1, nor does it reference accessibility requirements in the context of accessibility for people with disabilities.



Public Comment No. 450-NFPA 70-2024 [Section No. 110.2]

110.2 Approval.

The conductors and equipment required or permitted by this code shall be acceptable only if approved.

Informational Note: See 90.7, Examination of Equipment for Safety, and 110.3, Examination, Identification, Installation, Use, and Listing (Product Certification) of Equipment. See definitions of *Approved*, *Identified*, *Labeled*, and *Listed*.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_99.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 99 appeared in the First Draft Report.

The Correlating Committee directs CMP-1 to reconsider the Informational Note to comply with the NEC Style Manual 2.1.10.3. - Format. Consider revising the second sentence to read: See Article 100 for the definitions of Approved, Identified, Labeled and Listed."

Related Item

- Correlating Committee Note No. 99

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 17:47:50 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7600-NFPA 70-2024

Statement: The editorial changes reflect the necessary format as per the NEC Style Manual.



Correlating Committee Note No. 99-NFPA 70-2024 [Section No. 110.2]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:17:44 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to reconsider the Informational Note to comply with the NEC Style Manual 2.1.10.3. - Format. Consider revising the second sentence to read: See Article 100 for the definitions of Approved, Identified, Labeled and Listed."

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David 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 and network-connected non-life safety equipment located in or directly supplying life safety-related infrastructures 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.

Informational Note No. 5: Examples of life safety equipment include, but are not limited to, fire alarm systems, access control, emergency signaling, elevator control, etc.

Informational Note No. 6: Examples of life safety-related infrastructures include, but are not limited to, waste water treatment facilities, water supply facilities, police stations, call centers, financial centers, data centers, and military bases.

Informational Note No. 7: Examples of non-life safety equipment directly supplying life safety-related infrastructures include, but are not limited to, PV systems, large-scale PV systems, fuel cell systems, wind electric systems, and interconnected electric power production sources.

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

Statement of Problem and Substantiation for Public Comment

It is not only life safety equipment that must be protected from cyber attacks, but also the non-life safety equipment located in or directly supplying life safety-related infrastructures that helps keep us alive and safe from danger. One horrific example would be a large metropolitan area, such as Chicago, if its waste water treatment and water supply were shut down due to a cyber attack. When toilets won't flush, sewage begins backing up, and there is no safe drinking water, it is not only an unhealthy situation but one in which riots will occur.

While there is a definition in Article 100 of a "life safety branch" of a healthcare facility, "life safety equipment", as mentioned in 110.3(A)(8), is not defined in the NEC, causing possible confusion and making enforcement difficult for an electrical inspector. Without a definition of life safety equipment, there is a need for the examples provided in new Informational Note No. 5. For similar reasoning, the examples of "life safety-related infrastructures" are provided in Informational Note No. 6. Finally, because there is no definition of non-life safety equipment directly supplying life safety-related infrastructures, Informational Note No. 7 is added to provide clarity.

These modifications sufficiently address the Panel Statement which was "Critical infrastructure application articles may have additional requirements and are more specific to those systems and therefore should not be covered by the general rules in Article

110.”

In order to address the Panel Statement to resolve PI 1242, the phrase “critical infrastructure” has been deleted from the Public Input and replaced by “non-life safety equipment located in or directly supplying life safety-related infrastructures”. There is no longer a tie to the “critical infrastructure application articles” referenced in the Committee Statement. (While some life safety-related infrastructures have been designated by authorities as Article 708 Critical Operations Power Systems, most life safety-related infrastructures have not been so designated.)

Let’s look at two examples of a waste water treatment facility. 110.3(A)(8) currently requires that the fire alarm system in a waste water treatment facility, because it is assumed to be life safety equipment, be evaluated in light of cybersecurity. However, there is no requirement for other non-life safety systems within the waste water treatment plant, such as industrial control panels, which could easily be compromised by a cyber attack if connectd to the internet. For another waste water treatment facility example, look at a PV system that directly supplies the waste water treatment facility. The text in 110.3(A)(8) would not apply to this situation because the PV system would not be considered life safety equipment. With this Public Comment both the industrial control panel located in the waste water treatment facility and the PV system directly supplying the waste water treatment facility must be evaluated.

In addition to the already-required evaluation of life safety equipment in 110.3(A)(8), the proposed text in this Public Comment addresses the vulnerability of an entire life safety-related facility, without causing possible conflicts with the “critical infrastructure application articles” in later chapters.

Related Item

• PI 1242 • FR 9040

Submitter Information Verification

Submitter Full Name: Vincent Saporita
Organization: Saporita Consulting
Street Address:
City:
State:
Zip:
Submittal Date: Fri Aug 23 08:38:15 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: The addition of examples of Life Safety or related Equipment and the accompanying informational note does not add clarity to the requirement



Public Comment No. 1459-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.

[Informational Note No. 5: Critical Operations Power Systems \(COPS\) applications may have additional requirements as detailed in Article 708.](#)

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

Statement of Problem and Substantiation for Public Comment

This public comment is submitted on behalf of the NFPA Cybersecurity Advisory Committee. The scope of article 110 is such that readers may consider the cybersecurity requirements presented here as establishing the cybersecurity scope of the NEC in general. As the committee pointed out in its resolution to PI-1242, "Critical infrastructure application articles may have additional requirements and are more specific to those systems ...". This PC seeks to increase the visibility of those additional requirements with the informational note that points to this section.

Related Item

- PI-1242

Submitter Information Verification

Submitter Full Name: Michael Pallett

Organization: Pallett Corner Consulting

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 23 09:28:14 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The informational note referencing Article 708 does not enhance the application of the requirement



Public Comment No. 1528-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.

Informational Note No. 5: See NFPA 70B for guidance on establishing proper Cybersecurity practices as nearly all Cybersecurity threats arise after installation and final inspection.

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

Statement of Problem and Substantiation for Public Comment

Public Input No. 4428-NFPA 70-2023 was resolved with the committee statement: "70B does not address cybersecurity. NFPA 70 addresses the installation of network connected equipment that is associated with life safety systems."

Because of the unfortunate timing of the NFPA 70B revision cycle, this was a reasonable response as the NFPA 70B First Draft meeting had not yet occurred. However, since then, First Revision No. 155-NFPA 70B-2024 has passed ballot. This adds a new equipment chapter for transfer switches, and this chapter includes cybersecurity maintenance requirements. Thus, as of the First Draft, NFPA 70B does address cybersecurity.

Other PIs were submitted, including mine, but were not adopted for the First Draft as the committee was not equipped to evaluate the more broad cybersecurity requirements adopted in other NFPA documents. The recently formed NFPA Cybersecurity Advisory Committee will be available to the NFPA 70B Technical Committee during the Second Draft, at which time additional cybersecurity maintenance requirements may be adopted via public comments based on the resolved public inputs.

I also must, once again, stress that cybersecurity cannot be adequately addressed through installation requirements alone. Implying that it is possible to have a secure system by simply by following installation guidelines does the industry a disservice, so I feel very strongly that referring users of the code to NFPA 70B goes a long way to highlighting this fact.

Related Item

- PI 4428

Submitter Information Verification

Submitter Full Name: Jason Potterf

Organization: Cisco

Affiliation: ESTA

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 23 16:51:00 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: NFPA 70B is not an appropriate reference Standard for Cybersecurity requirements in NFPA 70.



Public Comment No. 1863-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~~ 70001 -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

Statement of Problem and Substantiation for Public Comment

This public comment is to correct the informational note no.2 to (8) as it references NEMA CY 10000-2023. The correct reference is NEMA CY 70000-2023, Cybersecurity Implementation Guidance for Connected Electrical Infrastructure.

Related Item

• PI-1573 • PI-502

Submitter Information Verification

Submitter Full Name: Jeff Noren

Organization: National Electrical Contractors Association

Street Address:

City:

State:

Zip:

Submission Date: Tue Aug 27 18:38:54 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7601-NFPA 70-2024

Statement: The reference standard in the informational note has been updated.



Public Comment No. 825-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 ~~40000~~ 70001 -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

Statement of Problem and Substantiation for Public Comment

This Public Comment is being submitted to fix an incorrect NEMA document number in the Public Input 3403 (FR9040). This NEMA document number matches the one that is now published.

Related Item

- FR 9040 / PI 3403

Submitter Information Verification

Submitter Full Name: Megan Hayes

Organization: NEMA

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 05 18:43:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7601-NFPA 70-2024

Statement: The reference standard in the informational note has been updated.



Public Comment No. 1046-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~~ Installations shall comply with both the instructions and 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.

Statement of Problem and Substantiation for Public Comment

As written in the first draft, the installation is not being regulated, the instructions are (the "instructions shall" instead of the "installation shall"). When an AHJ is handed instructions that instruct a person to violate the code, the violation (as written the draft) is the words in the instruction, not the noncompliant installation. I support what the CMP is doing, and although I've always considered this issue obvious, I think it will reduce arguments. But the words need to point to the compliance of the installation, not the compliance (or noncompliance) of the instructions.

Related Item

- FR 9050

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Self-employed

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 12 20:51:02 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7604-NFPA 70-2024](#)

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 106-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~~ that are not specifically covered by the requirements of 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.

Statement of Problem and Substantiation for Public Comment

I am not in favor of the added first draft language "The installation and use instructions shall not reduce the requirements in this code". Who makes the assessment of "reduction"? If instructions are being provided and they are contrary to the NEC requirements, the certification bodies should be policing that, and the responsibility should not be shifted to the AHJ.

Related Item

- FR-9050

Submitter Information Verification

Submitter Full Name: David Hittinger

Organization: Independent Electrical Contractors

Affiliation: IEC

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 17 16:01:52 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7604-NFPA 70-2024

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 1634-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 from the manufacturer . 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.

Statement of Problem and Substantiation for Public Comment

This is the same text as is proposed in PI 2160. The panel statement said that the information note covered this concern. However, the information note states "The installation and use instructions..." The charging text states "...instructions included in the listing, labelling..." The text in the charging text and the text in the informational note should be the same. I worked with John Minick for a number of years and he is the one who pointed out that the text "instructions included with the listing..." was not enforceable and was not even possible. John is the one who explained to me that the only people who have access to the "instructions included with the listing" were the manufacturer and U.L. The real intention of this section is for the users to follow the manufacturers instructions. This Public Input, and Public Comment, serves to simply change the text to say what it means.

Related Item

- 2160-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Eric Stromberg
Organization: Los Alamos National Laboratory
Affiliation: Self
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 25 20:08:03 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7604-NFPA 70-2024
Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 1877-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. The code overrides the listing, labeling, installation, and manufacturers instructions.

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.

Statement of Problem and Substantiation for Public Comment

There has been confusion in the electrical industry that the National Electrical Code can override the listing, labeling, identification, and manufacturer's instructions. OSHA 1910.7 is very clear that National Codes are taken into consideration by manufacturers to achieve a listing and labeling. If this is true, how can the National Electrical Code override the listing, labeling, identification, and manufacturer's instructions.

Related Item

- PI 1896

Submitter Information Verification

Submitter Full Name: James Stallcup

Organization: Stallcup Electrical Education

Affiliation: Stallcup Electrical Education

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 19:31:35 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7604-NFPA 70-2024

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 867-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~~ result in an installation that does not meet the requirements within this ~~code code~~ that are considered necessary for safety and provide for the practical safeguarding of persons and property from hazards arising from the use of electricity.

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.

Statement of Problem and Substantiation for Public Comment

This comment is a recommendation to improve the clarity and application of this requirement by retaining the intent of the First Revision while incorporating language from both the "practical safeguarding" requirements in 90.2(A) which address the purpose of the NEC from and the "adequacy" requirements in 90.2(B).

Related Item

- FR-9050

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 18:06:19 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7604-NFPA 70-2024

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 868-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~~ result in an installation that does not meet 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.

Statement of Problem and Substantiation for Public Comment

This comment is a recommendation to improve the clarity and application of this requirement by retaining the intent of the First Revision while editorially revising the requirement in a more accurate and succinct manner.

Related Item

- FR-9050

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 18:27:00 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7604-NFPA 70-2024

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 869-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~~ result in the installation and use of equipment that is not in compliance with 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.

Statement of Problem and Substantiation for Public Comment

This comment is intended to recognize that both the installation and use requirements must be complied with when applying the instructions associated with equipment covered by this requirement.

Related Item

- FR-9050

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 18:32:36 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7604-NFPA 70-2024

Statement: The revision clarifies that the requirements in this Code supersede the product installation and use instructions.



Public Comment No. 1033-NFPA 70-2024 [Section No. 110.4]

110.4 Voltages.

The voltage considered shall be that at which the circuit operates. The voltage rating of electrical equipment shall ~~not be~~ comply to either 110.4(A) or 110.4(B).

(A) Be not less than the nominal voltage of the circuit to which it is connected

(B) Be identified for use at the nominal voltage of the circuit to which it is connected

Informational Note: An example of equipment that has a different voltage than the circuit to which it is connected - is a motor

Statement of Problem and Substantiation for Public Comment

This is a copy of PI 427. The PI was rejected with the panel statement: "The definition of nominal voltage and the accompanying information note already clarifies the requirement." The issue here is that "Nominal" is not a range. "Nominal" is a single number. For example, a circuit with a Nominal voltage of 120 volts has an ANSI 84.1 Range A of +5% -5%, or 126 to 114. This is the allowable "Range," but the Nominal number is simply 120. It is interesting to note that the Code Panel mentioned the accompanying note. There is no existing informational note. The informational note was part of my PI. Hopefully, the Code Panel will reconsider the proposed text for 110.4. As the text is currently written, it is, in fact, a Code violation to connect a 460 volt motor to a 480 volt circuit.

Related Item

- 427-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Eric Stromberg

Organization: Los Alamos National Laboratory

Affiliation: Self

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 11 17:39:07 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The recommendation does not improve usability or clarity. The definition of "nominal voltage" and the accompanying informational note already clarifies the requirement.



Public Comment No. 154-NFPA 70-2024 [Section No. 110.14(C)(1)]

(1) Equipment Provisions.

The determination of termination provisions of equipment shall be based on 110.14(C)(1)(a) or 110.14(C)(1)(b). Unless the equipment is listed and marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table 310.16 ~~as without regard to the table notes,~~ as appropriately modified by 310.12.

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

- (2) Conductors rated 60°C (140°F).
- (3) Conductors with higher temperature ratings, provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used.
- (4) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors.
- (5) For motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

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

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

Statement of Problem and Substantiation for Public Comment

It is commonly understood that the termination temperature limitations in 110.14(C) refer to the values from Table 310.16, without applying any adjustment and correction factors. Example D3(a) in the appendix demonstrates this.

However, Table 310.16 has notes which reference 310.15 for ampacity adjustment and correction. That means an unmodified reference to Table 310.16 does include ampacity adjustment and correction, as instructed by the table notes.

Therefore to exclude adjustment and correction factors, at a minimum the reference to Table 310.16 needs to instruct us to ignore the notes.

Note further that this section's use of the term "ampacity" is not in accordance with the definition in Article 100. That definition refers to a value "under the conditions of use," which language means that adjustment and correction factors are applied to determine the value. A more rigorous wording for the section would replace the defined term "ampacity" with a phrase such as "ampacity without adjustment and correction" or perhaps a more succinct new term such as "base ampacity."

Related Item

• Public Input No. 449-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Wayne Whitney

Organization: Whitney

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 22 13:52:46 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The current language to separate the 60 deg conductor and 75 deg conductor requirements has technical merit on keeping the two requirements separate in 110.14 C(1)(a) and not in 110.14(C)(1)(b).



Public Comment No. 733-NFPA 70-2024 [Section No. 110.14(C)(1)]

(1) Equipment Provisions.

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

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

(2) Conductors rated 60°C (140°F).

(3) Conductors with higher temperature ratings, provided the ampacity of such conductors

is determined based on

(1) does not exceed the 60°C (140°F) ampacity of the conductor size used.

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

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

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

(5) Conductors rated 75°C (167°F).

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

Statement of Problem and Substantiation for Public Comment

The present wording has a lack of parallelism between (a)(2) and (b)(2), so (a)(2) is adjusted to match the wording (b)(2).

Furthermore, the phrase "determined based on the 60°C (140°F) ampacity of the conductor size used," suggests that the ampacity values for 75°C or 90°C insulation may not be used for any purpose, not even ampacity adjustment or correction. This is in conflict with the second sentence of 110.14(C), "Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both."

Related Item

• Public Input No. 449-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Wayne Whitney

Organization: Whitney

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 04 13:02:10 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The current language to separate the 60 deg conductor and 75 deg conductor requirements has technical merit on keeping the two requirements separate in 110.14 C(1)(a) and not in 110.14(C)(1)(b).



Public Comment No. 734-NFPA 70-2024 [Section No. 110.14(C)(1)]

(1) Equipment Provisions.

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

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

- (2) Conductors rated 60°C (140°F).
- (3) Conductors with higher temperature ratings, provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used.
- (4) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors.
- (5) For motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

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

- (7) Conductors rated 75°C (167°F).
- (8) Conductors with higher temperature ratings, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity of the conductor size used

~~, or up to their ampacity~~

- (1) ~~.~~
- (2) Conductors with higher temperature ratings if the equipment is listed and identified for use with such conductors .

Statement of Problem and Substantiation for Public Comment

Splitting (b)(2) into two subparts (b)(2) and (b)(3) provides greater parallelism with part (a), and thus clarity. Note that Terraviv has mangled the marked up version of the proposed change, as is typical with lists.

Related Item

- Public Input No. 449-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Wayne Whitney

Organization: Whitney

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 04 13:12:18 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The current language to separate the 60 deg conductor and 75 deg conductor requirements has technical merit on keeping the two requirements separate in 110.14 C(1)(a) and not in 110.14(C)(1)(b).



Public Comment No. 452-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-2023, *Standard for Electrical Equipment Maintenance*, Section 7.2 for additional information for torquing threaded connections and terminations.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_100.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 100 appeared in the First Draft Report on First Revision No. 8929.

The Correlating Committee directs CMP-1 to reconsider the Informational Note 3 and consider removing the word "section" and the phrase "for additional information", they are redundant.

Related Item

- First Revision No. 8929

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:43:23 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7618-NFPA 70-2024](#)

Statement: The editorial changes align with the NEC Style Manual, section 2.1.10.3.



Correlating Committee Note No. 100-NFPA 70-2024 [Section No. 110.14(D)]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:18:34 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to reconsider the Informational Note 3 and consider removing the word “section” and the phrase “for additional information”, they are redundant.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1727-NFPA 70-2024 [Section No. 110.14 [Excluding any Sub-Sections]]

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

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

Statement of Problem and Substantiation for Public Comment

This proposal seeks to restore this section to the language of the 2017 National Electrical Code. When the examples of dissimilar conductors were removed from this section over the course of the 2020 and 2023 NEC code cycles, the difference in the rate of thermal expansion with respect to temperature may not have been fully considered. This property is especially relevant for splices where 2 or more conductors are placed or twisted together underneath a twist-on splicing connector (commonly produced with a conical metal spring in contact with the conductors). As the conductors undergo repeated heating and cooling during use, the conductors and the splicing connector can expand and contract at different rates, potentially leading to a reduction in the long-term reliability of the splice.

As of the date of submission of this Public Comment, Section 1.3(d) of the current version of UL 486C (Splicing Wire Connectors) Eighth Edition (dated 6/30/23) considers the following conductor material combinations to be intermixing (and therefore dissimilar): “copper-to-aluminum or copper-clad aluminum and aluminum-to-copper-clad aluminum”. The technical committee for UL 486C includes representatives of splicing connector manufacturers and other electrical industry experts. There has been at least one proposal to UL (possibly more) since the 2017 NEC was published to modify UL 486C regarding the material combinations that require the use of splicing connectors listed for use with intermixed materials. In at least one of the proposals, this statement was made: “The NEC considers CCA and copper to be similar materials”. Statements such as this have been used as a basis to propose for allowing the use of copper-clad aluminum conductors with splicing connectors rated for copper only. It is likely this statement is based upon the change that occurred to Section 110.14 during the 2020 code cycle to remove “copper and copper-clad aluminum” from the examples of dissimilar conductors. To this day, the UL technical committee (TC 486) maintains the position that the combination of copper and copper-clad aluminum conductors requires the use of splicing connectors rated for intermixed (dissimilar) materials.

To clarify this section and align with the position of the UL technical committee responsible for the standard governing splicing connectors, the language for Section 110.14 from the 2017 NEC (specifically the examples of dissimilar conductors) should be restored.

Related Item

- PI 4115

Submitter Information Verification

Submitter Full Name: Dave Watson

Organization: Southwire

Affiliation: Southwire

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 17:50:47 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The additional text and the additional informational note does not clarify the requirement.



Public Comment No. 545-NFPA 70-2024 [Section No. 110.14 [Excluding any Sub-Sections]]

~~Because of different characteristics of dissimilar metals, Termination devices such as pressure terminal or pressure splicing connectors and soldering lugs shall be identified for, installed and used for the material of the conductor and shall be properly installed and used. Conductors of dissimilar metals shall. Conductors shall~~ not be intermixed in a terminal or splicing connector ~~or soldering lug~~ 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 identified for~~ the use and shall be of a type that will not adversely affect the conductors, installation, or equipment.

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

Statement of Problem and Substantiation for Public Comment

The text is revised for clarity of the requirement. Additionally, revisions were made to remove terms that are unenforceable or vague.

Related Item

- PI 4115

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 31 08:49:13 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Accepted
Resolution: SR-7644-NFPA 70-2024
Statement: The revision clarifies the requirement by removing terms that are unenforceable or
Vague as per NEC. Style Manual 3.2..1



Public Comment No. 873-NFPA 70-2024 [Section No. 110.14 [Excluding any Sub-Sections]]

Because of different characteristics of dissimilar metals, devices such as pressure terminal or pressure splicing connectors and soldering lugs shall be identified for the material of the conductor and shall be properly installed and used. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector where physical contact occurs between dissimilar conductors 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.

Informational Note: Examples of dissimilar conductors are copper and aluminum, and copper-clad aluminum and aluminum.

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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Dr._William_Kane_letter_from_Thornton_Tomasetti.pdf		
Westmoreland_Metallurgical_Laboratory_Report.pdf		

Statement of Problem and Substantiation for Public Comment

The added Informational Note contains text that was previously in the body of 110.14 in a parenthetical phrase. It was in 110.14 dating back to the 1971 Edition of the NEC. The parenthetical phrase last appeared in the 2020 edition of the NEC. It was removed for the 2023 edition by Second Revision No. 7690. The Committee Statement supporting the revision referred to a rule in Paragraph 3.3.1.2 of the NEC Style Manual. The rule states, in part, to “[u]se simple declarative sentence structure and keep sentences short. Writing rules in long sentences full of commas, dependent clauses, and parenthetical expressions often creates confusion and misunderstanding. The requirement can be written in two or more short sentences, expressed using a list or table, or both.” This reason for rejection is purely editorial and entirely non-technical.

Second Revision No. 7690 included a Response Message following the Committee Statement. The message states “While the statement that copper and copper-clad aluminum are considered similar metals, this will cause confusion without proper context. Terminals are only suitable for use with copper-clad aluminum conductors if they have been evaluated for both copper and aluminum. The proposed text implies that terminals suitable for copper are also suitable for copper-clad aluminum.”

The response message is understood to be the technical reasons for removing the parenthetical phrase. However, the statements made in this message are inaccurate. Stating that terminals are only suitable for use with copper-clad aluminum conductors if they have been evaluated for both copper and aluminum is incorrect. UL 486 does not require terminals suitable for use with copper-clad aluminum conductors to be evaluated for both copper and aluminum.

Also, whether or not the proposed text implies that terminals suitable for copper are also suitable for copper-clad aluminum is irrelevant relative to the issue of dissimilar metals in 110.14. UL issued an engineering bulletin more than 50 years ago (issue date of April 2nd, 1971) which stated that based on their research they concluded that terminals suitable for use with copper conductors were also considered to be suitable for use with copper-clad aluminum conductors. From the time when that report was issued, there has been no evidence of hazards or field failures that would dispute this claim. Since the issuance of that engineering bulletin, there has been no other document published to rescind the technical findings in that bulletin.

Public Input 907 sought to address the issue of dissimilar metals with respect to copper to aluminum, and copper-clad aluminum to aluminum in the body of 110.14. While this is not the ask of this public comment, it is important to revisit the Committee Statement for the resolution of Public Input 907 as it contains statements that appear to be outside of the issue being addressed in 110.14.

The Committee Statement read: “The proposal (PI 907) cites a similarity with copper and copper-clad aluminum. There are products that are specific to “copper only” for their termination. Having a statement of similarity can be confusing to the user of the code. Ampacities are also different between the two types of conductors. The current language is clear.”

The focus of this part of 110.14 is the intermixing of dissimilar metals in a terminal or splicing connector. The intent of this part is to make users aware that dissimilar metals have different characteristics which necessitates the requirement that conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector unless the device is identified for the purpose and conditions of use. This issue of intermixing dissimilar metals has no relation to products that are specific to “copper only” for their termination. The types of conductors that are suitable for connection to a product are covered in the end-product standard or standards for terminals and splicing connectors.

The intermixing of dissimilar metals also has no relation to ampacities. Users of the code recognize that ampacities are covered primarily in Chapter 3, and it is understood that copper, copper-clad aluminum, and aluminum conductors will have different ampacities. The Committee Statement alludes to a fundamental misunderstanding of what the term “dissimilar” really means. For two metals to be “dissimilar” speaks only to their corrosion characteristics, and not to their “ampacities” or resistivities. The electrical properties of two dissimilar metals are irrelevant to the hazard being addressed in the charging statement of 110.14.

To intermix copper with aluminum or copper-clad aluminum with aluminum in a terminal or splicing connector not rated for intermixing of dissimilar metals is a problem and a hazard. Two dissimilar conductor materials in direct contact with each other could result in galvanic corrosion that could inhibit the conductivity of the electrical connection.

In summary, the Informational Note being proposed should be included in the Code. It contains helpful information advising the user as to what are considered dissimilar materials relative to the three conductor materials recognized in the NEC. The content of the Informational Note was in the Code for many editions and was removed only for compliance with the NEC Style Manual and not for technical reasons. As the Informational Note begins with the words "Examples of..." it is important to point out that the NEC Style Manual has no prohibition against using examples. The 2023 edition has many occurrences of examples being used, some of which are in the body of the Code beside mandatory language.

For further information on this topic please see the attached technical documents, which have been previously presented in support of the substantiation with prior Public Inputs and Public Comments on this issue.

1. Dr. William Kane letter from Thornton Tomasetti
2. Westmoreland Metallurgical Laboratory Report - Galvanic Corrosion in Copper-Clad Aluminum

Related Item

- Public Input No. 907

Submitter Information Verification

Submitter Full Name: John Kovacik

Organization: Trusted Safety Solutions LLC

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 23:40:46 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The additional text and the additional informational note does not clarify the requirement.

Thornton Tomasetti

Via email: pgraser@copperweld.com

January 3, 2023

Peter Graser
Vice President - Building Wire
COPPERWELD
5141 Virginia Way, Suite 410
Brentwood, TN 37027

RE: ELECTRICAL CONNECTIONS WITH COPPER CLADDED ALUMINUM CONDUCTORS
TT Project No. L22112.00

Dear Mr. Graser:

Thank you for the opportunity to provide a materials science assessment for the above referenced matter. I have attached a copy of my Curriculum Vitae for your reference. At your request I have reviewed some factors around certain electrical connections in the latest revision of the NFPA 70 code. In particular, I reviewed the material issues regarding copper-clad aluminum (CCA) and dissimilar metal connections.

The similarity of two metals electrically connected and exposed to a common environment is determined by their electrochemical potentials, which is a measure of the energy driving corrosion. Metals with different electrochemical potentials in a given environment are considered dissimilar, and when two dissimilar metals are joined in a corrosive environment, they create a galvanic couple.¹ This coupling leads to galvanic corrosion, accelerated corrosion of a metal because of an electrical contact with a more noble metal or nonmetallic conductor. Accelerated corrosion due to dissimilar metal coupling has been observed and studied since at least the 18th century.

Bimetals are components consisting of two metals that are combined to achieve material properties that cannot be obtained with a single metal. A common means of producing bimetallics involves coextrusion, the simultaneous extrusion or drawing of two metals to form an integrated product. This process was first developed in 1863 but gained more commercial application in the nuclear industry in the middle of the 20th century.² Coextrusion has been applied in a wide variety of industries, including for electrical applications where CCA is used in wire, rod, and bus bar forms. Thermo-mechanical processing during the production of CCA can produce a metallurgical bond between the copper cladding and aluminum core.³

¹ ASM Handbook, Volume 13 – Corrosion, ASM International, 1983.

² ASM Handbook, Volume 14A – Metalworking: Bulk Forming, 2005.

³ Sasaki, T.T., et al., Scripta Materialia, Volume 63, Issue 5, 2010, pgs. 488-491.

Thornton Tomasetti

RE: ELECTRICAL CONNECTIONS WITH COPPER COATED ALUMINUM CONDUCTORS
TT Project No. L22112.00

Page 2 of 2

When CCA is used in an electrical connection the copper cladding contacts the other components of the connection. As a result, CCA performs more like a solid copper conductor than a solid aluminum conductor. This is most evident in the values of electrical contact resistance for a given contact pressure, where CCA is comparable to copper and significantly less than aluminum.⁴ Variations in contact resistance result from differences in the natural oxide layer that forms on the surface of metals, and the aluminum oxide that forms in ambient conditions has a much higher resistivity than the analogous copper oxide.⁵ Therefore, CCA is similar to solid copper in both its electrical and electrochemical behavior, as was confirmed in thermocycling testing⁶ and galvanic corrosion testing.⁷ Like with a solid copper conductor, connecting a CCA conductor to aluminum creates a dissimilar metal couple and could lead to galvanic corrosion if an electrolyte is present.

Thornton Tomasetti is an engineering firm that optimizes the design and performance of structures, materials, and systems for projects of every size and level of complexity. We are an employee-owned organization of engineers, scientists, architects, and other professionals collaborating from offices worldwide. As a member of our Forensics practice, I am part of a multidisciplinary team with expertise to investigate and analyze a broad range of issues, including metallurgy, strength of materials, and environmental degradation. On behalf of the firm, thank you again for the opportunity to assist in this matter. If you have any additional questions, please do not hesitate to contact me.

Sincerely,

THORNTON TOMASETTI, INC.



William M. Kane
Vice President

⁴ Meese, W.J. and Cilimberg, R.L., *Analysis of Current Technology on Electrical Connections in Residential Branch Circuit Wiring*, U.S. Dept. of Commerce, National Bureau of Standards, March 1975, pg. 7.

⁵ Fan, J.C., *Mechanisms of Building Wire Connection Failure*, A Texas Instruments Engineering, Inc., report, Bulletin No. 516-TB93-1070.

⁶ Eaton Laboratories, *Terminal and Conductor Temperature Testing of 14 AWG Copper-Clad Aluminum and 14 AWG Copper Conductors, Part II – Thermocycling Tests*, November 13, 2020.

⁷ Westmoreland Mechanical Testing & Research, Inc., WMT&R Report 8-70626, August 6, 2018.

WILLIAM KANE, PH.D., P.E.

Vice President



Summary

William Kane joined the Philadelphia Forensics practice at Thornton Tomasetti in 2021, bringing 15 years of experience in failure analysis and prevention. He is a recognized expert in materials and mechanical engineering with concentrations in metallurgy, strength and performance of materials, and environmental degradation. Dr. Kane has consulted on a wide range of issues including medical devices and implants, utility and infrastructure components, consumer products, welding, buildings and structures, construction equipment, piping, industrial and pharmaceutical production equipment, railcars, and automotive components. He has experience in fracture mechanics, microscopy, mechanical testing, corrosion and materials selection. Dr. Kane has taught at the University of Pennsylvania and Drexel University, and has presented extensively in his field, as well as contributed to multiple publications.

Areas of technical expertise

- Root Cause Failure Analysis
- Environmental Degradation of Materials
- Materials Science and Engineering

Education

- Ph.D., Materials Science & Engineering, 2005, University of Pennsylvania
- M.S., Materials Science & Engineering, 2003, University of Pennsylvania
- B.S., Materials Science & Engineering, 2001, University of Pennsylvania

Registrations

- Licensed Professional Engineer in DE, MD, NJ, NY, PA, & VA
- Certified Welding Inspector (CWI), American Welding Society
- Certified ASNT ACCP Level II, American Society for Nondestructive Testing

Professional activities

- Member, ASM International
- Member, American Welding Society
- Member, ASTM International
- Board Member, Physical Sciences Technical Advisory Committee, Ben Franklin Technology Partners (BFTP)
- Lecturer, University of Pennsylvania, 2009-2018
- Adjunct Faculty, Drexel University, 2010-2012

Select project experience

Root cause failure analysis

Philadelphia Criminal Justice Center Elevator Failure,

Philadelphia, PA.* Mechanical and metallurgical investigation to determine the cause of an elevator accident.

Arthroscopic Surgery Tool Failure, Ephrata, PA.* Metallurgical analysis of a fractured arthroscopic shaver tool to determine the cause of the failure.

Cervical Plate System Failure Analysis, Philadelphia, PA.* Metallurgical analysis of fractured screws from a medical device to determine the cause of the fracture.

Petroleum Tanker Rupture, Kaysville, UT.* Investigation into the rupture of a DOT tanker that was involved in a motor vehicle accident.

Six Flags Chiller Rollercoaster Wheel Failure, Jackson, NJ.* Investigation into the failure of welded components on an amusement park ride that failed during operation.

Huntington Station Crane Collapse, Alexandria, VA.* Mechanical and metallurgical investigation to determine the cause of a tower crane collapse.

Environmental degradation of materials

Pharmaceutical Water Storage Tank Failure, Philadelphia, PA.* Metallurgical investigation to determine the cause and extent of cracking in a 22,000-gallon distilled water storage tank.

Naudain Street Gas Explosion, Philadelphia, PA.* Metallurgical investigation to determine the cause and extent of pipe corrosion that contributed to a gas leak.

Materials science & engineering

Great Wolf Lodge Premises Investigation, Scotrun, PA.* Materials evaluation of the platform surfaces on an indoor water park feature.

*Denotes work performed with previous employer.

WILLIAM KANE, PH.D., P.E.

Lacrosse Ball Usability Study, Philadelphia, PA.* Materials evaluation examining the effects of aging on lacrosse balls.

Boiler Fitness-for-Service Assessment, Philadelphia, PA.* Investigation to determine the cause of cracking and remaining structural integrity of a steam boiler superheater header.

Sworn testimony

Trial experience

Nelson v. United States, U.S. District Court for the Eastern District of Pennsylvania, 2022.

Wright v. Residence Inn Philadelphia, et al,* Court of Common Pleas, Philadelphia County. 2017.

Osmun v. Pat's King of Steaks, et al,* Court of Common Pleas, Philadelphia County. 2017.

Steinman v. Spinal Concepts, Inc.,* U.S. District Court, Western District of NY. 2013.

State Farm Fire & Casualty Co. v. Carroll Water Systems, Inc., et al,* In the District Court of MD for Carroll County. 2012.

Deposition experience

Viscovich v. Fendi S.R.L., et al, U.S. District Court for the Southern District of NY. 2021.

GATX Corp. v. Georgia Power Co.,* U.S. District Court for the Northern District of GA. 2021.

Malone v. Elsbury Jr., et al,* In the Circuit Court of Harrison County, WV. 2020.

Sherrick v. Sunrise Medical, et al,* Court of Common Pleas, Franklin County, OH. 2020.

Moxham, et al v. M&J Overhead Door LLC, et al,* Superior Court Judicial District of Danbury. 2019.

Lopez v. Ryder Truck Rental, Inc., et al,* Superior Court of NJ, Essex County. 2018.

Evans, et al v. Globus Medical, Inc., et al,* In the Circuit Court of Baltimore County, MD. 2016.

IPSCO Tubulars, Inc. v. Ajax Tocco Magnethermic Corp.,* U.S. District Court for the Eastern District of AR. 2013.

Select papers, lectures and publications

"Preservation and Preparation of Fracture Specimens," ASM Handbook, Volume 12 – Fractography, ASM International. In press as of Sept 2021 (author)

"Tibial tray fracture in a modern prosthesis with retrieval analysis," Arthroplast Today 2018; 4:143-147 (co-author)

"Retrieval and clinical analysis of distraction-based dual growing rod constructs for early-onset scoliosis," The Spine Journal 2017, 17(10): 1506-1518 (co-author)

"Preserving Evidence in a Product Liability Case: Focus on Medical Devices," American Bar Association Litigation Group, Expert Witnesses Committee Article, February 21, 2017 (co-author)

"Mechanical Properties and Their Measurement," ASM International Metallurgy for the Non-Metallurgist course, Coatesville, PA, November 2014 (author)

"Failure Analysis for Medical Device Engineers," ASM International, Materials Park, OH, August 2014 (author)

"Collapse of Jet Center Hangars Under Snow Load," 2014 Structures Congress, American Society of Civil Engineers, Boston, MA, April 2014 (co-author)

"Method of characterizing fretting and corrosion at the various taper connections of retrieved modular components from metal-on-metal total hip arthroplasty. ASTM STP1560: Metal-On-Metal Total Hip Replacement Devices," ASTM International, 2013 (co-author)

"In vivo deformation, surface damage, and biostability of retrieved dynesys systems," Spine, November 2010; 35(23):1310-E1316 (co-author)

"Brittle intergranular fracture of a Ni-based superalloy at high temperatures by dynamic embrittlement," Materials Science and Engineering A 2004; 387-389:409-413, December 15 (co-author)

"MSE 495/496 – Senior Design," University of Pennsylvania, 2012-2018 (lecturer)

"MSE 555 – Environmental Degradation of Materials," University of Pennsylvania, 2012-2016 (lecturer)

"Failure Analysis for Medical Device Engineers," ASM International, 2017 (lecturer)

"Fretting and corrosion at the taper connections of retrieved modular components from metal-on-metal total hip arthroplasty," Talk 13, Symposium on Metal-on-Metal Total Hip Replacement Devices, Phoenix, AZ, May 8, 2012 (co-presenter)

"Oxygen-induced dynamic embrittlement in nickel-based superalloys, Interfacial Engineering for Optimized Properties III," MRS 2004; 819:111-120 (co-presenter)

CONTACT

Bill Kane
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Metallurgical Laboratory Report

Customer:	Multiple		
Subject:	Galvanic Corrosion in CCA		
Date:	8/9/18		

Analysis By:	Bill Lewey - Metallurgist
Authored By:	Bill Lewey - Metallurgist
Requested By:	Peter Graser

Hypothesis/Purpose:

Hypothesis: When properly connected in an electrical circuit, CCA will act like a solid copper conductor with no galvanic corrosion occurring as a result of the metallurgical bond of the bimetal.

The purpose of this test is to determine the effects of galvanic corrosion in CCA when coupled with copper in an electrolyte solution by measuring the galvanic voltage that occurs between the two metals. Reference tests are made between known similar and dissimilar metals in order to bring scale and perspective to the results.

Test Method

A test was conducted by **Westmoreland Mechanical Testing & Research Inc.** (third party metallurgical and materials testing lab) to determine if galvanic corrosion would occur when CCA is connected to pure copper in an electrolyte solution. The test method used was based on ASTM G71-81(2014) and a description of the test is provided in the attached test report.

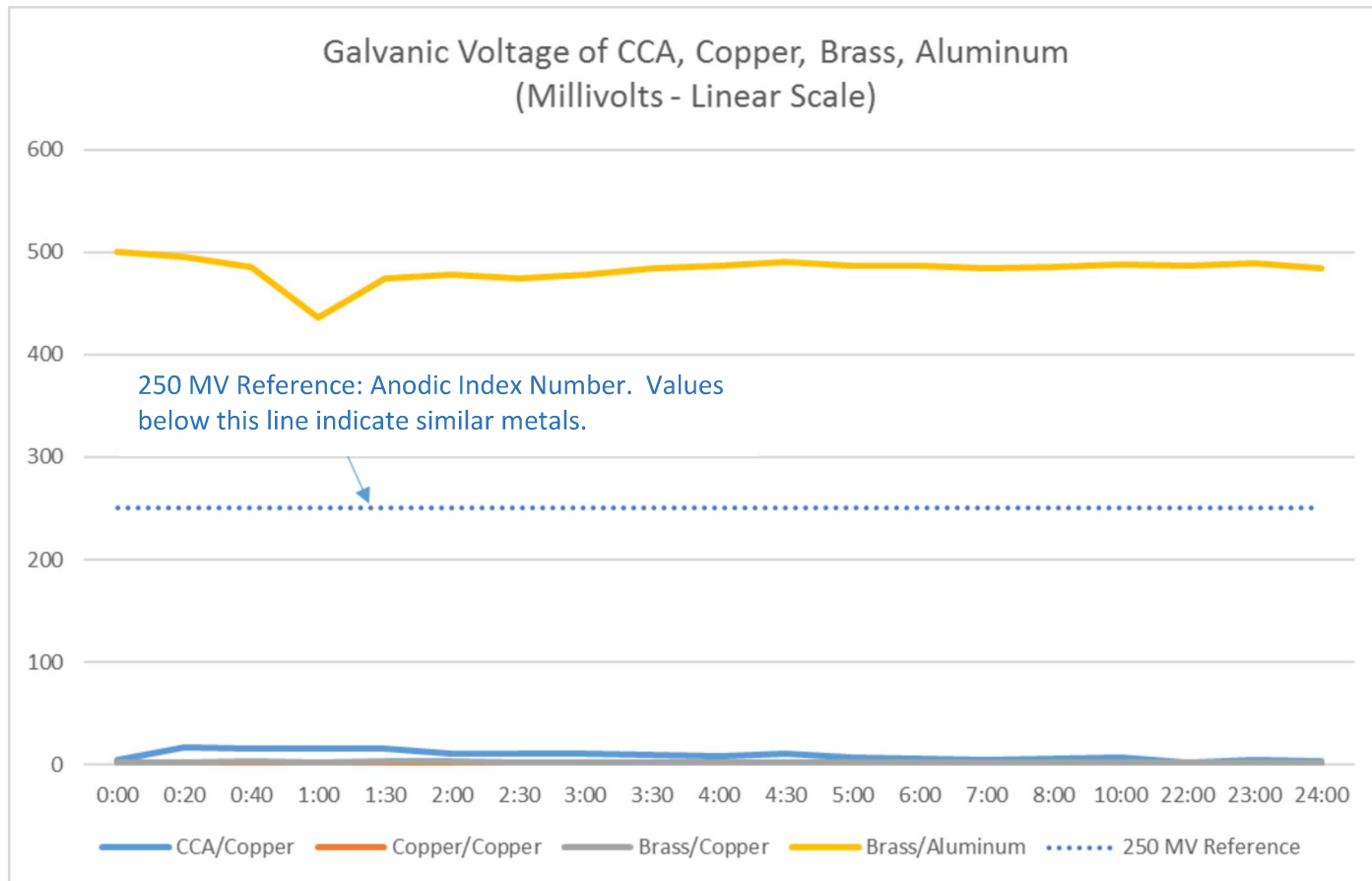
Copperweld conducted additional tests per ASTM G71-81(2014) using a copper/copper connection, a copper/brass connection and an aluminum/brass connection for comparison. Copperweld's tests were conducted using the same method used by Westmoreland.

Results of the testing are shown in the table and graph below.

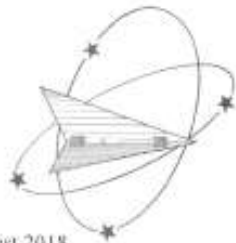
Conclusion

The galvanic voltage measured between CCA and copper connected in an electrolyte solution was found to be only slightly higher than the voltage measured between a copper/copper connection and a copper/brass connection. The voltage measured between dissimilar aluminum/brass was more than 50 times higher than the CCA and copper.

CCA was shown to perform galvanically similar to single-metal copper.



Lab Galvanic Connection	Westmoreland CCA/Copper	Copperweld Copper/Copper	Copperweld Brass/Copper	Copperweld Brass/Aluminum
Time(Hr:Min)	Galvanic Current (mV)	Galvanic Current (mV)	Galvanic Current (mV)	Galvanic Current (mV)
0:00	4.43	2.48	2.44	499.89
0:20	16.47	2.21	2.32	496.03
0:40	15.42	1.03	2.55	486.17
1:00	15.26	1.75	2.46	436.62
1:30	15.27	0.62	2.64	474.96
2:00	11.01	0.52	2.68	478.6
2:30	10.15	0.95	2.48	475.06
3:00	11.02	0.57	2.47	478.29
3:30	9.81	0.66	2.4	483.96
4:00	8.58	1.22	2.24	487.13
4:30	10.12	1.58	2.15	490.85
5:00	6.98	0.93	2.28	486.3
6:00	5.75	0.95	2.06	487.1
7:00	4.75	0.59	2.09	485.01
8:00	4.97	0.47	2.13	485.98
10:00	6.93	0.56	2.1	488.5
22:00	1.52	0.74	2.14	486.91
23:00	3.81	0.68	2.1	489.63
24:00	3.45	0.77	2.11	484.59
Average Voltage	8.72	1.01	2.30	483.24
Weight Loss	.002 gm	.0015 gm	.0011 gm	.0012 gm
Visual Exam	Slight discoloration, no corrosion visible	Slight discoloration, no corrosion visible	Slight discoloration, no corrosion visible	Slight discoloration, no corrosion visible



Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388, 221 Westmoreland Drive
Youngstown, PA 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com E-Mail: admin@wmtr.com
WMT&R is a technical leader in the material testing industry

06 August 2018

Copperweld Bimetallies
254 Cotton Mill Road
Fayetteville, TN 37334

Page 1 of 1

WMT&R Report 8-70626
P.O. No. 042640
WMT&R Quote No. QN183134

Attention: Bill Lewey

Subject: Galvanic corrosion testing of submitted sample per ASTM G71-81(2014) and purchase order requirements.

Introduction: One (1) lot, consisting of one (1) 9 gauge copper clad aluminum wire and one (1) flat copper strip, was received at Westmoreland Mechanical Testing and Research, Incorporated, for galvanic corrosion testing per ASTM G71-81 (2014) and purchase order requirements. Prior to exposure, both parts were cleaned with reagent alcohol and the copper clad aluminum wire was weighed. The copper clad aluminum anode was bent in a U shape and positioned in the electrolyte solution such that a thirty (30) cm length of wire was exposed. The flat copper cathode was positioned such that 35 cm² of surface area was exposed. The parts were positioned one (1) cm apart. The parts were exposed to a 3.5% NaCl in deionized water solution for a continuous period of 24 hours. The galvanic voltage generated was measured initially and periodically throughout the test. Upon completion of the test, a final voltage was measured, the specimens were cleaned, the copper clad aluminum wire was weighed, and the specimens were given a visual examination.

Results:

CORROSION – Galvanic Corrosion Testing per ASTM G71-81 (2014) and Purchase Order Requirements

REQUIREMENTS: Report

(Test Log No. 725BQH)

No corrosion was visible on the surface of the copper clad aluminum anode.

Weight loss 0.002g

Time (Hr:Min)	Galvanic Current (mV)
0:00	4.43
0:20	16.47
0:40	15.42
1:00	15.26
1:30	15.27
2:00	11.01
2:30	10.15
3:00	11.02
3:30	9.81
4:00	8.58
4:30	10.12
5:00	6.98
6:00	5.75
7:00	4.75
8:00	4.97
10:00	6.93
22:00	1.52
23:00	3.81
24:00	3.45

If you have any questions concerning this report, please feel free to contact me. If I am unavailable, you may also speak with Mr. Andrew M. Wisniewski, Metallographic/Chemical Analysis Manager.

At your service

Scott Sylvester
Assistant Analytical Manager

CAN/CSAB
S1049485-ANDY/COPPERWELD/06/06/18

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Public Comment No. 1047-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 or by other effective means such that orange is visible ~~to~~ at 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.

Exception: In existing installations that use the color orange for other voltage systems, the conductor described in this section shall be use insulation that is not orange and shall be field-marked orange at its terminations.

Statement of Problem and Substantiation for Public Comment

The color orange is very commonly used as the "B" phase in 480Y/277V systems. I have inspected a couple of existing installations where a customer was adding three phase, 240V equipment and opted to install a high-leg system instead of a corner-grounded or ungrounded delta to achieve this. In these instances, using orange might not be the best solution. A conductor that is a different color and is then marked orange is far more effective.

This comment also fixes a typo (visible to all accessible points???) and removes the requirement from applying at all accessible points. There is no reason for any special marking at, for example, a conduit body. See 200.4(B) Ex 2, for example.

Related Item

- FR 9121

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Self-employed

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 12 20:59:00 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7619-NFPA 70-2024

Statement: The revision in this section reflects the elimination of accessible points along the wiring system and adds all splices to the requirement. "All accessible locations" is removed because marking of the high leg is only required at the terminations, and not in fittings and other enclosures used for pulling.

The exception does not add clarity to the marking requirement.



Public Comment No. 1858-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 or by other effective means~~ such that ~~orange the marking~~ is visible to all accessible points ~~and terminations~~. using one of the following methods:

(1) An orange outer finish

(2) By other effective means

Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is also present.

Statement of Problem and Substantiation for Public Comment

The panel statement indicates that Section 110.15 has always required the markings to be made using the color orange in all identification methods used. In fact, the requirement has always permitted the use of another effective means to mark the high-leg and it did NOT require that effective means to be orange in color. This change is more restrictive than the prior editions, and the panel has not given a reason as to why the more restrictive language is necessary. There is no technical substantiation to revise this section to a more restrictive version, nor does this new language take into consideration any current installations. If the intent is to make this requirement more restrictive then the Panel should indicate the technical substantiation for making this requirement more restrictive, in their panel statement. Without substantiation for the change the proposed language should be reverted back or use the proposed language submitted with this comment.

Related Item

- FR-9121

Submitter Information Verification

Submitter Full Name: Jeff Noren

Organization: National Electrical Contractors Association

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 18:13:18 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7619-NFPA 70-2024

Statement: The revision in this section reflects the elimination of accessible points along the wiring system and adds all splices to the requirement. "All accessible locations" is removed because marking of the high leg is only required at the terminations, and not in fittings and other enclosures used for pulling.

The exception does not add clarity to the marking requirement.



Public Comment No. 1072-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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. The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, 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~~ assessment was ~~applied~~ completed

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

Statement of Problem and Substantiation for Public Comment

The most important date for an arc flash assessment (Table Method or Calculation Method) is the date that the assessment was completed. It is common practice in the industry to complete an assessment but have some time pass (hours, days, weeks) between that point and when the labels are installed. It is also common practice in the industry when doing a calculation-type assessment to print a date on the arc flash label to correspond with the dates the calculations were performed and the label was printed. This change would more directly allow for those common practices, while still ensuring there is a date on the label that can be used to evaluate the age and corresponding accuracy of the arc flash information relative to the 5-year review requirement indicated in NFPA 70E. The labels will still need to be in place prior to inspection by the AHJ which limits the risk of undue lag between the assessment and the label installation.

Related Item

- FR-9124

Submitter Information Verification

Submitter Full Name: David Hittinger

Organization: Independent Electrical Contractors

Affiliation: IEC Codes and Standards

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 13 15:48:22 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7621-NFPA 70-2024

Statement: The phrase "comply with" replaces "meets the requirement in" to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 1475-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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. The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, 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-2024, *Standard for Electrical Safety in the Workplace*, for applicable industry practices for equipment 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.

Statement of Problem and Substantiation for Public Comment

NFPA 70E already included detailed requirements concerning the arc-flash label and what it should contain. Having requirements in NFPA 70 for the same item creates conflicts between the standards. The proposed requirement to include the "date the label was applied" is not reasonable as labels are mostly created by printing the label and applying the label at some point later. This timing would require the label applied date to be written in by hand which is not allowed in another section of NFPA 70. The second information note provides direction to the user for an applicable industry standard to use for the marking information. NFPA 70 is also an installation document - not an electrical safety management document. Expanding the arc-flash label information is beyond the scope of NFPA 70. NFPA 70E includes this information in its scope.

Related Item

- FR-9124

Submitter Information Verification

Submitter Full Name: Paul sullivan

Organization: DuPont

Street Address:

City:

State:

Zip:

Submittal Date: Fri Aug 23 13:19:54 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7621-NFPA 70-2024

Statement: The phrase "comply with" replaces "meets the requirement in" to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 1897-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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 are likely to require examination, adjustment, servicing, or maintenance while energized. The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, 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~~
- (5)

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

Statement of Problem and Substantiation for Public Comment

CMP1 did a good job simplifying the arc flash labeling requirements of 110.16 and bringing the requirements more in line with NFPA 70E. However, it went too far by eliminating the phrase "likely to require examination, adjustment, servicing or maintenance while energized". This phrase provides important boundary conditions for when arc flash labeling is required, and has been included in 110.16 since its introduction to the NEC. This phrase is also present in NFPA 70E (130.5(H)). The proposed changes to 110.16 also includes the date the label is applied. This requirement is not included in NFPA 70E and should be deleted for alignment.

In its first draft meeting of the 2027 edition, the NFPA 70E technical committee retained the phrase "likely to require examination, adjustment, servicing, or maintenance while energized". Therefore, for alignment between NFPA 70 and NFPA 70E, this phrase should be added back in to 110.16.

Related Item

- FR 9124

Submitter Information Verification

Submitter Full Name: Louis Barrios

Organization: Shell Global Solutions

Affiliation: American Chemistry Council

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 21:47:57 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7621-NFPA 70-2024

Statement: The phrase "comply with" replaces "meets the requirement in" to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 1911-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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. The marking shall meet the requirements in 110.21(B), be located on the outside front of the enclosure so as to be ~~clearly~~ visible to qualified persons, 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-2024, *Standard for Electrical Safety in the Workplace*, for applicable industry practices for equipment 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.

Statement of Problem and Substantiation for Public Comment

The marking to comply with 110.21(B) does not provide enforceable language to require the marking on the outside front of the enclosure. 110.21(B) Field-Applied Hazard Markings are an essential part of safety for skilled and unskilled persons. The present requirement references informational notes that are not enforceable. The current requirement in 110.16 allows the Arc-Flash Hazard Marking label to be placed on the bottom, top or side of the enclosure, and sized as small as the printer allows, as long as it is clearly visible. Clearly visible is vague and could use some clarification. 110.21(B) is referenced in numerous sections in the code and should provide clear requirements that provide guidance and protections.

Related Item

- FR 9124

Submitter Information Verification

Submitter Full Name: David Williams

Organization: Delta Charter Township

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 07:29:56 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7621-NFPA 70-2024

Statement: The phrase “comply with” replaces “meets the requirement in” to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 1980-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard Marking.

~~In other than dwelling units, a permanent arc flash marking shall be field or factory applied to service equipment and feeder-supplied equipment.~~

Electrical equipment such as switchboards,

~~switchgear, enclosed~~

panelboards, industrial control panels, meter socket enclosures, and motor control centers

~~The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, and be in accordance with applicable industry practice, containing~~

that are in other than dwelling units and that are likely to require examination, adjustment, servicing, or maintenance while energized shall be marked with a label containing all the following information:

~~The nominal~~

(1) Nominal system voltage

~~The arc~~

(2) Arc flash boundary

- ~~The available incident energy or minimum required level of personal protective equipment~~

(3) At least one of the following:

a. Available incident energy and the corresponding working distance, or the arc flash PPE category for the equipment, but not both

b. Minimum arc rating of clothing

c. Site-specific level of PPE

(4) The date the label was applied

Informational Note

~~No. 4~~

~~.~~

~~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-2024~~

See NFPA 70E, Standard for Electrical Safety in the Workplace, for

applicable industry practices for equipment 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

additional information on the terminology and requirements included in this section.

Statement of Problem and Substantiation for Public Comment

Revise the wording in 110.16 to match what is in NFPA 70E - 2024, 130.5(H) but add the date requirement. I can't think of any good reason why the NEC requirements for installation need to be different than the requirements in NFPA 70E for work practices. The best time to determine the values needed by NFPA 70E are during the design of a new installation - most of the information already needs to be available to properly design the installation.

Related Item

- fr 9124

Submitter Information Verification

Submitter Full Name: Paul Dobrowsky

Organization: Innovative Technology Services

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 13:52:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7621-NFPA 70-2024](#)

Statement: The phrase “comply with” replaces “meets the requirement in” to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 453-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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. The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, 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-2024, *Standard for Electrical Safety in the Workplace*, for applicable industry practices for equipment 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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_101.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 101 appeared in the First Draft Report on First Revision No. 9124.

The Correlating Committee directs CMP-1 to reconsider the second sentence language “meet the requirements” and consider using the phrase “shall comply with” or “in accordance with” to comply with the NEC Style Manual 4.1.3.

Related Item

- First Revision No. 9124

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:45:54 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7621-NFPA 70-2024

Statement: The phrase “comply with” replaces “meets the requirement in” to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Correlating Committee Note No. 101-NFPA 70-2024 [Section No. 110.16]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:19:47 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to reconsider the second sentence language "meet the requirements" and consider using the phrase "shall comply with" or "in accordance with" to comply with the NEC Style Manual 4.1.3.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 965-NFPA 70-2024 [Section No. 110.16]

110.16 Arc-Flash Hazard 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. The marking shall meet the requirements in 110.21(B), be located so as to be clearly visible to qualified persons, 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-2024, *Standard for Electrical Safety in the Workplace*, for applicable industry practices for equipment 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.

Statement of Problem and Substantiation for Public Comment

An arc-flash label that's factory applied could not possibly have the suggested information on it. Each installation would depend on field conditions so the only practical way this label could have the required information would be for it to be a field applied label. I've suggested that we delete the specific content recommended here for the label. NFPA 70E, Section 130.5(H) provides specific information that it recommends be included on a label. At most, I'd recommend pointing to that document's label requirements. Including specific label requirements here will lead to a correlation problem between the documents. In addition, the proposed language to include the "date the label is applied" is completely unworkable. The labels would typically be computer generated and would in most instances be printed weeks or months before they get applied, so I'm recommending that if this were to stay, you'd use something like "date the calculation was made", or something to that effect. The only way the "date applied" could possibly work is if they're field generating each label (or handwriting them which isn't allowed by 110.21(B)) and that's just not practical. If you went with "date calculation was made", that would negate the possibility of using the category method allowed by NFPA 70E, again - this presents a correlation problem. I think we need to keep this section simple, here, and point to NFPA 70E for more specific content, and the proposed informational notes to NFPA 70E and ANSI Z535 do that satisfactorily already, in my opinion.

Related Item

• FR-9124 •

Submitter Information Verification

Submitter Full Name: Richard Holub

Organization: The DuPont Company, Inc.

Street Address:

City:

State:

Zip:

Submission Date: Thu Aug 08 09:14:16 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7621-NFPA 70-2024](#)

Statement: The phrase "comply with" replaces "meets the requirement in" to align with the NEC Style Manual. Revisions provide examples of activities when arc-flash marking is required. The time stamp requirement was revised to reflect the arc-flash risk assessment completion date.



Public Comment No. 1130-NFPA 70-2024 [New Section after 110.17]

Qualified Person

Consistently long standing there has been a fundamental issue regarding how an AHJ enforces the scattered qualified persons requirements within the NEC. Licensing, certifications, and training are more important now than they ever have been in the electrical industry. Significant language was added to the NEC in 2023 to accompany the existing 142 uses of “qualified persons” language. While service and maintenance are nothing new to the electrical industry, the addition of 110.17 completes the trilogy of interweaving NFPA 70, NFPA 70E Standard for Electrical Safety in the Workplace and NFPA 70B Standard for Electrical Equipment Maintenance. However, the use and requirement of “qualified persons” is still inconsistent from article to article resulting in the perceived responsibility of the qualified person differing from system to system. Throughout the country, sections and portions of each system are NOT performed by qualified persons and the argument by those unqualified performing the work is based on the language or lack thereof for total inclusion of all “parts” of the system requiring training in the construction and installation of the electrical system.

2026 saw 17 PI's in an attempt to promote uniformity with qualified persons language across the NEC. The consensus from CMP to CMP was a statement for qualified persons is more appropriate in Article 90 and/or Article 110. To draw a parallel from the enforceable qualified persons language in electrical safety and maintenance, to those in the NEC, a general requirement for qualified persons in Article 90.2(A) or Article 110 would then require that ALL electrical work under the scope of the NEC, including but not limited to the construction, installation, commissioning, and maintenance be performed by qualified persons.

As technology enhances and electrical systems become more complex and interconnected with energy systems outside traditional utility, the verification of construction, installation, commissioning, and maintenance by a qualified person becomes even more imperative.

This public comment is made in support of adding a “general” requirement in Article 90 or Article 110, in reference to all aspects of electrical work covered under the purview of the NEC being performed by qualified persons.

Finally, with the addition of 110.17 in NFPA 70 and the recent evolution of NFPA 70B moving to a standard, I would like to introduce the thought of amending the NEC Article 100 definition of Qualified Person to include commissioning, and at minimum maintenance. Ultimately reading:

Qualified Person. One who has skills and knowledge related to the construction, commissioning, maintenance, and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Statement of Problem and Substantiation for Public Comment

Consistently long standing there has been a fundamental issue regarding how an AHJ enforces the scattered qualified persons requirements within the NEC. Licensing, certifications, and training are more important now than they ever have been in the electrical industry. Significant language was added to the NEC in 2023 to accompany the existing 142 uses of “qualified persons” language. While service and maintenance are nothing new to the electrical industry, the addition of 110.17 completes the trilogy of interweaving NFPA 70, NFPA 70E Standard for Electrical Safety in the Workplace and NFPA 70B Standard for Electrical Equipment Maintenance. However, the use and requirement of “qualified persons” is still inconsistent from article to article resulting in the perceived responsibility of the qualified person differing from system to system. Throughout the country, sections and portions of each system are NOT performed by qualified persons and the argument by those unqualified performing the work is based on the language or lack thereof for total inclusion of all “parts” of the system requiring training in the construction and installation of the electrical system.

2026 saw 17 PI's in an attempt to promote uniformity with qualified persons language across the NEC. The consensus from CMP to CMP was a statement for qualified persons is more appropriate in Article 90 and/or Article 110. To draw a parallel from the enforceable qualified persons language in electrical safety and maintenance, to those in the NEC, a general requirement for qualified persons in Article 90.2(A) or Article 110 would then require that ALL electrical work under the scope of the NEC, including but not limited to the construction, installation, commissioning, and maintenance be performed by qualified persons.

As technology enhances and electrical systems become more complex and interconnected with energy systems outside traditional utility, the verification of construction, installation, commissioning, and maintenance by a qualified person becomes even more imperative.

This public comment is made in support of adding a “general” requirement in Article 90 or Article 110, in reference to all aspects of electrical work covered under the purview of the NEC being performed by qualified persons.

Finally, with the addition of 110.17 in NFPA 70 and the recent evolution of NFPA 70B moving to a standard, I would like to introduce the thought of amending the NEC Article 100 definition of Qualified Person to include commissioning, and at minimum maintenance. Ultimately reading:

Qualified Person. One who has skills and knowledge related to the construction, commissioning, maintenance, and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Related Item

- PI 1817, PI 1818, PI 1819, PI 1820 (See CMP4 response message for each)

Submitter Information Verification

Submitter Full Name: George Mostardini
Organization: IBEW Local 134
Affiliation: IBEW
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 15 19:11:14 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: Adding a definition in Article 110 is a violation of the Style Manual, section 2.1.2.2.



Public Comment No. 1050-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of Equipment.~~

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

- ~~(1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

The CMP seemed to agree with me that the scope of the NEC matters. In its explanation for rejecting my proposed deletion of this material, it pointed to a new section of 90.2 [90.2(C)] that was going to be added which would have expanded the scope of the NEC. That change DID NOT pass, however, which is further evidence of the fact that the NEC does not cover maintenance. The CMP was quick to point to 90.2 when it supported their reason for rejecting this PI, I hope they are equally as quick to acknowledge that it now contradicts their original position and supports mine. This material is out of scope and belongs only in NFPA 70B.

Related Item

- PI 256

Submitter Information Verification

Submitter Full Name: Ryan Jackson

Organization: Self-employed

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 12 21:16:47 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7622-NFPA 70-2024](#)

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1627-NFPA 70-2024 [Section No. 110.17]

110.17 ~~Servicing and Maintenance of~~ Servicing of Equipment.

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

- (1) The servicing ~~and 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 maintenance shall~~ servicing 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

CMP1 did a good job deleting "electrical preventative" from 110.17 but did not go far enough. "Maintenance" should also be deleted. Original action to add requirements on "reconditioned" equipment throughout the NEC have grossly expanded well beyond the original intent to now include both maintenance and servicing, which creates correlation issues with other standards such as NFPA 70B.

Proposed actions to add "maintenance, reconditioning, servicing" to the scope of the NEC via FR-9273 during the first draft failed ballot, further supporting that "maintenance" of electrical equipment should be left to NFPA 70B and not the NEC.

The scopes of the NEC, NFPA 70B and NFPA 70E should be clear to address installations, maintenance and safe work practices, respectively.

Related Item

• FR 9274 • FR 9273

Submitter Information Verification

Submitter Full Name: Louis Barrios

Organization: Shell Global Solutions

Affiliation: American Chemistry Council

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 25 12:28:27 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement:

110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1628-NFPA 70-2024 [Section No. 110.17]

110.17 Servicing and Maintenance of Equipment:

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

- (1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

110.17 should have been deleted as originally proposed by Public Inputs 256 and 4205. "Maintenance" and "electrical preventative maintenance" are outside the scope of the NEC. NFPA 70 is intended for installations, NFPA 70E intended for safe work practices and NFPA 70B (now elevated to a Standard from a Recommended Practice) intended for maintenance. Original action to add requirements on "reconditioned" equipment have grossly expanded well beyond intent to now include both maintenance and servicing, which creates correlation issues with other standards such as NFPA 70B. Attempts to add "maintenance", "reconditioning" and "servicing" to the scope of the NEC in 90.2(C) failed ballot, further suggesting there is support to retain clarity of scope between the three NFPA standards.

Related Item

• FR 9274 • FR 9273

Submitter Information Verification

Submitter Full Name: Louis Barrios
Organization: Shell Global Solutions
Affiliation: American Chemistry Council
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 25 12:56:49 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-7622-NFPA 70-2024](#)

Statement:

110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1709-NFPA 70-2024 [Section No. 110.17]

110.17 Servicing ~~and Maintenance~~ of Equipment.

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

- (1) The servicing ~~and 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 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~~

a.

b. 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

This suggested language change aligns with the defined term "servicing" which states that servicing is "The process of following a manufacturer's set of instructions or applicable industry standards to analyze, adjust, or perform prescribed actions upon equipment with the intention to preserve or restore the operational performance of the equipment." The informational note that accompanies this defined term states the following: "Servicing often encompasses maintenance and repair activities". By removing the term maintenance, we don't change the requirement but rather use a defined term that through the informational note ties the activities to maintenance. NFPA 70B is now a standard and this change does not reduce nor disassociate this section from electrical maintenance but rather leverages the defined term to make the connection with NFPA 70B or any other industry standard / manufacturer instructions available and acceptable to the authority having jurisdiction.

Related Item

- FR 9274

Submitter Information Verification

Submitter Full Name: Thomas Domitrovich

Organization: Eaton Corporation

Street Address:

City:

State:

Zip:

Submission Date: Mon Aug 26 14:30:12 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement:

110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1751-NFPA 70-2024 [Section No. 110.17]

110.17 Servicing ~~and Maintenance~~ of Equipment.

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

- (1) The servicing ~~and 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 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~~

a.

b. 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

"Maintenance" should be removed from the title and text of this section. As indicated in Informational Note No. 2, the correct NFPA document for maintenance of electrical equipment is NFPA 70B-2023 Standard for Electrical Equipment Maintenance. NFPA 70 is an installation document and not a maintenance document. Further, "maintenance" is not a defined term in Article 100 Definitions.

Related Item

• FR 9273 • FR 9274

Submitter Information Verification

Submitter Full Name: Mark Goodman

Organization: Mark Goodman Electrical Consulting

Affiliation: American Petroleum Institute

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 00:45:21 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1752-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of Equipment.~~

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

- ~~(1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

Delete this new section in its entirety. NFPA 70 is an installation document and not a maintenance document. NFPA 70B-2023, Standard for Electrical Equipment Maintenance is the appropriate standard for this information. Potential conflicts between the requirements in NFPA 70 and NFPA 70B would only confuse users and AHJs.

Related Item

• FR 9273 • FR 9274

Submitter Information Verification

Submitter Full Name: Mark Goodman
Organization: Mark Goodman Electrical Consulting
Affiliation: American Petroleum Institute
Street Address:
City:
State:
Zip:
Submittal Date: Tue Aug 27 01:10:15 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7622-NFPA 70-2024
Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1770-NFPA 70-2024 [Section No. 110.17]

110.17 ~~Service and Maintenance of~~ Service of Equipment.

~~Service and maintenance~~ shall be performed by qualified persons trained in servicing and maintenance of equipment and shall comply with the following:

- (1) The ~~service and maintenance shall~~ servicing 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

The maintenance provisions should be under NFPA-70B and not NFPA70. Removing the term maintenance does not change the requirement.

Related Item

- FR 9274

Submitter Information Verification

Submitter Full Name: David Williams

Organization:

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 09:54:11 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1916-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of Equipment.~~

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

- ~~(1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

"Maintenance" and "Servicing" are outside the scope of the NEC®. Public Inputs 256 and 4205 both stated as much for consideration in the First Draft. Section 90.2 specifically states "This code covers the installatin and removal of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables for the following:..." Maintenance, reconditioning, and servicing are all outside the scope of the NEC® and are more appropriately covered within the scope of NFPA 70B (now elevated to a Standard from a Recommended Practice). These requirements should be debated and included in NFPA 70B, if approved, but should not be included in the NEC®.

Related Item

• PI-256 • PI-4205

Submitter Information Verification

Submitter Full Name: Richard Holub

Organization: The DuPont Company, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 08:51:27 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7622-NFPA 70-2024](#)

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1984-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of Equipment.~~

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

- ~~(1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

Delete these requirements. Servicing and maintenance requirements belong in NFPA 70B and NFPA 70E - not in the NEC, an installation standard.

Related Item

- fr 9274

Submitter Information Verification

Submitter Full Name: Paul Dobrowsky
Organization: Innovative Technology Services
Street Address:
City:
State:
Zip:
Submittal Date: Wed Aug 28 14:06:56 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7622-NFPA 70-2024
Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 2070-NFPA 70-2024 [Section No. 110.17]

110.17 ~~Service and Maintenance of~~ Servicing of Equipment.

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

- (1) The servicing ~~and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Statement of Problem and Substantiation for Public Comment

The term "and maintenance" has been removed to correlate with the definition of servicing.

If this term is not deleted a definition of "maintenance" should be added in the Article 100.

Proposed definition: Maintenance: the process of maintaining electrical systems and equipment to address risk of failure, breakdown or malfunctions and improve safety and reliability.

Related Item

- FR-9274

Submitter Information Verification

Submitter Full Name: Daniel Neeser

Organization: Eaton Bussmann Division

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 18:01:05 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 28-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of Equipment.~~

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

- ~~(1) The servicing and 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 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

Servicing and maintenance is not within the Scope of the NEC and should be removed as a general requirement. NFPA 70B Standard for Electrical Equipment Maintenance provides these requirements.

Related Item

- PI 256 and PI 4205

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 10 18:02:06 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7622-NFPA 70-2024
Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 454-NFPA 70-2024 [Section No. 110.17]

110.17 Servicing and Maintenance of Equipment.

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

- (1) The servicing and 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 maintenance shall be performed using identified replacement parts that are verified under applicable product standards. The replacement parts shall comply with at least one of the following:
 - a. Be provided by the original equipment manufacturer
 - b. Be designed by an engineer experienced in the design of replacement parts for the type of equipment being serviced or maintained
 - c. Be approved by the authority having jurisdiction

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

Informational Note No. 2: See NFPA 70B-2023, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_102.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 102 appeared in the First Draft Report on First Revision No. 9274.

The Correlating Committee will form a task group with representatives from multiple code-making panels and other affected parties to review 110.17 and related definitions currently in the code for alignment with the scope of the NEC and submit public comments if deemed necessary. The scope of NFPA 70B shall be considered as part of the task group review.

Additionally, as part of this review the task group shall take into consideration possible revisions to 110.20 to prohibit the installation of reconditioned equipment unless specifically permitted to be installed elsewhere in the code. Any revisions recommended by this task group will be proposed for the 2029 edition of the NEC.

Related Item

- First Revision No. 9274

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:47:09 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement:

110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Correlating Committee Note No. 102-NFPA 70-2024 [Section No. 110.17]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:23:48 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee will form a task group with representatives from multiple code-making panels and other affected parties to review 110.17 and related definitions currently in the code for alignment with the scope of the NEC and submit public comments if deemed necessary. The scope of NFPA 70B shall be considered as part of the task group review.

Additionally, as part of this review the task group shall take into consideration possible revisions to 110.20 to prohibit the installation of reconditioned equipment unless specifically permitted to be installed elsewhere in the code. Any revisions recommended by this task group will be proposed for the 2029 edition of the NEC.

First Revision No. 9274-NFPA 70-2024 [Section No. 110.17]

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 849-NFPA 70-2024 [Section No. 110.17]

~~110.17 Servicing and Maintenance of~~ Servicing of Equipment.

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

- (1) The ~~servicing and maintenance shall~~ servicing 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 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~~

a.

b. 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, *Standard for Electrical Equipment Maintenance*, for information related to maintenance for electrical, electronic, and communication systems and equipment.~~

Statement of Problem and Substantiation for Public Comment

This revision recommends the removal of "maintenance" and retaining "servicing" in 110.17. A concern expressed with retaining 110.17 is that NFPA 70B covers maintenance and therefore the NEC should not. Note that, since the scope of NFPA 70B only includes maintenance and not both servicing and maintenance, servicing can and should be retained in 110.17. See NFPA 70B 1.1 Scope. "This standard covers the preventive maintenance of electrical, electronic, and communications systems and equipment."

Related Item

- PI-4205

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 06 15:48:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7622-NFPA 70-2024

Statement: 110.17 is not deleted as "Servicing" is a defined term and is within the purview of NFPA 70.

"Maintenance" and Informational Note 2 are deleted from 110.17 in order to delineate the scopes of NFPA 70 and NFPA 70B.



Public Comment No. 1-NFPA 70-2024 [Section No. 110.20]

110.20 Reconditioned Equipment.

Reconditioned equipment ~~shall be permitted except where prohibited~~ shall be permitted where specified elsewhere in this code. Equipment that is restored to operating condition shall be reconditioned with identified replacement parts and 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 for the definition of *equipment*.

(A) Equipment Required to Be Listed.

Equipment that is reconditioned and required by this code to be listed shall be listed or field labeled as reconditioned using available instructions from the original equipment manufacturer.

(B) Equipment Not Required to Be Listed.

Equipment that is reconditioned and not required by this code to be listed shall comply with one of the following:

- (1) Be listed or field labeled as reconditioned
- (2) Have the reconditioning performed in accordance with the original equipment manufacturer instructions

(C) Approved Equipment.

If the options specified in 110.20(A) or 110.20(B) are not available, the authority having jurisdiction shall be permitted to approve reconditioned equipment, and the reconditioner shall provide the authority having jurisdiction with documentation of the changes to the product.

Statement of Problem and Substantiation for Public Comment

Revise the text editorially to clarify the application of the requirement. The modified text will aid technical committees to acknowledge the reconditioned equipment that is permitted within their purview rather than equipment that is not permitted.

Related Item

- FR-9276

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 09 16:32:06 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Accepted
Resolution: SR-7624-NFPA 70-2024
Statement: The change reflects the changes throughout the Code in article sections (Typ. Xx.3 sections) that address when Reconditioned equipment is permitted.



110.21 Marking.

(A) Equipment Markings.

(1) General.

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

(2) Reconditioned Equipment.

Reconditioned equipment shall be marked with the following:

- (1) Name, trademark, or other descriptive marking of the organization that performed the reconditioning
- (2) The date of the reconditioning
- (3) The term *reconditioned* or other approved wording or symbol indicating that the equipment has been reconditioned

~~The original listing mark shall be removed or made permanently illegible. The equipment nameplate shall not be required to be removed or made permanently illegible, only the part of the nameplate that includes the listing mark, if applicable. Approval of the reconditioned equipment shall not be based solely on the equipment's original listing.~~

Exception: In industrial occupancies, where conditions of maintenance and supervision ensure that only qualified persons service the equipment, the markings indicated in 110.21(A)(2), shall not be required for equipment that is reconditioned by the owner or operator as part of a regular equipment maintenance program.

Informational Note No. 1: ANSI-approved standards are available for application of reconditioned and refurbished equipment.

Informational Note No. 2: The term *reconditioned* may be interchangeable with the terms *rebuilt*, *refurbished*, or *remanufactured* even though these are sometimes different processes.

(B) Field-Applied Hazard Markings.

Where caution, warning, or danger hazard markings such as labels or signs are required by this code, the markings shall meet the following requirements:

- (1) The marking shall be of sufficient durability to withstand the environment involved and warn of the hazards using effective words, colors, symbols, or any combination thereof.

Informational Note No. 1: See ANSI Z535.2-2011 (R2017), *Environmental and Facility Safety Signs*, which describes the design, application, and use of safety signs in facilities and in the environment.

Informational Note No. 2: See ANSI Z535.4-2011 (R2017), *Product Safety Signs and Labels*, which details the design, application, use, and placement of safety signs and labels on a wide variety of products.

- (2) The marking shall be permanently affixed to the equipment or wiring method and shall not be handwritten.

Exception to (2): Portions of the markings that are variable, or that could be subject to changes, shall be permitted to be handwritten and shall be legible.

Statement of Problem and Substantiation for Public Comment

The whole reconditioning process is outside the scope of the NEC®, as described in 90.2. The definition of reconditioning is sufficiently vague for it to potentially apply to any motor repair conducted by a motor repair shop. Such repair could be as minor as replacement of the bearings on the motor. The repair of a motor is done based on scope agreed upon between the purchaser and the motor repair shop, and the NEC® is not the document to use to mandate removal of the original listing mark or require a new listing mark be applied. In the case of motors, the NEC®, specifically, doesn't require the motor to be listed, but more generally, OSHA does require all electrical equipment used in the workplace to be NRTL listed through 29 CFR 1910.303(a). The original motor nameplate listing is sufficient to demonstrate that the motor was approved when it was installed. Repair of that motor though a motor repair shop should warrant an additional label be applied to the motor so we know the repair history, and where it was done, but there should be no new listing requirement here. This is evidenced by the fact that Article 430 doesn't even have a listing requirement included. This requirement to remove the listing mark and the associated approval language should be removed completely.

Related Item

- FCR-153

Submitter Information Verification

Submitter Full Name: Richard Holub

Organization: The DuPont Company, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 09:20:26 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Rejected

Action:

Resolution: The requirement for the removal of the listing mark in other than industrial occupancies with a maintenance program is appropriate.



Public Comment No. 1774-NFPA 70-2024 [Section No. 110.21(B)]

(B) Field-Applied Hazard Markings.

Where caution, warning, or danger hazard markings such as labels or signs are required by this code, the markings shall meet the following requirements:

- (1) The marking shall be of sufficient durability to withstand the environment involved and warn of the hazards using effective words, colors, symbols, or any combination thereof.

Informational Note No. 1: See ANSI Z535.2-2011 (R2017), *Environmental and Facility Safety Signs*, which describes the design, application, and use of safety signs in facilities and in the environment.

Informational Note No. 2: See ANSI Z535.4-2011 (R2017), *Product Safety Signs and Labels*, which details the design, application, use, and placement of safety signs and labels on a wide variety of products.

- (2) The marking shall be permanently affixed to the equipment or wiring method and shall not be handwritten.

- (3) The marking shall be on the front of the enclosure.

- (4) The marking text shall be capitalized and have a minimum height of 13 mm (1/2 in.).

Exception to (2): Portions of the markings that are variable, or that could be subject to changes, shall be permitted to be handwritten and shall be legible.

Statement of Problem and Substantiation for Public Comment

110.21(B) Field-Applied Hazard Markings are an essential part of safety for skilled and unskilled persons. The present requirement references informational notes that are not enforceable. The current requirement allows a Hazard Marking label to be placed on the back, bottom, top or side of the enclosure, and sized as small as the printer allows.

110.21(B) is referenced in numerous sections in the code and should provide clear requirements that provide guidance and protections.

Related Item

- PI 3056

Submitter Information Verification

Submitter Full Name: David Williams

Organization:

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 27 10:17:01 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: Installing a warning label on the front of the enclosure might not be appropriately visible for approaching the Hazards. Font, size and color is adequately described in the Standards mentioned in the current Informational notes and other standards on Markings. The substantiation does not support a prescribed method for all markings. Hazard warning or danger signs are not anticipated to include information of a temporary or changing nature.



Public Comment No. 455-NFPA 70-2024 [Section No. 110.22]

110.22 Identification of Disconnecting Means.

(A) General.

Each disconnecting means in other than one- or two-family dwellings shall be legibly marked to indicate its purpose and circuit source unless located and arranged so the purpose and source is evident. The marking shall 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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_103.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 103 appeared in the First Draft Report on First Revision No. 9147.

The Correlating Committee directs CMP-1 to reconsider the language "meet the requirements" and consider using the phrase "shall comply with" or "in accordance with" to comply with the NEC Style Manual 4.1.3.

Related Item

- First Revision No. 9147

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:48:42 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7626-NFPA 70-2024](#)

Statement: The editorial changes align with the NEC Style Manual, section 4.1.3.



Correlating Committee Note No. 103-NFPA 70-2024 [Section No. 110.22]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:52:46 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to reconsider the language “meet the requirements” and consider using the phrase "shall comply with" or “in accordance with” to comply with the NEC Style Manual 4.1.3.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 917-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~~ markings shall include the date the fault-current calculation was performed and 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: The available fault-current ~~marking(s) addressed~~ markings 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.

Statement of Problem and Substantiation for Public Comment

This revision to remove "(s)" and and make the associated word plural is made to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

• FR-9157 • FR-9157

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

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State:

Zip:

Submittal Date: Wed Aug 07 15:22:23 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7628-NFPA 70-2024

Statement: The editorial changes align with the NEC Style Manual, section 3.5.3.



Public Comment No. 918-NFPA 70-2024 [Section No. 110.24(B)]

(B) Modifications.

When modifications to the electrical installation occur that affect the available fault current at the service, the available fault current shall be verified or recalculated as necessary to ensure the service equipment ratings are sufficient for the available fault current at the line terminals of the equipment. The required field ~~marking(s) in~~ markings in 110.24(A) shall be adjusted to reflect the new level of available fault current.

Exception: The field marking requirements in 110.24(A) and 110.24(B) shall not be required in industrial installations where conditions of maintenance and supervision ensure that only qualified persons service the equipment.

Statement of Problem and Substantiation for Public Comment

This revision to remove "(s)" and and make the associated word plural is made to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

- PI-3198

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

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Submittal Date: Wed Aug 07 15:25:19 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7630-NFPA 70-2024

Statement: The editorial changes align with the NEC Style Manual, section 3.5.3.



Public Comment No. 1031-NFPA 70-2024 [Section No. 110.26(A)]

(A) Working Space.

Working space for equipment likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 110.26(A)(1), 110.26(A)(2), 110.26(A)(3), and 110.26(A)(4) or as required or permitted elsewhere in this code. By Special permission, small 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.

Informational Note: See NFPA 70E-2024, *Standard for Electrical Safety in the Workplace*, for guidance, such as determining severity of potential exposure and planning safe work practices including establishing an electrically safe work condition, arc flash labeling, and selecting personal protective equipment.

(1) Depth of Working Space.

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

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.

(2) Width of Working Space.

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

(3) Height of Working Space.

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

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

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

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

(4) Limited Access.

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

- (1) Where equipment is installed above a lay-in ceiling, there shall be an opening not smaller than 559 mm × 559 mm (22 in. × 22 in.), or in a crawl space, there shall be an accessible opening not smaller than 559 mm × 762 mm (22 in. × 30 in.).
- (2) The width of the working space shall be the width of the equipment enclosure or a minimum of 762 mm (30 in.), whichever is greater.
- (3) All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.
- (4) The space in front of the enclosure shall comply with the depth requirements of Table 110.26(A)(1) and shall be unobstructed to the floor by fixed cabinets, walls, or partitions. Space reductions in accordance with 110.26(A)(1)(b) shall be permitted. The maximum height of the working space shall be the height necessary to install the equipment in the limited space. A horizontal ceiling structural member or access panel shall be permitted in this space provided the location of weight-bearing structural members does not result in a side reach of more than 150 mm (6 in.) to work within the enclosure.

(5) Separation from High-Voltage Equipment.

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

(6) Grade, Floor, or Working Platform.

The grade, floor, or platform in the required working space shall be kept clear and as level and flat as practical for the entire required depth and width of the working space.

Statement of Problem and Substantiation for Public Comment

This Public Comment is in regard to PI 2159. The intention of both the PI and the PC is to move the text of 110.26(A)(1)(b) to the parent text of 110.26(A). The current text is in the Depth section of 110.26(A). As the allowance is currently written, it doesn't apply to either Width or Height. Moving the text to the parent text allows modifications to Depth, Width, and Height; not just Depth.

Related Item

• 2159-NFPA 70-2023

Submitter Information Verification

Submitter Full Name: Eric Stromberg
Organization: Los Alamos National Laboratory
Affiliation: Self
Street Address:
City:
State:
Zip:
Submittal Date: Sun Aug 11 17:14:39 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7639-NFPA 70-2024](#)

Statement: Measuring from the front of the enclosure instead of from the exposed, energized parts simplifies the measurement and results in a more consistent application of the requirement.

Revised and moved the low voltage wording out of 110.26(A)(1)(b) to 110.26(A). Low voltage was removed while specific voltage levels were maintained as a condition.

The voltage ranges are added to the Table 110.26(A)(1) Working Spaces, to align with other sections of the code.



Public Comment No. 1299-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), 110.26(A)(1)(b), or 110.26(A)(1)(c) are met. 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.

Table 110.26(A)(1) Working Spaces

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
0–150 <u>ac or dc</u>	900 mm (3 ft)	900 mm (3 ft)	900 mm (3 ft)
151–600 <u>ac or dc</u>	900 mm (3 ft)	1.0 m (3 ft 6 in.)	1.2 m (4 ft)
601–1000 <u>ac or dc</u> or 601–1500 <u>dc</u>	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.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

This first draft public comment updates the values in Table 110.26(A)(1), which are needed to address 1001 to 1500 volts dc, which were missing from the table. The minimum clear distances added for 1001 to 1500 volts dc are consistent with the distances in the existing Table 110.34(A).

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

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Submittal Date: Tue Aug 20 12:55:20 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7639-NFPA 70-2024](#)

Statement: Measuring from the front of the enclosure instead of from the exposed, energized parts simplifies the measurement and results in a more consistent application of the requirement.

Revised and moved the low voltage wording out of 110.26(A)(1)(b) to 110.26(A). Low voltage was removed while specific voltage levels were maintained as a condition.

The voltage ranges are added to the Table 110.26(A)(1) Working Spaces, to align with other sections of the code.



Public Comment No. 1374-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), 110.26(A)(1)(b), or 110.26(A)(1)(c) are met. 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.

Table 110.26(A)(1) Working Spaces

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
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 Limited-Energy Systems.* 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~~ for limited-energy system installations.

(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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Limited_Energy_Roster-2026_2nd_Draft.pdf	Limited-Energy Task Group Roster-2nd Draft	

Statement of Problem and Substantiation for Public Comment

This public comment is submitted on behalf of the Limited-Energy Task Group (see attached roster) to modify the special permission requirement, so it applies to all limited-energy system installations. The voltage threshold excludes some limited-energy systems as they operate at higher than the listed thresholds. Limited-energy systems, by definition, in article 100 mitigate exposure to shock and fire hazards. This modification would limit this permissive rule to those systems (including communications) that fall under the limited-energy system definition. Additionally, with the removal of Chapter 8 independence, the requirements in 110.26 would now apply to communications system installations where they had not previously applied, this proposed revision would remedy that issues as well.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1370-NFPA 70-2024 [Definition: Limited-Energy System.]	PC revising limited-energy definition
<u>Related Item</u>	
• FR-9191	

Submitter Information Verification

Submitter Full Name: Kyle Krueger

Organization: NECA

Affiliation: NECA

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Submittal Date: Wed Aug 21 16:05:38 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7639-NFPA 70-2024

Statement: Measuring from the front of the enclosure instead of from the exposed, energized parts simplifies the measurement and results in a more consistent application of the requirement.

Revised and moved the low voltage wording out of 110.26(A)(1)(b) to 110.26(A). Low voltage was removed while specific voltage levels were maintained as a condition.

The voltage ranges are added to the Table 110.26(A)(1) Working Spaces, to align with other sections of the code.

Limited Energy Task Group [2nd Draft]

No.	First Name	Last Name	Class.	Organization	Other Committees
1	Kyle	Krueger	[I/M]	NECA	NEC-Correlating Committee CMP 3 NFPA 72-Correlating Committee
2	Ernie	Gallo	[U/T]	NEBScore	
3	Derrick	Atkins	[L]	Minneapolis Electrical JA	NEC-Correlating Committee CMP 5
4	Anthony	Tassone	[R/T]	UL Solutions	CMP 3 CMP 16
5	Chad	Jones	[M]	Cisco	CMP 3
6	Sam	Rokowski	[I/M]	Maddox Inc.	CMP 3
7	George	Bish	[M]	Amazon/Ring Protect Inc	CMP 16
8	Trevor	Bowmer	[U]	Telecom Consulting	NEC Correlating Committee CMP 16
9	Ronald	Tellas	[M]	CCCA	CMP 3 CMP 16
10	Tim	Mikloiche	[E]	IAEI	CMP 3
11	Ryan	Jackosn	[M]	Steel Tube Industry	CMP 3
12	Diana	Lettkeman	[M]	Dish	CMP 16
13	John	Kacperski	[L]	IBEW	CMP 16



Public Comment No. 2073-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), 110.26(A)(1)(b), or 110.26(A)(1)(c) are met. 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.

Table 110.26(A)(1) Working Spaces

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
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.

Statement of Problem and Substantiation for Public Comment

Working distance should be measured from the enclosure front or opening and not the live parts. The live parts could be installed where they are recessed from the enclosure front or opening, which reduces the working distance outside the equipment, such as switchgear where the exposed live parts (Bus Structure), could be 2 feet from the opening, leaving 1 foot outside the equipment. The revision deletes "live parts, if such are exposed; or from the".

Related Item

- FR-9207

Submitter Information Verification

Submitter Full Name: Daniel Neeser

Organization: Eaton Bussmann Division

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City:

State:

Zip:

Submittal Date: Wed Aug 28 18:07:09 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Rejected but see related SR

Action:

Resolution: [SR-7639-NFPA 70-2024](#)

Statement: Measuring from the front of the enclosure instead of from the exposed, energized parts simplifies the measurement and results in a more consistent application of the requirement.

Revised and moved the low voltage wording out of 110.26(A)(1)(b) to 110.26(A). Low voltage was removed while specific voltage levels were maintained as a condition.

The voltage ranges are added to the Table 110.26(A)(1) Working Spaces, to align with other sections of the code.



Public Comment No. 875-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), 110.26(A)(1)(b), or 110.26(A)(1)(c) are met. 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.

Table 110.26(A)(1) Working Spaces

<u>Nominal Voltage to Ground</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
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.

Exception: Grounded and bonded enclosures of electrical equipment that do not require working space shall not be considered live parts for the purposes of determining working depth conditions.

(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.

Statement of Problem and Substantiation for Public Comment

There are types of electrical equipment that do not require working space by the definition of 110.26(A). This added verbiage is intended to clarify that when determining working space requirements for nearby equipment, the grounded enclosure may be treated as a grounded surface even though it contains live parts since those parts would not be exposed while energized.

Related Item

• FR-9207

Submitter Information Verification

Submitter Full Name: Samuel Fopma

Organization: Interstates

Affiliation: IEC

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 09:51:16 EDT 2024

Committee: NEC-P01

Committee Statement

**Committee
Action:** Rejected

Resolution: There is no adequate technical substantiation to warrant this change. This recommended exception would not add any additional clarity to working space requirements.



Public Comment No. 1301-NFPA 70-2024 [Section No. 110.26(A)(5)]

(5) Separation from High-Voltage Equipment.

Where switches, cutouts, or other equipment operating at 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 over 1000 volts ac, 1500 volts dc, nominal, the high-voltage equipment shall be effectively separated from the space occupied by the ~~low-voltage equipment~~ equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less by a suitable partition, fence, or screen.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

This change is needed to address the voltage demarcation for 1001 volts to 1500 volts dc. It also corrects the use of the term “low voltage” which is intended for less than 1000 volts, ac, or 1500 volts dc, but the term “low voltage” is not a defined term. The term “high voltage” was not modified because it is now defined in the 2026 first draft text as used in this requirement, although it was previously defined in 2023 as only 1000V or less without reference to 1500 volts dc.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

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Submittal Date: Tue Aug 20 13:04:15 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7657-NFPA 70-2024

Statement: The Panel accepts the recommendation of the CC Medium Voltage Task Group



Public Comment No. 1409-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 as level and flat ~~as practical for~~ (less than 1/4in. (6.3mm) abrupt changes) as practical for the entire required depth and width of the working space.

Statement of Problem and Substantiation for Public Comment

Article 110.26(A)(6) uses vague language with the term "flat". Article 100 does not provide a definition for this term. Depending on AHJ, "flat" can be abrupt/sloped changes of elevations from inches to absolute no changes within the working space. This issue is very common from engineered equipment that comes in multiple skids being mounted together or lining up with existing concrete pads or with substation with an equipment pad and gravel. The "abrupt changes in elevation of walking surfaces" is being extracted from NFPA 101-2024 article 7.1.6.2 Changes in Elevation to be consistent thru multiple NFPA codes.

Related Item

- Working Space Grade, Floor, or Working Platform

Submitter Information Verification

Submitter Full Name: David Beltran Feliciano

Organization: Savannah River Nuclear Solutions, LLC

Affiliation: Department of Energy

Street Address:

City:

State:

Zip:

Submittal Date: Thu Aug 22 14:09:50 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: This proposed change would cause undue enforcement issues. This could also potentially conflict with the building codes requirement for slopes away from a building.



Public Comment No. 1159-NFPA 70-2024 [Section No. 110.26(C)(2)]

(2) Large Equipment.

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

- (1) For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide
- (2) For separate pieces of equipment that combine for more than 1200 amperes and over 1.8 m (6 ft) wide.
- (3) For service disconnecting means installed in accordance with 230.71(B) where the combined ampere rating is 1200 amperes or more and where the combined width is over 1.8 m (6 ft)

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

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

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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
110.26_C_2_.pdf	Sketch showing trap locations	
IMG_0043.jpg	Image of a switchgear lineup	

Statement of Problem and Substantiation for Public Comment

Public Input #1751 was resolved using the panel statement that the revision would create confusion by combining it with the single piece of equipment. This revision creates a new (2) to mirror that of the 1200 ampere and more, and over 6 ft for large service equipment. Service equipment requires the two paths out of the working space for safety therefore, equipment 1200 amperes and more, and over 6 ft in width should require at least 2 paths out of the working space. Without the second egress, a worker could become trapped in the aisle between piece of equipment as shown in the attachments.

Related Item

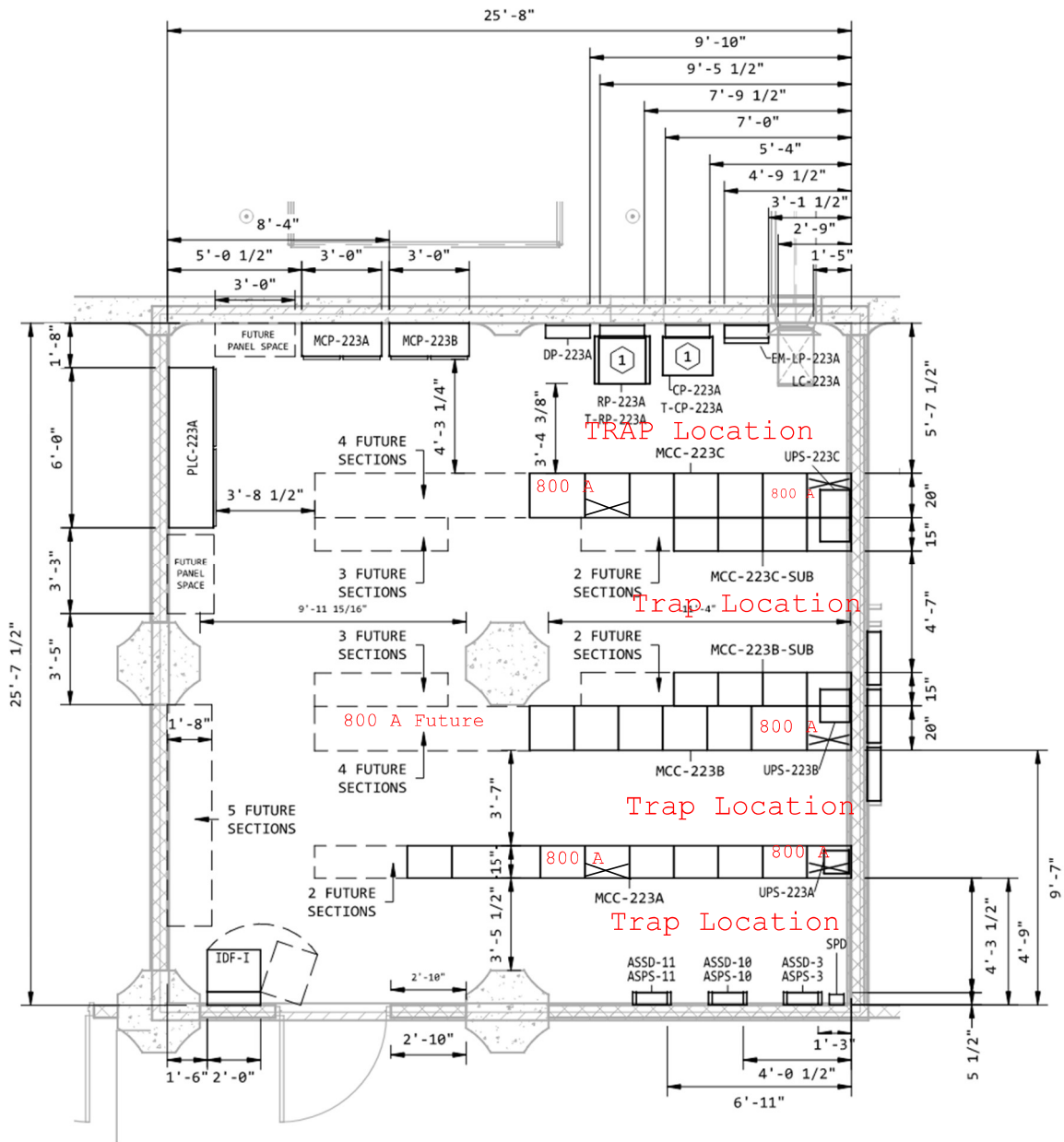
- PI-1751

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Fri Aug 16 09:59:44 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: [SR-7662-NFPA 70-2024](#)
Statement: List item 2 was modified to include disconnects for feeders supplying the building or structure.







Public Comment No. 920-NFPA 70-2024 [Section No. 110.26(C)(3)]

(3) Personnel Doors.

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

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

Statement of Problem and Substantiation for Public Comment

This revision revision should be considered globally as well as here to remove "(s)" and and make the associated word plural is made for correlation with similar requirements and to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

• PI-4234 • PI-4234

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 15:39:50 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7663-NFPA 70-2024](#)

Statement: This second revision brings this section in compliance with NEC Style Manual 3.5.3.



Public Comment No. 1419-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
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
workspace is illuminated by an adjacent light source or as permitted

by 210
by 210 .70(A)(1). . Outdoor remote locations may be controlled by an approved automatic means or switched controlled device. .

Exception No. 1 . for switched receptacles.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
20240822_213552.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	
20240822_213535.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	

Statement of Problem and Substantiation for Public Comment

Outdoor service equipment, switchboards, switchgear, panelboards, or motor control centers may be accessed for maintenance or service at night. A flashlight may be the only means of illumination. For remote locations a simple switch-controlled luminaire would meet this requirement.

There are several PI's with alternate wording for the panel to consider.

Related Item

- 1422-NFPA 70-2024

Submitter Information Verification

Submitter Full Name: Richard Hollander
Organization: Shums Coda Associates
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 22 15:20:45 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: These public comments do not contain technical substantiation as required by the Regulations Governing the Development of NFPA Standards 4.3.4.1d. and 4.3.4.2. Illumination for outdoor installations is not prohibited by the NEC.



Public Comment No. 1422-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~~

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 240~~

by 210.70(A)(1).

Exception No.

~~4~~

1: for switched receptacles.

Exception No.2: Outdoor remote locations may be controlled by an approved automatic means or switched controlled device.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
20240822_213552.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	
20240822_213535.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	

Statement of Problem and Substantiation for Public Comment

Outdoor service equipment, switchboards, switchgear, panelboards, or motor control centers may be accessed for maintenance or service at night. A flashlight may be the only means of illumination. For remote locations a simple switch-controlled luminaire would meet this requirement.

There are several PI's with alternate wording for the panel to consider.

Related Item

- 1419-NFPA 70-2024

Submitter Information Verification

Submitter Full Name: Richard Hollander

Organization: Shums Coda Associates

Street Address:

City:

State:

Zip:

Submittal Date: Thu Aug 22 15:26:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: These public comments do not contain technical substantiation as required by the Regulations Governing the Development of NFPA Standards 4.3.4.1d. and 4.3.4.2. Illumination for outdoor installations is not prohibited by the NEC.



Public Comment No. 2074-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 ~~within~~ for 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.

Statement of Problem and Substantiation for Public Comment

Per the current wording, a person would be allowed to control the working space illumination from outside the working space, which should not be allowed.

As such the term "within" has been revised to "for".

Related Item

- FR-9225

Submitter Information Verification

Submitter Full Name: Daniel Neeser

Organization: Eaton Bussmann Division

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 18:12:03 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7670-NFPA 70-2024](#)

Statement: The term "within" was editorially changed to "for" for clarity. Removal of the (s) brings this section in compliance with NEC Style Manual, section 3.5.3



Public Comment No. 916-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)~~ luminaires by automatic means shall not be permitted 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.

Statement of Problem and Substantiation for Public Comment

This revision to remove "(s)" and and make the associated word plural is made to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

- FR-9225

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 15:14:20 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7670-NFPA 70-2024

Statement: The term "within" was editorially changed to "for" for clarity. Removal of the (s) brings this section in compliance with NEC Style Manual, section 3.5.3



Public Comment No. 1425-NFPA 70-2024 [Section No. 110.26(E)]

(E) Dedicated Equipment Space.

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.

(1) Indoor.

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

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

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

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

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

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

(2) Outdoor.

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

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

(2) Installed in identified enclosures

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

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

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

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

(4) . Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, panelboards, or motor control centers installed. Outdoor remote locations may be controlled by an approved automatic means _ or switched controlled device _.

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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
20240822_213552.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	
20240822_213535.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	

Statement of Problem and Substantiation for Public Comment

Outdoor service equipment, switchboards, switchgear, panelboards, or motor control centers may be accessed for maintenance or service at night. A flashlight may be the only means of illumination. For remote locations a simple switch-controlled luminaire would meet this requirement.

There are several PI's with alternate wording for the panel to consider.

Related Item

• 1427-NFPA 70-2024

Submitter Information Verification

Submitter Full Name: Richard Hollander

Organization: Shums Coda Associates

Street Address:

City:

State:

Zip:

Submittal Date: Thu Aug 22 15:31:07 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: These public comments do not contain technical substantiation as required by the Regulations Governing the Development of NFPA Standards 4.3.4.1d. and 4.3.4.2. Illumination for outdoor installations is not prohibited by the NEC.



Public Comment No. 1427-NFPA 70-2024 [Section No. 110.26(E)]

(E) Dedicated Equipment Space.

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.

(1) Indoor.

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

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

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

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

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

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

(2) Outdoor.

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

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

(2) Installed in identified enclosures

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

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

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

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

(4) Illumination shall be provided for all working spaces about service equipment, switchboards, switchgear, panelboards, or motor control centers installed.

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

Exception: Outdoor remote locations may be controlled by an approved automatic means or switched controlled device.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
20240822_213552.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	
20240822_213535.jpg	These are a service at night. One is with a flash the other is in the dark. This shows why illumination is needed for servicing at night.	

Statement of Problem and Substantiation for Public Comment

Outdoor service equipment, switchboards, switchgear, panelboards, or motor control centers may be accessed for maintenance or service at night. A flashlight may be the only means of illumination. For remote locations a simple switch-controlled luminaire would

meet this requirement.
There are several PI's with alternate wording for the panel to consider.

Related Item

- 1425-NFPA 70-2024

Submitter Information Verification

Submitter Full Name: Richard Hollander
Organization: Shums Coda Associates
Street Address:
City:
State:
Zip:
Submittal Date: Thu Aug 22 15:34:42 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: These public comments do not contain technical substantiation as required by the Regulations Governing the Development of NFPA Standards 4.3.4.1d. and 4.3.4.2. Illumination for outdoor installations is not prohibited by the NEC.



Public Comment No. 2076-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.

Statement of Problem and Substantiation for Public Comment

The term "enclosed" should not be added since FR-8903, which deletes the definition of "enclosed panelboard" has been accepted.

Related Item

- FR-9231

Submitter Information Verification

Submitter Full Name: Daniel Neeser

Organization: Eaton Bussmann Division

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 28 18:15:21 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The term "enclosed panelboard" is appropriate whether there is a definition or not. A panelboard installed in an enclosure is an enclosed panelboard.



Public Comment No. 921-NFPA 70-2024 [Section No. 110.26(F)]

(F) Locked Electrical Equipment Rooms or Enclosures.

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

Statement of Problem and Substantiation for Public Comment

This revision to remove "(s)" and and make the associated word plural is made for correlation with similar requirements and to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

- PI-3933

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 15:44:24 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7676-NFPA 70-2024

Statement: This second revision brings this section in compliance with NEC Style Manual, section 3.5.3.



Public Comment No. 811-NFPA 70-2024 [Section No. 110.26 [Excluding any Sub-Sections]]

Working space, and access to and egress from working space, shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment. Open equipment doors shall not impede access to and egress from the working space. Access or egress is impeded if one or more simultaneously opened equipment doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high when such doors are or can be opened 90 degrees .

Statement of Problem and Substantiation for Public Comment

The need to stipulate that the worst case possible and therefore is the basis for the determination of whether there is 24 inches of access and egress is where equipment doors are or can be open 90 degrees (perpendicular to the equipment) so that access or egress is impeded if one or more simultaneously opened equipment doors, or personnel doors restrict working space access to be less than 610 mm (24 in.) wide and 2.0 m (6½ ft) high

Related Item

- PI-4234

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 05 16:38:52 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7636-NFPA 70-2024

Statement: This revision clarifies the application of the requirement.



Public Comment No. 321-NFPA 70-2024 [Section No. 110.27]

110.27 Guarding of Live Parts.

(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:

- (1) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.
- (2) By permanent, substantial partitions or screens arranged so that only qualified persons have access to the space within reach of the live parts. Any openings in such partitions or screens shall be sized and located so that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
- (3) By location on a balcony, gallery, or platform elevated and arranged so as to exclude unqualified persons.
- (4) By elevation above the floor or other working surface as follows:
 - a. A minimum of 2.5 m (8 ft) for 50 volts to 300 volts between ungrounded conductors
 - b. A minimum of 2.6 m (8 ft 6 in.) for 301 volts to 600 volts between ungrounded conductors
 - c. A minimum of 2.62 m (8 ft 7 in.) for 601 volts to 1000 volts between ungrounded conductors

(B) Prevent Physical Damage.

In locations where electrical equipment is likely to be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage.

(C) Warning Signs.

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

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_20.pdf	NEC_CN20	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 20 appeared in the First Draft Report on First Revision No. 9213.

The Correlating Committee directs that CMP 1 review FR 9213 and the voltage limits identified in Table 110.26(A)(1) and Section 110.27(A)(4). Voltage limits in the table, and list item (A)(4) in 110.27 does not address the full voltage range identified in the title of Part II. Namely, requirements for installations with voltages between 1001 and 1500 V dc are missing. CMP is directed to review all requirements in Article 110 to ensure that there is consistency in the voltage limitations (e.g. 1000 volts ac, 1500 volts dc). Additionally, in 110.27(C) the wording in the last sentence should be revised to state: "The marking shall comply with 110.21(B)" per 4.1.3 of the NEC Style Manual.

Related Item

- First Revision No. 9213

Submitter Information Verification

Submitter Full Name: CC Notes
Organization: NEC Correlating Committee
Street Address:
City:
State:
Zip:
Submission Date: Mon Jul 29 16:53:52 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7679-NFPA 70-2024](#)

Statement: hanged “meet the requirements in” to “comply with” per the NEC Style Manual, section 4.1.3.



Correlating Committee Note No. 20-NFPA 70-2024 [Section No. 110.27]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Tue May 07 11:02:57 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs that CMP 1 review FR 9213 and the voltage limits identified in Table 110.26(A)(1) and Section 110.27(A)(4). Voltage limits in the table, and list item (A)(4) in 110.27 does not address the full voltage range identified in the title of Part II. Namely, requirements for installations with voltages between 1001 and 1500 V dc are missing. CMP is directed to review all requirements in Article 110 to ensure that there is consistency in the voltage limitations (e.g. 1000 volts ac, 1500 volts dc). Additionally, in 110.27(C) the wording in the last sentence should be revised to state: "The marking shall comply with 110.21(B)" per 4.1.3 of the NEC Style Manual.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1723-NFPA 70-2024 [Section No. 110.27(A)]

(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:

- (1) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.
- (2) By permanent, substantial partitions or screens arranged so that only qualified persons have access to the space within reach of the live parts. Any openings in such partitions or screens shall be sized and located so that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
- (3) By location on a balcony, gallery, or platform elevated and arranged so as to exclude unqualified persons.
- (4) ~~By~~ If accessible only to qualified persons and by elevation above the floor or other working surface as follows:
 - (5) A minimum of 2.5 m (8 ft) for 50 volts to 300 volts between ungrounded conductors
 - (6) A minimum of 2.6 m (8 ft 6 in.) for 301 volts to 600 volts between ungrounded conductors
 - (7) A minimum of 2.62 m (8 ft 7 in.) for 601 volts to 1000 volts between ungrounded conductors

Statement of Problem and Substantiation for Public Comment

This public comment is in response to Correlating Committee Note No. 20-NFPA 70-2024 to update the values in 110.27(A)(4), as needed to address 1001 to 1500 volts dc. Unfortunately, any modification to add 1001 to 1500 volts dc to 110.27(A)(4) will require subjective interpretation because there aren't any existing, directly parallel requirements in Art. 110 Part III "Over 1000 volts ac, 1500 volts dc, nominal". The closest Art. 110 Part III requirement to 110.27(A) is Table 110.34(A). However, it is not directly correlative because the 110.34(A) installation is focused on elevation above "work space" and Art. 110 Part III already has requirements for restricting access to high voltage from unqualified persons.

More importantly, this public comment recommends that CMP-1 further consider adding "If accessible only to qualified persons and..." to 110.27(A)(4). This would consider "live parts of electrical equipment" to be considered "guarded against accidental contact" by elevation only in areas accessible only to qualified persons (or via another acceptable means of access control). As a more conservative safety alternative, remove these elevations as permitted methods of guarding altogether, or only permit them under exceptions for specific equipment or specific controlled installations.

In NFPALink, under 110.27(A)(4) in the Enhanced Content notes:

"The NEC also recognizes the guarding of live parts by elevation. The elevation levels correlate with requirements in ANSI/IEEE C2, National Electrical Safety Code® (NESC®)."

It should be noted that the correlating elevations in the NESC are located in Part 1, and the scope for Part 1 in 101 reads:

"Part 1 of this Code covers the electric supply conductors and equipment, along with the associated structural arrangements in electric supply stations, that are accessible only to qualified personnel."

It should be considered whether it is appropriate to correlate the "guarding of live parts by elevation" values in the NESC with the NEC 110.27(A)(4), and, if so, if live conductors should be considered guarded at the elevations listed in 110.27(A)(4) only if located in areas with controlled access.

NOTE: Due to errors in TerraView, the list items a., b., c., in 110.27(A)(4) are showing as added/modified. However, this is an error with the legislative text and list items a., b., c. were not modified as part of this public comment.

Related Item

- Correlating Committee Note No. 20-NFPA 70-2024

Submitter Information Verification

Submitter Full Name: Kevin Rogers

Organization: University of Wisconsin-Madison

Street Address:

City:

State:

Zip:

Submission Date: Mon Aug 26 16:56:46 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected

Resolution: The submitter has not adequately substantiated why this public comment could only apply to qualified persons.



Public Comment No. 1300-NFPA 70-2024 [Section No. 110.27(C)]

(C) Warning Signs.

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

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

Changed “meet the requirements in” to “comply with” per 4.1.3 of the NEC Style Manual.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 20 13:01:37 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7679-NFPA 70-2024](#)

Statement: hanged “meet the requirements in” to “comply with” per the NEC Style Manual, section 4.1.3.



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, 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 NEMA 250, *Enclosures for Electrical Equipment (1000 Volts Maximum)*, for the description of the “Enclosure Type Rating: Ancillary — PW for Pressure Wash.”

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

The requirement in 110.28 is located in Part II. "Not Over 1000 Volts ac, 1500 Volts dc, Nominal". Therefore, the reference for excluding "fences and walls covered in 110.31" can be deleted from 110.28 as those fences and walls are excluded under the voltage demarcation.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 16:04:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7684-NFPA 70-2024](#)

Statement: The revision excludes fences and walls from being classified as an enclosure type.



Public Comment No. 1048-NFPA 70-2024 [Section No. 110.29]

~~110.29 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.~~

Statement of Problem and Substantiation for Public Comment

We believe that this requirement should be deleted and returned as a definition in Article 100. A companion public comment will be submitted to add this as a definition.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 1051-NFPA 70-2024 [New Definition after Definition: Identified (as applied to ...)]	
Public Comment No. 1051-NFPA 70-2024 [New Definition after Definition: Identified (as applied to ...)]	

Related Item

- FR-8975

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 12 21:06:40 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected
Resolution: The definition was not restored in Article 100. In addition, this public comment does not contain technical substantiation as required by the Regulations Governing the Development of NFPA Standards 4.3.4.1d. and 4.3.4.2.



Public Comment No. 456-NFPA 70-2024 [Section No. 110.30]

110.30 General.

Conductors and equipment used on circuits over 1000 volts ac, 1500 volts dc, nominal shall comply with Article 110, Part I 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.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_104.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 104 appeared in the First Draft Report on First Revision No. 9213.

The Correlating Committee directs CMP-1 to review the last sentence that states: "In no case shall" to be written to comply with the NEC Style Manual 3.5.4. Consider the term "Shall not". Consider "Part III of this article shall not apply to equipment on the supply side of the service point."

Related Item

- First Revision No. 9213

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:50:22 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7688-NFPA 70-2024](#)

Statement: Per the NEC Style Manual, section 3.5.4. the wording "in no case shall" was replaced with the term "Shall not".

"Part III of this article shall not apply to equipment on the supply side of the service point."



Correlating Committee Note No. 104-NFPA 70-2024 [Section No. 110.30]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:54:16 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to review the last sentence that states: "In no case shall" to be written to comply with the NEC Style Manual 3.5.4. Consider the term "Shall not". Consider "Part III of this article shall not apply to equipment on the supply side of the service point."

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1669-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 Article ~~225~~ 267 , Part ~~II~~ I .

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Query, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

This appears to have been a clerical mistake in first draft preparation as the reference was correct in NEC 2023 for Article 235 Part IV (NEC 2020 225 Part III). The article applicable to Over 1000V ac, 1500V dc, nominal is Article 267 Part I, which contains all the General requirements for Outside Feeders and Branch Circuits associated with safeguarding and clearances. The reference is updated to reflect the correct re-located 2026 first draft requirement from Article 235 to Article 267.

Related Item

- CC Note No. 268

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:29:07 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7692-NFPA 70-2024

Statement: The Panel accepts the editorial revision for correlation and clarity. The reference is updated to reflect the correct re-located 2026 first draft requirement from Article 235 to Article 267.



Public Comment No. 536-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 Article 225, Part III.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_268.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 268 appeared in the First Draft Report on First Revision No. 9255.

The Correlating Committee directs CMP 1 to review the reference to Article 225 in 110.31(C)(1), as requirements for outdoor branch circuits and feeders over 1000 volts ac or 1500 volts dc are located in Article 267.

Related Item

- First Revision No. 9255

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 23:26:13 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7692-NFPA 70-2024

Statement: The Panel accepts the editorial revision for correlation and clarity. The reference is updated to reflect the correct re-located 2026 first draft requirement from Article 235 to Article 267.



Correlating Committee Note No. 268-NFPA 70-2024 [Section No. 110.31(C)(1)]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Thu May 09 17:56:57 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP 1 to review the reference to Article 225 in 110.31(C)(1), as requirements for outdoor branch circuits and feeders over 1000 volts ac or 1500 volts dc are located in Article 267.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1672-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

<u>Nominal Voltage¹</u>	<u>Minimum Distance to Live Parts</u>	
	<u>m</u>	<u>ft</u>
1001–13,100 ² 1001–13,799	3.05	10
13,800–230,000	4.57	15
Over 230,000	5.49	18

¹ Nominal voltages all reflect both ac and dc, except for Table Note 2

² 1001 volts ac, 1501 volts dc, nominal

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

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

The table notes are added to Table 110.31 to clarify that 1001 to 1500 volts dc is not covered by this Table due to the voltage demarcation in 110.30 for Article 110, Part III.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:46:07 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7691-NFPA 70-2024

Statement: The table notes are added to Table 110.31 to clarify that 1001 to 1500 volts dc is not covered by this Table due to the voltage demarcation in 110.30 for Article 110, Part III. This second revision brings this section in compliance with NEC Style Manual, section 3.5.3.

Editorial correction made by NFPA staff to delete the footnotes and provide voltage systems in line for parallel construction with similar revision made to Tables 110.26(A) and 110.34(A) in accordance with Section 3.5.5 of the



Public Comment No. 922-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~~ locks 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~~ hazards 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

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

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

Statement of Problem and Substantiation for Public Comment

This revision to remove "(s)" and and make the associated word plural is made to comply with the NEC Style Manual as plural is the appropriate tense of the word unless singular is specifically intended. Per 3.5.3, Plural, of the NEC Style manual, "unless referring to a single item of equipment, references to electrical components and parts shall be plural rather than singular. This results in greater consistency and makes it clear that the requirement refers to all components or parts of a given type or class."

Related Item

- FR-8942

Submitter Information Verification

Submitter Full Name: Palmer Hickman

Organization: Electrical Training Alliance

Street Address:

City:

State:

Zip:

Submittal Date: Wed Aug 07 15:48:02 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7691-NFPA 70-2024

Statement: The table notes are added to Table 110.31 to clarify that 1001 to 1500 volts dc is not covered by this Table due to the voltage demarcation in 110.30 for Article 110, Part III. This second revision brings this section in compliance with NEC Style Manual, section 3.5.3.

Editorial correction made by NFPA staff to delete the footnotes and provide voltage systems in line for parallel construction with similar revision made to Tables 110.26(A) and 110.34(A) in accordance with Section 3.5.5 of the NEC Style Manual.



Public Comment No. 1673-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

<u>Nominal</u> <u>Voltage</u> <u>to Ground¹</u>	<u>Minimum Clear Distance</u>		
	<u>Condition 1</u>	<u>Condition 2</u>	<u>Condition 3</u>
4001–2500 V <u>1001²–2500 V</u>	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)

¹ Nominal voltages all reflect both ac and dc except for Table Note 2.

² 1001 volts ac, 1501 volts dc, nominal.

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 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.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

The table notes are added to Table 110.34(A) to clarify that 1001 to 1500 volts dc is not covered by this Table due to the voltage demarcation in 110.30 for Article 110, Part III.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:52:06 EDT 2024

Committee: NEC-P01

Committee Statement

**Committee
Action:** Accepted

Resolution: [SR-7695-NFPA 70-2024](#)

Statement: The table notes are added to Table 110.34(A) to clarify that 1001 to 1500 volts dc is not covered by this Table due to the voltage demarcation in 110.30 for Article 110, Part III.

Editorial correction made by NFPA staff to delete the footnotes and provide voltage systems in line for parallel construction with similar revision made to Tables 110.26(A) and 110.31 in accordance with Section 3.5.5 of the NEC Style Manual.



Public Comment No. 1302-NFPA 70-2024 [Section No. 110.34(B)]

(B) Separation from ~~Low-Voltage Equipment~~ High Voltage Equipment .

Where switches, cutouts, or other equipment operating at not over 1000 volts ac, 1500 volts dc, nominal are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating at over 1000 volts ac , 1500 volts dc , nominal, the high-voltage equipment shall be effectively separated from the space occupied by the ~~low-voltage equipment~~ equipment operating at 1000 volts ac, 1500 volts dc, nominal, or less by a suitable partition, fence, or screen.

Exception: Switches or other equipment operating at 1000 volts ac , 1500 volts dc , nominal, or less and serving only equipment within the high-voltage vault, room, or enclosure shall be permitted to be installed in the high-voltage vault, room, or enclosure without a partition, fence, or screen if accessible to qualified persons only.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

This change is needed to address the voltage demarcation for 1001 volts to 1500 volts dc. It also corrects the use of the term "low voltage" which is intended for less than 1000 volts, ac, or 1500 volts dc, but the term "low voltage" is not defined. The term "high voltage" was not modified because it is now defined in the first draft text as used in this requirement, although it was previously defined in 2023 as only 1000V or less without reference to 1500 volts dc.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Tue Aug 20 13:09:54 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7697-NFPA 70-2024

Statement: The Panel accepts the CC Medium Voltage Task Group recommendation .

This change is needed to address the voltage demarcation for 1001 volts to 1500 volts dc. Low voltage only applies to Article 552. The term "high voltage" was not modified because it is now defined in the first draft text as used in this requirement, although it was previously defined in 2023 as more than 1000V, nominal.



Public Comment No. 448-NFPA 70-2024 [Section No. 110.40]

110.40 Electrical Connections.

For equipment rated over 1000 volts nominal, but not more than 2000 volts 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.

(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 (221°F) 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.

Additional Proposed Changes

File Name	Description	Approved
CN_96.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 96 appeared in the First Draft Report on First Revision No. 9258.

The Correlating Committee directs CMP-1 to review the language used in 110.40(A) pertaining to the term "because". For clarity of the requirement the Code does not need to explain within the requirement why identification is required. Consider removal of the first two words in the

requirement for clarity. Correlation with 110.14 will also needs to be considered.

Related Item

- First Revision No. 9258

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 17:44:51 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7703-NFPA 70-2024

Statement: The text is revised for clarity of the requirement. Additionally, revisions were made to remove terms that are unenforceable or vague as per NEC Style Manual, section 3.2.1.



Correlating Committee Note No. 96-NFPA 70-2024 [Section No. 110.40]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 11:04:36 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to review the language used in 110.40(A) pertaining to the term “because”. For clarity of the requirement the Code does not need to explain within the requirement why identification is required. Consider removal of the first two words in the requirement for clarity. Correlation with 110.14 will also need to be considered.

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

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1670-NFPA 70-2024 [Section No. 110.40(A)]

(A) General.

~~Because of different characteristics of dissimilar metals, devices~~ 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.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Query, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

The phrase "Because of different characteristics of dissimilar metals" should be deleted in the new first draft 110.40(A) as the requirement does not need an explanation. The requirement related to dissimilar metals is already clearly stated in the second sentence.

Related Item

- CC Note No. 96

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:33:08 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: [SR-7703-NFPA 70-2024](#)

Statement: The text is revised for clarity of the requirement. Additionally, revisions were made to remove terms that are unenforceable or vague as per NEC Style Manual, section 3.2.1.



Public Comment No. 546-NFPA 70-2024 [Section No. 110.40(A)]

(A) General.

~~Because of different characteristics of dissimilar metals, Termination devices shall be identified, installed and used 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~~ identified 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.

Statement of Problem and Substantiation for Public Comment

The text is revised for clarity of the requirement. Additionally, revisions were made to replace "suitable" with "identified" that is unenforceable or vague.

Related Item

- PI 9258

Submitter Information Verification

Submitter Full Name: David Hittinger
Organization: Independent Electrical Contractors
Affiliation: IEC Codes and Standards
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 31 09:30:19 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-7703-NFPA 70-2024
Statement: The text is revised for clarity of the requirement. Additionally, revisions were made to remove terms that are unenforceable or vague as per NEC Style Manual, section 3.2.1.



Public Comment No. 1674-NFPA 70-2024 [Section No. 110.40 [Excluding any Sub-Sections]]

For equipment rated over 1000 volts ~~nominal ac~~, 1500 volts dc, ~~nominal~~, but not more than 2000 volts nominal ~~ac or dc~~, 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.

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Query, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

Updated voltage demarcation in the newly revised first draft 110.40 to include 1001 to 1500 volts dc. Also, clarified that the upper demarcation for using 110.14 vs 110.40 is 2000 volts ac or dc which is consistent with the voltage demarcation in 315.1, the Scope section for Article 315, Medium Voltage Conductors, Cable, Cable Joints, and Cable Terminations.

Related Item

- CC Note No. 20

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:55:39 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: [SR-7702-NFPA 70-2024](#)

Statement: 1001 to 1500 volts dc was added for correlation.



Public Comment No. 1023-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.
Transformers shall be protected from overcurrent in accordance with 450.5.~~

Statement of Problem and Substantiation for Public Comment

NEC Article 110 is titled "General Requirements for Electrical Installations" with a scope that indicates the article covers general requirements for examination and approval, installation and use, access to and spaces about electrical conductors and equipment; enclosures intended for personnel entry; and tunnel installations. Part IV includes the requirements for Tunnel Installations over 1,000 Volts, Nominal. Section 110.51 includes the general requirements for the Part. The previous (2023 NEC) and revised first draft overcurrent protection requirements in 110.52 simply refer NEC users to requirements in Articles 430 for motors and Article 450 for transformers which are applicable regardless of this section. There is nothing unique in this section related to a tunnel installation over 1,000 volts. If this section is deleted completely, nothing changes. The requirements in Articles 430 and 450 continue to be applicable.

Related Item

- PI2624 and FR9262

Submitter Information Verification

Submitter Full Name: Donald Cook

Organization: Self

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 11 15:07:58 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7706-NFPA 70-2024

Statement: 110.52 is deleted. "The requirement in 110.52 does not modify the Chapter 4 requirements and is therefore redundant.



Public Comment No. 1671-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.
Transformers shall be protected from overcurrent in accordance with 450.5.~~

Statement of Problem and Substantiation for Public Comment

This Public Comment is submitted on behalf of a Correlating Committee Medium Voltage Task Group consisting of Robert Osborne (Chair), Paul Barnhart, Lou Grahor, Donny Cook, Scott Higgins, Mike Querry, Roger McDaniel, Dave Burns, Rod Belisle, Kevin Rogers, Tony Ricciuti, Paul Knapp, Paul Sullivan, George Smith, Eric Simmon, Kevin Arnold, Larry Wildermuth, and Kyle Krueger.

Requirements in Chapter 4 apply generally. The requirement in 110.52 does not modify the Chapter requirement, so it is recommended for deletion.

Related Item

- CC Note No. 105

Submitter Information Verification

Submitter Full Name: Robert Osborne

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Mon Aug 26 08:39:49 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7706-NFPA 70-2024

Statement: 110.52 is deleted. "The requirement in 110.52 does not modify the Chapter 4 requirements and is therefore redundant."



Public Comment No. 457-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.
Transformers shall be protected from overcurrent in accordance with 450.5.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CN_105.pdf		

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 105 appeared in the First Draft Report.

The Correlating Committee directs CMP-1 to review this requirement and consider if it is applicable to installations over 1000 volts ac, 1500 volts dc.

Related Item

- Correlating Committee Note No. 105

Submitter Information Verification

Submitter Full Name: CC Notes

Organization: NEC Correlating Committee

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 30 18:52:11 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7706-NFPA 70-2024

Statement: 110.52 is deleted. "The requirement in 110.52 does not modify the Chapter 4 requirements and is therefore redundant.



Correlating Committee Note No. 105-NFPA 70-2024 [Section No. 110.52]

Submitter Information Verification

Committee: NEC-AAC

Submittal Date: Wed May 08 12:00:58 EDT 2024

Committee Statement

Committee Statement: The Correlating Committee directs CMP-1 to review this requirement and consider if it is applicable to installations over 1000 volts ac, 1500 volts dc.

Ballot Results

✓ **This item has passed ballot**

12 Eligible Voters

1 Not Returned

11 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

McDaniel, Roger D.

Affirmative All

Ayer, Lawrence S.

Bowmer, Trevor N.

Hickman, Palmer L.

Holub, Richard A.

Jackson, Peter D.

Kendall, David H.

Manche, Alan

Osborne, Robert D.

Porter, Christine T.

Schultheis, Timothy James

Williams, David A.



Public Comment No. 1026-NFPA 70-2024 [Section No. 110.54]

110.54 Bonding and Equipment Grounding Conductors.

~~(A) Grounded and Bonded:~~

All non-current-carrying metal parts of electrical equipment and all metal raceways and cable sheaths shall be solidly grounded and bonded to all metal pipes and rails at the portal and at intervals not exceeding 300 m (1000 ft) throughout the tunnel.

~~(B) Equipment Grounding Conductors:~~

~~An equipment grounding conductor shall be run with circuit conductors inside the metal raceway or inside the multiconductor cable jacket. The equipment grounding conductor shall be permitted to be insulated or bare.~~

Statement of Problem and Substantiation for Public Comment

NEC Article 110 is titled "General Requirements for Electrical Installations" with a scope that indicates the article covers general requirements for examination and approval, installation and use, access to and spaces about electrical conductors and equipment; enclosures intended for personnel entry; and tunnel installations. Part IV includes the requirements for Tunnel Installations over 1,000 Volts, Nominal. The existing 2023 text in 110.54(B) was not unique to tunnel installations over 1,000 volts, added no additional provisions to the other requirements in Article 250, and based on PI 739 seemed to add confusion for some users. Deleting existing first level subdivision (B) and simply including the unique provision in existing first level subdivision (A) as the only text in 110.54 adds clarity.

Related Item

- PI739

Submitter Information Verification

Submitter Full Name: Donald Cook

Organization: self

Street Address:

City:

State:

Zip:

Submittal Date: Sun Aug 11 15:35:18 EDT 2024

Committee: NEC-P01

Committee Statement

Committee Action: Accepted

Resolution: SR-7710-NFPA 70-2024

Statement: Deleting existing first level subdivision (B) and simply including the unique provision in existing first level subdivision (A) as the only text in 110.54 adds clarity. The deleted requirement is covered in Article 250 and is therefore redundant.



Public Comment No. 3-NFPA 70-2024 [Section No. A.1]

A.1

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

<u>Article</u>	<u>Standard Number</u>	<u>Standard Title</u>
110	UL 10C-2016	Positive Pressure Fire Tests of Door Assemblies
	UL 305-2012	Panic Hardware
	UL 486D-2015	Sealed Wire Connector Systems
	UL 2043-2013	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
130	UL 60730-1	Automatic Electrical Controls
210	UL 498-2017	Attachment Plugs and Receptacles
	UL 935-2001	Fluorescent-Lamp Ballasts
	UL 943-2016	Ground Fault Circuit Interrupters
	UL 1029-1994	High-Intensity-Discharge Lamp Ballasts
	UL 1699-2017	Arc-Fault Circuit-Interrupters
225	UL 1699A-2010	Outlet Branch Circuit Outlet Branch Circuit Arc-Fault Circuit-Interrupters
	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
230	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 67-2018	Panelboards
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 218-2015	Fire Pump Controllers
	UL 231-2016	Power Outlets
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 414-2016	Meter Sockets
	UL 486A-486B-2016	Wire Connectors
	UL 486C-2018	Splicing Wire Connectors
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508-2018	Industrial Control Equipment
	UL 508A-2018	Industrial Control Panels
	UL 514B-2012	Conduit, Tubing and Cable Fittings
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 845-2021	Motor Control Centers
	UL 857-2009	Busways
	UL 869A-2006	Reference Standard for Service Equipment
	UL 891-2019	Switchboards
	UL 977-2012	Fused Power-Circuit Devices
	UL 1008-2014	Transfer Switch Equipment
	UL 1008M-2022	Meter-Mounted Transfer Switches
	UL 1008S-2012	Solid-State Transfer Switches
	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
	UL 1062-1997	Unit Substations
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1429-2000	Pullout Switches
	UL 1449-2021	Surge Protective Devices
	UL 1558-2016	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1740-2018	Robots and Robotic Equipment

Article	Standard Number	Standard Title
	UL 1953-2020	Power Distribution Blocks
	UL 2011-2022	Machinery
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 2416-2015	Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
	UL 2446-2004	Unitary Boiler Room Systems
	UL 2565-2013	Industrial Metalworking and Woodworking Machine Tools
	UL 2735-2011	Electric Utility Meters
	UL 2745-2014	Meter Socket Adapters for Communications Equipment
	UL 2876-2022	Remote Racking Devices for Switchgear and Controlgear
	UL 4248-1-2022	Fuseholders — Part 1: General Requirements
	UL 60947-1-2012	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
	UL 61800-5-1-2022	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
240	UL 248-1-2000	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2-2000	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3-2000	Low-Voltage Fuses — Part 2: Class CA and CB Fuses
	UL 248-4-2000	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5-2000	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6-2000	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses
	UL 248-8-2011	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9-2000	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10-2011	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-11-2011	Low-Voltage Fuses — Part 11: Plug Fuses
	UL 248-12-2011	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15-2018	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17-2018	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18-2022	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
	UL 489I-2022	Solid State Molded-Case Circuit Breakers
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 4248-1-2022	Fuseholders — Part 1: General Requirements
242	UL 1449-2021	Surge Protective Devices
250	UL 1-2005	Flexible Metal Conduit
	UL 4-2004	Armored Cable
	UL 5-2016	Surface Metal Raceways and Fittings
	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 153-2014	Portable Electric Luminaires
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 467-2022	Grounding and Bonding Equipment
	UL 486A-486B-2018	Wire Connectors
	UL 486C-2018	Splicing Wire Connectors
	UL 486D-2015	Sealed Wire Connector Systems
	UL 498-2017	Attachment Plugs and Receptacles
	UL 504-2022	Mineral-Insulated, Metal-Sheathed Cable
	UL 514A-2013	Metallic Outlet Boxes
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 797-2007	Electrical Metallic Tubing — Steel
	UL 797A-2014	Electrical Metallic Tubing — Aluminum
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1569-2018	Metal-Clad Cables
	UL 1652-2006	Flexible Metallic Tubing

Article	Standard Number	Standard Title
300	UL 4-2004	Armored Cable
	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 263-2011	Fire Tests of Building Construction and Materials
	UL 504-2022	Mineral-Insulated, Metal-Sheathed Cable
	UL 746C-2018	Polymeric Materials — Use in Electrical Equipment Evaluations
	UL 1569-2018	Metal-Clad Cable
	UL 1581-2001	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 2239-2015	Hardware for Support of Conduit, Tubing and Cable
	UL 2556-2021	Wire and Cable Test Methods
310	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 83B	Switchboard and Switchgear Wires and Cables
	UL 224-2021	Extruded Insulating Tubing
	UL 493-2018	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 854-2020	Service-Entrance Cables
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 1441-2021	Coated Electrical Sleeving
	UL 1581-2021	Reference Standard for Electrical Wires, Cables, and Flexible Cords
312	UL 50-2015	Enclosures for Electrical Equipment
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
314	UL 2808-2020	Energy Monitoring Equipment
	UL 61010-1-2012	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
	UL 61010-2-030-2018	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-030: Particular Requirements for Testing and Measuring Circuits
	UL 50-2015	Enclosures for Electrical Equipment
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 486D-2015	Sealed Wire Connector Systems
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498B-2022	Receptacles with Integral Switching Means
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514A-2013	Metallic Outlet Boxes
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D-2013	Cover Plates for Flush-Mounted Wiring Devices
	UL 1953-2020	Power Distribution Blocks
315	ANSI C119.4	Electric Connectors — Connectors for Use between Aluminum-to-Aluminum and Aluminum-to-Copper Conductors Designed for Normal Operation at or Below 93°C and Copper-to-Copper Conductors Designed for Normal Operation at or Below 100°C
	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 4-2004	Armored Cable
	UL 504-2022	Mineral-Insulated, Metal-Sheathed Cable
	UL 1072-2006	Medium Voltage Power Cables

Article	Standard Number	Standard Title
	UL 1569-2018	Metal-Clad Cable
320	UL 4-2004	Armored Cable
	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 1565-2022	Positioning Devices
	UL 2239-2015	Hardware for the Support of Conduit, Tubing, and Cable
322	UL 486A-486B-2018	Wire Connectors
	UL 498-2017	Attachment Plugs and Receptacles
	UL 514A-2013	Metallic Outlet Boxes
324	UL 486A-486B-2018	Wire Connectors
	UL 498-2017	Attachment Plugs and Receptacles
330	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 66-2023	Fixture Wire
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 1565-2022	Positioning Devices
	UL 1569-2018	Metal-Clad Cables
	UL 2225-2013	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
	UL 2239-2015	Hardware for the Support of Conduit, Tubing, and Cable
332	UL 504-2022	Mineral-Insulated, Metal-Sheathed Cable
	UL 514B-2012	Conduit, Tubing and Cable Fittings
334	UL 719-2015	Nonmetallic-Sheathed Cables
	UL 2256-2001	Nonmetallic Sheathed Cable Interconnects
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
335	UL 2250-2017	Instrumentation Tray Cable
336	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 1277-2018	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 2225-2013	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
337	UL 1309A-2020	Cable for Use in Mobile Installations
338	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 854-2020	Service-Entrance Cables
340	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 493-2018	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
344	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
348	UL 1-2005	Flexible Metal Conduit
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
350	UL 360-2013	Liquid-Tight Flexible Steel Conduit
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
352	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
353	UL 651A-2011	Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit
354	UL 1990-2013	Nonmetallic Underground HDPE Conduit with Conductors
355	UL 2420-2009	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings

Article	Standard Number	Standard Title
	UL 2515A-2011	Supplemental Requirements for Extra-Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
356	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
358	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 797-2007	Electrical Metallic Tubing — Steel
	UL 797A-2014	Electrical Metallic Tubing — Aluminum and Stainless Steel
360	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 1652-2006	Flexible Metallic Tubing
362	UL 1653-2019	Electrical Nonmetallic Tubing
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
366	UL 870-2016	Wireways, Auxiliary Gutters, and Associated Fittings
368	UL 509-2015	Bus Drop Cable
370	ANSI/CSA C22.2 No. 273	Cablebus
371	UL 1386-2022	Flexible Bus Systems
	UL 1387-2022	Flexible Insulated Bus
374	UL 209-2011	Cellular Metal Floor Raceways and Fittings
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
376	UL 870-2016	Wireways, Auxiliary Gutters, and Associated Fittings
	UL 1953-2020	Power Distribution Blocks
378	UL 870-2016	Wireways, Auxiliary Gutters, and Associated Fittings
382	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL183-2009	Manufactured Wiring Systems
	UL 467-2022	Grounding and Bonding Equipment
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M-2020	Marine Shore Power Inlets
	UL 514D-2013	Cover Plates for Flush-Mounted Wiring Devices
	UL 746C-2018	Polymeric Materials — Use in Electrical Equipment Evaluations
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 991-2004	Tests for Safety-Related Controls Employing Solid-State Devices
	UL 1077-2015	Supplementary Protectors for Use in Electrical Equipment
	UL 1699-2017	Arc-Fault Circuit-Interrupters
	UL 1998-2013	Software in Programmable Components
384	UL 5B-2004	Strut-Type Channel Raceways and Fittings
386	UL 5-2016	Surface Metal Raceways and Fittings
388	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
392	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
393	UL 13-2015	Power-Limited Circuit Cables
	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1310-2018	Class 2 Power Units
	UL 2043-2013	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 2577-2013	Suspended Ceiling Power Grid Systems and Equipment
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
396	UL 1072-2006	Medium-Voltage Power Cables
404	ANSI/NEMA WD 6– 2016	Wiring Devices — Dimensional Specifications

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	UL 20-2018	General-Use Snap Switches
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 98A-2014	Open-Type Switches
	UL 363-2011	Knife Switches
	UL 489-2016	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	UL 773-2016	Plug-In Locking Type Photocontrols for Use with Area Lighting
	UL 773A-2016	Nonindustrial Photoelectric Switches for Lighting Control
	UL 917-2006	Clock-Operated Switches
	UL 977-2012	Fused Power-Circuit Devices
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1472-2015	Solid-State Dimming Controls
	UL 1429-2000	Pullout Switches
	UL 60730-1-2016	Automatic Electrical Controls — Part 1: General Requirements
	UL 60730-2-2020	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	UL 60730-2-7-2014	Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
406	UL 498-2017	Attachment Plugs and Receptacles
	UL 498B-2022	Receptacles with Integral Switching Means
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M-2020	Marine Shore Power Inlets
	UL 514A-2013	Metallic Outlet Boxes
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D-2013	Cover Plates for Flush-Mounted Wiring Devices
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 943B-2017	Appliance Leakage-Current Interrupters
	UL 943C-2012	Special Purpose Ground-Fault Circuit-Interrupters
	UL 970-2020	Retail Fixtures and Merchandising Displays
	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment See 406.4(D)(8)
	UL 1286-2022	Office Furnishings Systems
	UL 1310-2018	Class 2 Power Units
	UL 1682-2017	Plugs, Receptacles, and Cable Connectors, of the Pin and Sleeve Type
	UL 1691-2021	Single Pole Locking-Type Separable Connectors
	UL 1699-2017	Arc-Fault Circuit-Interrupters
	UL 1699A-2010	Outlet Branch Circuit AFCIs See 406.4(D)(4)(1)
	UL 2999-2020	Individual Commercial Office Furnishings
408	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 67-2018	Panelboards
	UL 891-2019	Switchboards
	UL 1558-2016	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
409	UL 508-2018	Industrial Control Equipment
	UL 508A-2018	Industrial Control Panels
410	ANSI/CSA-C22.2 No. 184.2	Solid-State Controls for Lighting Systems (SSCLS)
	UL 153-2014	Portable Electric Luminaires
	UL 496-2017	Lampholders
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498B-2022	Receptacles with Integral Switching Means
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts

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	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 542-2005	Fluorescent Lamp Starters
	UL 588-2015	Seasonal and Holiday Decorative Products
	UL 935-2001	Fluorescent-Lamp Ballasts
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 970-2020	Retail Fixtures and Merchandising Displays
	UL 1029-1994	High-Intensity-Discharge Lamp Ballasts
	UL 1029A-2006	Ignitors and Related Auxiliaries for HID Lamp Ballasts
	UL 1574-2004	Track Lighting Systems
	UL 1598-2008	Luminaires
	UL 1598B-2000	Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires, Supplemental Requirements
	UL 1598C-2014	Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits
	UL 1993-2017	Self-Ballasted Lamps and Lamp Adapters
	UL 2388-2017	Flexible Lighting Products
	UL 8750-2015	Light Emitting Diode (LED) Equipment for Use in Lighting Products
	UL 8752-2012	Organic Light Emitting Diode (OLED) Panels
	UL 8753-2013	Field-Replaceable Light Emitting Diode (LED) Light Engines
	UL 8754-2013	Holders, Bases and Connectors for Solid-State (LED) Light Engines and Arrays
	UL 8800-2019	Horticultural Lighting Equipment and Systems
411	UL 1310-2018	Class 2 Power Units
	UL 1838-2003	Low-Voltage Landscape Lighting Systems
	UL 2108-2015	Low-Voltage Lighting Systems
	UL 5085-3-2006	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 22-2008	Amusement and Gaming Machines
	UL 73-2011	Motor-Operated Appliances
	UL 82-2017	Electric Gardening Appliances
	UL 122-2007	Photographic Equipment
	UL 141-2011	Garment Finishing Appliances
	UL 174-2004	Household Electric Storage Tank Water Heaters
	UL 197-2010	Commercial Electric Cooking Appliances
	UL 283-2015	Air Fresheners and Deodorizers
	UL 399-2017	Drinking Water Coolers
	UL 430-2015	Waste Disposers
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 499-2014	Electric Heating Appliances
	UL 507-2017	Electric Fans
	UL 514A-2013	Metallic Outlet Boxes
	UL 515-2015	Electrical Resistance Trace Heating for Commercial Applications
	UL 561-2011	Floor Finishing Machines
	UL 574-2003	Electric Oil Heaters
	UL 621-2010	Ice Cream Makers
	UL 705-2017	Power Ventilators
	UL 710B-2011	Recirculating Systems
	UL 749-2017	Household Dishwashers
	UL 751-2016	Vending Machines
	UL 763-2018	Motor-Operated Commercial Food Preparing Machines

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	UL 778-2016	Motor-Operated Water Pumps
	UL 834-2004	Heating, Water Supply, and Power Boilers — Electric
	UL 858-2014	Household Electric Ranges
	UL 859	Household Electric Personal Grooming Appliances
	UL 875-2009	Electric Dry-Bath Heaters
	UL 921-2020	Commercial Dishwashers
	UL 923-2013	Microwave Cooking Appliances
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 962-2014	Household and Commercial Furnishings
	UL 962A-2018	Furniture Power Distribution Units
	UL 979-2016	Water Treatment Appliances
	UL 982-2019	Motor-Operated Household Food Preparing Machines
	UL 987-2011	Stationary and Fixed Electric Tools
	UL 1017-2017	Vacuum Cleaners, Blower Cleaners, and Household Floor Finishing Machines
	UL 1026-2012	Household Electric Cooking and Food Serving Appliances
	UL 1086-2016	Household Trash Compactors
	UL 1090-2016	Electric Snow Movers
	UL 1206-2003	Electric Commercial Clothes-Washing Equipment
	UL 1240-2005	Electric Commercial Clothes-Drying Equipment
	UL 1278-2014	Movable and Wall- or Ceiling-Hung Electric Room Heaters
	UL 1447-2017	Electric Lawn Mowers
	UL 1450-2010	Motor-Operated Air Compressors, Vacuum Pumps, and Painting Equipment
	UL 1453-2016	Electric Booster and Commercial Storage Tank Water Heaters
	UL 1576-2022	Flashlights and Lanterns
	UL 1594-2008	Sewing and Cutting Machines
	UL 1647-2015	Motor-Operated Massage and Exercise Machines
	UL 1727-2012	Commercial Electric Personal Grooming Appliances
	UL 1776-2002	High-Pressure Cleaning Machines
	UL 2157-2015	Electric Clothes Washing Machines and Extractors
	UL 2158-2018	Electric Clothes Dryers
	UL 2565-2013	Industrial Metalworking and Woodworking Machine Tools
	UL 60335-2-3-2004	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electric Irons
	UL 60335-2-8-2018	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Shavers, Hair Clippers, and Similar Appliances
	UL 60335-2-24-2017	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances, and Ice-Makers
	UL 60335-2-40-2019	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60335-2-67-2017	Household and Similar Electrical Appliances — Safety — Part 2-67: Particular Requirements for Floor Treatment Machines, For Commercial Use
	UL 60335-2-68-2020	Household and Similar Electrical Appliances — Safety — Part 2-68: Particular Requirements for Spray Extraction Machines, for Commercial Use
	UL 60335-2-79-2016	Household and Similar Electrical Appliances — Safety — Part 2-79: Particular Requirements for High Pressure Cleaners and Steam Cleaners
	UL 60730-2-9-2010	Automatic Electrical Controls; Part 2: Particular Requirements for Temperature Sensing Controls
	UL 60745-1-2007	Hand-Held Motor-Operated Electric Tools — Safety — Part 1: General Requirements
	UL 60745-2-1-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-1: Particular Requirements for Drills and Impact Drills
	UL 60745-2-2-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-2: Particular Requirements for Screwdrivers and Impact Wrenches
	UL 60745-2-3-2007	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-3: Particular Requirements for Grinders, Polishers, and Disk-Type Sanders
	UL 60745-2-4-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-4: Particular Requirements for Sanders and Polishers Other Than Disk Type

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	UL 60745-2-5-2012	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-5: Particular Requirements for Circular Saws
	UL 60745-2-6-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-6: Particular Requirements for Hammers
	UL 60745-2-8-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-8: Particular Requirements for Shears and Nibblers
	UL 60745-2-9-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-9: Particular Requirements for Tappers
	UL 60745-2-11-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-11: Particular Requirements for Reciprocating Saws
	UL 60745-2-12-2005	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-12: Particular Requirements For Concrete Vibrators
	UL 60745-2-13-2011	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-13: Particular Requirements For Chain Saws
	UL 60745-2-14-2004	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-14: Particular Requirements for Planers
	UL 60745-2-15-2010	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-15: Particular Requirements for Hedge Trimmers
	UL 60745-2-16-2009	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-16: Particular Requirements for Tackers
	UL 60745-2-17-2011	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-17: Particular Requirements for Routers and Trimmers
	UL 60745-2-18-2005	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-18: Particular Requirements For Strapping Tools
	UL 60745-2-19-2005	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-19: Particular Requirements for Jointers
	UL 60745-2-20-2005	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-20: Particular Requirements for Band Saws
	UL 60745-2-21-2005	Hand-Held Motor-Operated Electric Tools — Safety — Part 2-21: Particular Requirements For Drain Cleaners
	UL 60745-2-22-2012	Hand-Held Motor-Operated electric Tools — Safety — Part 2-22: Particular Requirements for Cut-Off Machines
	UL 60745-2-23-2013	Hand-Held Motor-Operated electric Tools — Safety — Part 2-23: Particular Requirements for Die Grinders and Small Rotary Tools
	UL 62841-1-2015	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 1: General Requirements
	UL 62841-2-1-2018	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 62841-2-2-2016	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 62841-2-3-2021	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 62841-2-4-2015	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 62841-2-5-2016	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 62841-2-8-2016	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 62841-2-9-2016	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 62841-2-10-2017	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-10: Particular Requirements For Hand-Held Mixers
	UL 62841-2-11-2017	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 62841-2-14-2016	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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	UL 62841-2-17-2018	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-17: Particular Requirements For Hand-Held Routers
	UL 62841-2-21-2018	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 62841-3-1-2016	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1: Particular Requirements For Transportable Table Saws
	UL 62841-3-4-2016	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-4: Particular Requirements for Transportable Bench Grinders
	UL 62841-3-6-2016	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 62841-3-9-2021	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-9: Particular Requirements For Transportable Mitre Saws
	UL 62841-3-10-2016	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 62841-3-12-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-12: Particular Requirements for Transportable Threading Machines
	UL 62841-3-13-2018	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-13: Particular Requirements For Transportable Drills
	UL 62841-3-14-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-14: Particular Requirements for Transportable Drain Cleaners
	UL 62841-3-1000-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1000: Particular Requirements for Transportable Laser Engravers
	UL 62841-4-1-2020	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1: Particular Requirements for Chain Saws
	UL 62841-4-2-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-2: Particular Requirements for Hedge Trimmers
	UL 62841-4-1000-2020	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1000: Particular Requirements For Utility Machines
424	UL 499-2014	Electric Heating Appliances
	UL 1042-2009	Electric Baseboard Heating Equipment
	UL 1673-2010	Electric Space Heating Cables
	UL 1693-2010	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995-2015	Heating and Cooling Equipment
	UL 1996-2009	Electric Duct Heaters
	UL 2021-2015	Fixed and Location-Dedicated Electric Room Heaters
	UL 2683-2020	Electric Heating Products for Floor and Ceiling Installation
425	UL 508-2018	Industrial Control Equipment
	UL 2021-2015	Fixed and Location-Dedicated Electric Room Heaters
426	IEEE 515	Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Industrial Applications
	UL 1588-2002	Roof and Gutter De-Icing Cable Units
	UL 2049-2006	Residential Pipe Heating Cable
427	IEEE 515	Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Industrial Applications
	UL 515-2015	Electrical Resistance Heat Tracing for Commercial Applications
	UL 2049-2006	Residential Pipe Heating Cable
430	UL 4-2004	Armored Cable
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508-2018	Industrial Control Equipment
	UL 705-2017	Power Ventilators

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	UL 745-1-2007	Portable Electric Tools
	UL 845-2021	Motor Control Centers
	UL 987-2011	Stationary and Fixed Electric Tools
	UL 1004-1-2012	Rotating Electrical Machines — General Requirements
	UL 1004-2-2014	Impedance Protected Motors
	UL 1004-3-2015	Thermally Protected Motors
	UL 1004-6-2012	Servo and Stepper Motors
	UL 1004-7-2018	Electronically Protected Motors
	UL 1004-8-2013	Inverter Duty Motors
	UL 1004-9-2016	Form Wound and Medium Voltage Rotating Electrical Machines
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1569-2018	Metal Clad Cables
	UL 1812-2013	Ducted Heat Recovery Ventilators
	UL 1815-2012	Nonducted Heat Recovery Ventilators
	UL 2565-2013	Industrial Metalworking and Woodworking Machine Tools
	UL 60034-1-2018	Rotating Electrical Machines — Part 1: Rating and Performance
	UL 60335-2-40-2019	Household and Similar Electrical Appliances — Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60730-2-22-2017	Automatic Electrical Controls — Part 2: Particular Requirements for Thermal Motor Protectors
	UL 60745-1-2007	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 1: General Requirements
	UL 60745-2-1-2004	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 60745-2-2-2004	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 60745-2-3-2007	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 60745-2-4-2004	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 60745-2-5-2012	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 60745-2-8-2004	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 60947-1-2022	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
	UL 60947-4-1-2022	Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters
	UL 60947-4-2-2022	Low-Voltage Switchgear and Controlgear — Part 4-2: Contactors and Motor-Starters — AC Semiconductor Motor Controllers and Starters
	UL 60947-5-1-2022	Low-Voltage Switchgear and Controlgear — Part 5-1: Control Circuit Devices and Switching Elements — Electromechanical Control Circuit Devices
	UL 60947-5-2-2022	Low-Voltage Switchgear and Controlgear — Part 5-2: Control Circuit Devices and Switching Elements — Proximity Switches
	UL 61800-5-1-2012	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62841-2-9-2016	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 62841-2-10-2017	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-10: Particular Requirements For Hand-Held Mixers
	UL 62841-2-11-2017	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 62841-2-14-2016	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-14: Particular Requirements For Hand-Held Planers
	UL 62841-2-17-2018	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 2-17: Particular Requirements For Hand-Held Routers

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	UL 62841-2-21-2018	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 62841-3-1-2016	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1: Particular Requirements For Transportable Table Saws
	UL 62841-3-4-2016	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-4: Particular Requirements for Transportable Bench Grinders
	UL 62841-3-6-2016	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 62841-3-9-2021	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-9: Particular Requirements For Transportable Mitre Saws
	UL 62841-3-10-2016	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 62841-3-12-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-12: Particular requirements for Transportable Threading Machines
	UL 62841-3-13-2018	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-13: Particular Requirements For Transportable Drills
	UL 62841-3-14-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-14: Particular requirements for Transportable Drain Cleaners
	UL 62841-3-1000-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 3-1000: Particular Requirements for Transportable Laser Engravers
	UL 62841-4-1-2020	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1: Particular Requirements for Chain Saws
	UL 62841-4-2-2019	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-2: Particular Requirements for Hedge Trimmers
	UL 62841-4-1000-2020	Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery — Safety — Part 4-1000: Particular Requirements For Utility Machines
440	UL 98-2016	Enclosed and Dead-Front Switches
	UL 416-1993	Refrigerated Medical Equipment
	UL 484-2014	Room Air Conditioners
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508-2018	Industrial Control Equipment
	UL 541-2016	Refrigerated Vending Machines
	UL 563-2009	Ice Makers
	UL 1429-2000	Pullout Switches
	UL 1995-2015	Heating and Cooling Equipment
	UL 60335-2-24-2017	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers
	UL 60335-2-40-2019	Household and Similar Electrical Appliances, Part 2: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
	UL 60335-2-89-2017	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 60947-4-1-2022	Low-Voltage Switchgear and Controlgear — Part 4-1: Contactors and Motor-Starters — Electromechanical Contactors and Motor-Starters
	UL 60947-4-2-2022	Low-Voltage Switchgear and Controlgear — Part 4-2: Contactors and Motor-Starters — AC Semiconductor Motor Controllers and Starters
	UL 61800-5-1-2012	Adjustable Speed Electrical Power Drive Systems — Part 5-2: Safety Requirements — Functional
445	UL 508-2018	Industrial Control Equipment
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 943C-2012	Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-4-2018	Electric Generators
	UL 1741-2021	Inverters, Converters, Controllers, and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200-2012	Stationary Engine Generator Assemblies

Article	Standard Number	Standard Title
450	UL 10C-2016	Positive Pressure Fire Tests of Door Assemblies
	UL 305-2012	Panic Hardware
	UL 340-2017	Tests for Comparative Flammability of Liquids
	UL 60730-2-14-2013	Automatic Electrical Controls; Part 2: Particular Requirements for Electric Actuators
480	UL 10C-2016	Positive Pressure Fire Tests of Door Assemblies
	UL 305-2012	Panic Hardware
	UL 1642-2020	Lithium Batteries
	UL 1973-2022	Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
	UL 1989-2013	Standby Batteries
	UL 2054-2021	Household and Commercial Batteries
	UL 4127-2014	Low Voltage Battery Cable
	UL 4128-2020	Intercell and Intertier Connectors for use in Electrochemical Battery System Applications
490	UL 347-2020	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A-2021	Medium Voltage Power Conversion Equipment
500	UL 347C-2014	Medium Voltage Solid State Resistive Load Controllers, Up to 15kV
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	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 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 496-2024	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674-2022	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 698A-2018	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 783-2003	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823-2006	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844-2012	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 913-1997	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
	UL 1203-2013	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1389-2019	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations
	UL 1836-2022	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 2225-2013	Cable and Cable Fittings for Use in Hazardous (Classified) Locations
	UL 60079-28-2017	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation.
	UL 60079-29-1-2019	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4-2018	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1-2017	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33-2021	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201-2017	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	UL 121303-2020	Guide for Use of Detectors for Flammable Gases
	UL 122001-2014	General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations
	UL 122701-2022	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids

Article	Standard Number	Standard Title
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 496-2024	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674-2022	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 783-2003	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823-2006	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844-2012	Luminaires for Use in Hazardous (Classified) Locations
	UL 1072-2006	Medium-Voltage Power Cables
	UL 1203-2013	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1277-2018	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 1309A-2020	Cable for Use in Mobile Applications
	UL 1836-2022	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 2225-2013	Cable and Cable-Fittings for Use in Hazardous (Classified) Locations
	UL 60079-28-2017	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-29-1-2019	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4-2018	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1-2017	Explosive Atmospheres — Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33-2021	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201-2017	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	UL 122001-2014	General Requirements for Electrical Ignition Systems for Internal Combustion Engines in Class I, Division 2 or Zone 2, Hazardous (Classified) Locations
	UL 122701-2022	Requirements for Process Sealing Between Electrical Systems and 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 496-2024	Standard for Purged and Pressurized Enclosures for Electrical Equipment
	UL 674-2022	Electric Motors and Generators for Use in Hazardous (Classified) Locations
	UL 783-2003	Electric Flashlights and Lanterns for Use in Hazardous (Classified) Locations
	UL 823-2006	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844-2012	Luminaires for Use in Hazardous (Classified) Locations
	UL 1203-2013	Explosionproof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	UL 1309A-2020	Cable for Mobile Installations
	UL 1836-2022	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 2225-2013	Cable and Cable-Fittings for Use in Hazardous (Classified) Locations
	UL 60079-28-2017	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1-2017	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33-2021	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 121201-2017	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
503	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	UL 823-2006	Electric Heaters For Use in Hazardous (Classified) Locations
	UL 844-2012	Luminaires for Use in Hazardous (Classified) Locations
	UL 1836-2022	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 60079-30-1-2017	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements

Article	Standard Number	Standard Title
504	UL 121201-2017	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
	UL 698A-2018	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 913-1997	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
505	UL 120202-2014	Recommendations for the Preparation, Content, and Organization of Intrinsic Safety Control Drawings
	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-2020	Cable for Mobile Installations
	UL 2225-2013	Cable and Cable-Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0-2013	Explosive Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-1-2015	Explosive Atmospheres — Part 1: Equipment Protection by Flameproof Enclosures “d”
	UL 60079-2-2017	Explosive Atmospheres — Part 2: Equipment protection by pressurized enclosure “p”
	UL 60079-5-2016	Explosive Gas Atmospheres — Part 5: Type of Protection — Powder Filling “q”
	UL 60079-6-2016	Explosive Atmospheres — Part 6: Equipment Protection by Liquid Immersion “o”
	UL 60079-7-2008	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 60079-11-2013	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety “i”
	UL 60079-13-2022	Explosive Atmospheres — Part 13: Equipment Protection by Pressurized Room “p” and Artificially Ventilated Room “v”
	UL 60079-15-2013	Explosive Atmospheres — Part 15: Equipment Protection by Type of Protection “n”
	UL 60079-18-2015	Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”
	UL 60079-25-2011	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-26-2017	Explosive Atmospheres — Part 26: Equipment with Equipment Protection Level (EPL) Ga
	UL 60079-28-2017	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-29-1-2019	Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases
	UL 60079-29-4-2018	Explosive Atmospheres — Part 29-4: Gas Detectors — Performance Requirements of Open Path Detectors for Flammable Gases
	UL 60079-30-1-2017	Explosive Atmospheres — Part 30-1: Electrical Resistance Trace Heating — General and Testing Requirements
	UL 60079-33-2021	Explosive Atmospheres — Part 33: Equipment Protection by Special Protection “s”
	UL 80079-36-2021	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37-2021	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”
506	UL 121303-2020	Guide for Use of Detectors for Flammable Gases
	UL 122701-2022	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
	IEEE 844.1	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — General, Testing, Marking, and Documentation Requirements
	UL 698A-2018	Industrial Control Panels Relating to Hazardous (Classified) Locations
	UL 2225-2013	Cable and Cable-Fittings for Use in Hazardous (Classified) Locations
	UL 60079-0-2013	Explosive Atmospheres — Part 0: Equipment — General Requirements
	UL 60079-2-2017	Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure “p”
	UL 60079-11-2013	Explosive Atmospheres — Part 11: Equipment Protection by Intrinsic Safety “i”
	UL 60079-18-2015	Explosive Atmospheres — Part 18: Equipment Protection by Encapsulation “m”
	UL 60079-25-2011	Explosive Atmospheres — Part 25: Intrinsically Safe Electrical Systems
	UL 60079-28-2017	Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation
	UL 60079-30-1-2017	Explosive Atmospheres — Electrical Resistance Trace Heating — General and Testing Requirements

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	UL 60079-31-2015	Explosive Atmospheres — Part 31: Equipment Dust Ignition Protection by Enclosure “t”
	UL 60079-33-2021	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 80079-36-2021	Explosive Atmospheres — Part 36: Non-Electrical Equipment for Explosive Atmospheres — Basic Method and Requirements
	UL 80079-37-2021	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 1389-2019	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations
516	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	UL 844-2012	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
	UL 5-2016	Surface Metal Raceways and Fittings
	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL 467-2022	Grounding and Bonding Equipment
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1022-2012	Line Isolation Monitors
	UL 1047-2015	Isolated Power Systems Equipment
	UL 1286-2022	Office Furnishing Systems
	UL 2930-2020	Cord-and-Plug-connected Health Care Facility Outlet Assemblies
	UL 60601-1-2003	Medical Electrical Equipment — Part 1: General Requirements for Safety
	UL 122701-2022	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
518	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 943C-2012	Special Purpose Ground-Fault Circuit-Interrupters
	UL 2305-2001	Exhibition Display Units, Fabrication and Installation
520	UL 62-2018	Flexible Cords and Cables
	UL 334-2022	Theater Lighting Distribution and Control Equipment
	UL 489-2016	Attachment Plugs and Receptacles
	UL 1573-2003	Stage and Studio Luminaires and Connector Strips
	UL 1640-2016	Portable Power-Distribution Equipment
	UL 1691-2021	Single Pole Locking-Type Separable Connectors
522	UL 13-2015	Power Limited Circuit Cables
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 2250-2017	Instrumentation Tray Cable
525	UL 62-2018	Flexible Cords and Cables
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 943C-2012	Special Purpose Ground-Fault Circuit-Interrupters
	UL 1691-2021	Single Pole Locking-Type Separable Connectors

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530	UL 62-2-18	Flexible Cords and Cables
	UL 1479-2-15	Fire Tests of Penetration Firestops
	UL 1573-2003	Stage and Studio Luminaires and Connector Strips
	UL 1680-2003	Stage and Lighting Cables
	UL 1691-2021	Single Pole Locking-Type Separable Connectors
	UL 1836-2022	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 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
540	UL 67-2018	Panelboards
	UL 943-2016	Ground-Fault Circuit Interrupters
	UL 1640-2016	Portable Power-Distribution Equipment
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
545	UL 5-2016	Surface Metal Raceways and Fittings
	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL 5B-2004	Strut-Type Channel Raceways and Fittings
	UL 5C-2016	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 20-2018	General Use Snap Switches
	UL 209-2011	Cellular Metal Floor Raceways and Fittings
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A-2013	Metallic Outlet Boxes
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
547	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62-2018	Flexible Cords and Cables
	UL 514A-2013	Metallic Outlet Boxes
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1598-2008	Luminaires
	UL 2225-2013	Cable and Cable-Fittings for Use in Hazardous (Classified) Locations
550	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 307A-2018	Liquid Fuel-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 307B-2006	Gas-Burning Heating Appliances for Manufactured Homes and Recreational Vehicles
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 467-2022	Grounding and Bonding Equipment
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1462-2006	Mobile Home Pipe Heating Cable
	UL 1598-2008	Luminaires
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit

Article	Standard Number	Standard Title
551	UL 2108-2015	Low-Voltage Lighting Systems
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 62-2018	Flexible Cords and Cables
	UL 231-2016	Power Outlets
	UL 234-2005	Low Voltage Lighting Fixtures for use in Recreational Vehicles
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 467-2022	Grounding and Bonding Equipment
	UL 486C-2018	Splicing Wire Connectors
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 514A-2013	Metallic Outlet Boxes
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D-2013	Cover Plates for Flush-Mounted Wiring Devices
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1004-4-2018	Electric Generators
	UL 1008-2014	Transfer Switch Equipment
	UL 1008M-2022	Transfer Switch Equipment, Meter Mounted
	UL 1008S-2012	Solid-State Transfer Switches
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1449-2021	Surge Protective Devices
	UL 1598-2008	Luminaires
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 60730-1-2009	Automatic Electrical Controls; Part 1: General Requirements
	UL 60730-2-9-2010	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 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 62-2018	Flexible Cords and Cables
	UL 67-2018	Panelboards
	UL 231-2016	Power Outlets
	UL 234-2005	Low Voltage Lighting Fixtures for Use in Recreational Vehicles
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 430-2015	Waste Disposers
	UL 467-2022	Grounding and Bonding Equipment
	UL 514A-2013	Metallic Outlet Boxes
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 916-2015	Energy Management Equipment
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1004-4-2018	Electric Generators

Article	Standard Number	Standard Title
555	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1563-2009	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1598-2008	Luminaires
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2108-2015	Low Voltage Lighting Systems
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 231-2016	Power Outlets
	UL 486D-2015	Sealed Wire Connector Systems
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676-2015	Underwater Luminaires and Submersible Junction Boxes
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
	UL 1399	Leakage Current Measurement Devices for Use in Marina Applications
	UL 1650-2015	Portable Power Cable
590	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 496-2017	Lampholders
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 588-2015	Seasonal and Holiday Decorative Products
	UL 817-2015	Cord Sets
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1088-2015	Temporary Lighting Strings
	UL 1377-2019	Wire used in Low Voltage Seasonal Lighting Products In Circuits With a Maximum Available Power of 15W
600	UL 1640-2016	Portable Power-Distribution Equipment
	UL 1-2005	Flexible Metal Conduit
	UL 5-2016	Surface Metal Raceways and Fittings
	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL 13-2015	Power-Limited Circuit Cables
	UL 48-2011	Electric Signs
	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 98B-2015	Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19-2015	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 489B-2016	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems
	UL 508I-2015	Disconnect Switches Intended for Use in Photovoltaic Systems
	UL 814-2011	Gas-Tube-Sign Cable
	UL 879-2009	Electric Sign Components
	UL 879A-2012	LED Sign and Sign Retrofit Kits
	UL 879B-2002	Polymeric Enclosure Systems for the Splice Between Neon Tubing Electrode Leads and GTO Cable, and the GTO Cable Leading to the Splice
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1310-2018	Class 2 Power Units
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1699B-2018	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2161-2016	Neon Transformers and Power Supplies
	UL 2703-2015	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3003-2015	Distributed Generation Cables

Article	Standard Number	Standard Title
604	UL 3703-2015	Solar Trackers
	UL 4703-2014	Photovoltaic Wire
	UL 6703-2014	Connectors for Use in Photovoltaic Systems
	UL 7103-2019	Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703-2011	Concentrator Photovoltaic Modules and Assemblies
	UL 9703-2018	Distributed Generation Wiring Harnesses
	UL 61730-1-2022	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements For Construction
	UL 61730-2-2022	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements For Testing
	UL 62109-2014	Power Converters for Use in Photovoltaic Power Systems — Part 1: General Requirements
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 1-2005	Flexible Metal Conduit
	UL 4-2004	Armored Cable
	UL 5-2016	Surface Metal Raceways and Fittings
	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL 5B-2004	Strut-Type Channel Raceways and Fittings
	UL 5C-2016	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 62-2018	Flexible Cords and Cables
	UL 183-2009	Manufactured Wiring Systems
	UL 209-2011	Cellular Metal Floor Raceways and Fittings
605	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 797-2007	Electrical Metallic Tubing — Steel
	UL 797A-2014	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 857-2009	Busways
	UL 1569-2018	Metal-Clad Cables
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
	UL 962-2014	Household and Commercial Furnishings
	UL 1286-2022	Office Furnishings Systems
	UL 1310-2018	Class 2 Power Units
	UL 2999-2020	Individual Commercial Office Furnishings
610	UL 5085-3-2006	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 62-2018	Flexible Cords and Cables
620	UL 2273-2019	Festoon Cable
	UL 62-2018	Flexible Cords and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 104-2016	Elevator Door Locking Devices and Contacts
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508-2018	Industrial Control Equipment
	UL 508A-2018	Industrial Control Panels
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1310-2018	Class 2 Power Units
	UL 1449-2021	Surge Protective Devices
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556-2021	Wire and Cable Test Methods
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
625	UL 62-2018	Flexible Cords and Cables
	UL 1650-2015	Portable Power Cable
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2202-2022	DC Charging Equipment for Electric Vehicles

Article	Standard Number	Standard Title
626	UL 2231-1-2012	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 1: General Requirements
	UL 2231-2-2012	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits — Part 2: Particular Requirements for Protection Devices for Use in Charging Systems
	UL 2251-2017	Plugs, Receptacles and Couplers for Electrical Vehicles
	UL 2580-2020	Batteries for Use in Electric Vehicles
	UL 2594-2022	Electric Vehicle Supply Equipment
	UL 9741-2021	Electric Vehicle Power Export Equipment (EVPE)
	UL 60730-1	Automatic Electrical Controls
	UL 62-2018	Flexible Cords and Cables
	UL 231-2016	Power Outlets
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F-2020	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 1651-2015	Optical Fiber Cable
	UL 1686-2012	Pin and Sleeve Configurations
630	UL 551-2009	Transformer-Type Arc-Welding Machines
640	UL 13-2015	Power Limited Circuit Cables
	UL 62-2018	Flexible Cords and Cables
645	UL 813-1996	Commercial Audio Equipment
	UL 1310-2018	Class 2 Power Units
	UL 1419-2016	Professional Video and Audio Equipment
	UL 1492-1996	Audio-Video Products and Accessories
	UL 1711-2006	Amplifiers for Fire Protective Signaling Systems
	UL 2269-2021	Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
	UL 6500-1999	Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use
	UL 60065-2015	Audio, Video and Similar Electronic Apparatus — Safety Requirements
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 38-2008	Manual Signaling Boxes for Fire Alarm Systems
	UL 268-2023	Smoke Detectors for Fire Alarm Systems
	UL 444-2017	Communications Cables
	UL 464-2016	Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 497B-2004	Protectors for Data Communications and Fire Alarm Circuits
	UL 833-2021	Control Units and Accessories for Fire Alarm Systems
	UL 864-2014	Control Units and Accessories for Fire Alarm Systems
	UL 1424-2015	Cables for Power-Limited Fire-Alarm Circuits
	UL 1425-2015	Cables for Non-Power-Limited Fire-Alarm Circuits
	UL 1449-2021	Surge Protective Devices
	UL 1480-2016	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1638-2016	Visible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
	UL 1651-2015	Optical Fiber Cable
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1690-2015	Data-Processing Cable
	UL 1778-2014	Uninterruptible Power Systems
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
	UL 60950-1-2007	Information Technology Equipment Safety — Part 1: General Requirements
	UL 60950-21-2003	Information Technology Equipment Safety — Part 21: Remote Power Feeding
	UL 60950-22-2017	Information Technology Equipment Safety — Part 22: Equipment to be Installed Outdoors
	UL 60950-23-2007	Information Technology Equipment Safety — Part 23: Large Data Storage Equipment

Article	Standard Number	Standard Title
646	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 10C-2016	Positive Pressure Fire Tests of Door Assemblies
	UL 62-2018	Flexible Cords and Cables
	UL 67-2018	Panelboards
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 305-2012	Panic Hardware
	UL 347-2020	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508-2018	Industrial Control Equipment
	UL 508A-2018	Industrial Control Panels
	UL 845-2021	Motor Control Centers
	UL 869A-2006	Reference Standard for Service Equipment
	UL 891-2019	Switchboards
	UL 924-2016	Emergency Lighting and Power Equipment
	UL 977-2012	Fused Power-Circuit Devices
	UL 1008-2014	Transfer Switch Equipment
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M-2022	Meter-Mounted Transfer Switches
	UL 1008S-2012	Solid-State Transfer Switches
	UL 1062-1997	Unit Substations
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429-2000	Pullout Switches
	UL 1449-2021	Surge Protective Devices
	UL 1655-2009	Community-Antenna Television Cables
	UL 1989-2013	Standby Batteries
	UL 2755-2018	Modular Data Centers
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
647	UL 1598-2008	Luminaires
650	UL 1310-2018	Class 2 Power Units
	UL 1581-2001	Reference Standard for Electrical Wires, Cables, and Flexible Cords
670	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	ANSI/CSA-C22.2 No. 19085-1	Woodworking machines — Safety — Part 1: Common requirements
	UL 508-2018	Industrial Control Equipment
	UL 61800-5-1-2012	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
675	UL 493-2018	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 1581-2001	Reference Standard for Electrical Wires, Cables, and Flexible Cords
680	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 20-2018	General Use Snap-Switches
	UL 62-2018	Flexible Cords and Cables
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 379-2013	Power Units for Fountain, Swimming Pool, and Spa Luminaires
	UL 467-2022	Grounding and Bonding Equipment
	UL 486D-2015	Sealed Wire Connector Systems
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 676-2015	Underwater Luminaires and Submersible Junction Boxes
	UL 676A-2003	Potting Compounds for Swimming Pool, Fountain, and Spa Equipment
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 943C-2012	Special Purpose Ground-Fault Circuit-Interrupters
	UL 1004-10-2020	Pool Pump Motors

Article	Standard Number	Standard Title
	UL 1081-2016	Swimming Pool Pumps, Filters, and Chlorinators
	UL 1241-2003	Junction Boxes for Swimming Pool Luminaires
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1261-2016	Electric Water Heaters for Pools and Tubs
	UL 1563-2009	Electric Spas, Equipment Assemblies, and Associated Equipment
	UL 1569-2018	Metal-Clad Cables
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1795-2016	Hydromassage Bathtubs
	UL 2420-2009	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2452-2006	Electric Swimming Pool and Spa Cover Operators
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A-2011	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2995-2016	Lifts for Swimming Pools and Spas
	UL 60335-2-1000-2017	Household and Similar Electrical Appliances: Particular Requirements for Electrically Powered Pool Lifts
682	UL 486D-2015	Sealed Wire Connector Systems
	UL 943-2016	Ground-Fault Circuit-Interrupters
	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
	UL 1650-2015	Portable Power Cable
	UL 1838-2003	Low Voltage Landscape Lighting Systems
690	UL 98B-2015	Enclosed and Dead-Front Switches for Use in Photovoltaic Systems
	UL 248-19-2015	Low-Voltage Fuses — Part 19: Photovoltaic Fuses
	UL 467-2022	Grounding and Bonding Equipment
	UL 489B-2016	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems
	UL 508I-2015	Disconnect Switches Intended for Use in Photovoltaic Systems
	UL 1569-2018	Metal-Clad Cables
	UL 1699B-2018	Photovoltaic (PV) DC Arc-Fault Circuit Protection
	UL 1703-2002	Flat-Plate Photovoltaic Modules and Panels
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
	UL 2703-2015	Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels
	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3003-2015	Distributed Generation Cables
	UL 3703-2015	Solar Trackers
	UL 3730-2014	Photovoltaic Junction Boxes
	UL 3741-2020	Photovoltaic Hazard Control
	UL 4703-2014	Photovoltaic Wire
	UL 6703-2014	Connectors for Use in Photovoltaic Systems
	UL 7103-2019	Investigation for Building-Integrated Photovoltaic Roof Coverings
	UL 8703-2011	Concentrator Photovoltaic Modules and Assemblies
	UL 8801-2022	Photovoltaic Luminaire Systems
	UL 9703-2018	Distributed Generation Wiring Harnesses
	UL 9741-2021	Electric Vehicle Power Export Equipment (EVPE)
	UL 61730-1-2022	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements for Construction
	UL 61730-2-2022	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements for Testing
	UL 62109-1-2014	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 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
692	UL 2262-2012	Fuel Cell Modules for Use in Portable and Stationary Equipment
	UL 2262A-2011	Borohydride Fuel Cartridges with Integral Fuel Processing for Use with Portable Fuel Cell Power Systems or Similar Equipment

Article	Standard Number	Standard Title
694	UL 2265-2012	Fuel Cell Power Units and Fuel Storage Containers for Portable Devices
	UL 2265A-2018	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-2006	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 2266-2007	Electromagnetic Compatibility, Electrical Safety, and Physical Protection of Stationary and Portable Fuel Cell Power Systems for Use with Commercial Network Telecommunications Equipment
	UL 2267-2020	Fuel Cell Power Systems for Installation in Industrial Electric Trucks
	UL 467-2022	Grounding and Bonding Equipment
	UL 489C-2012	Molded-Case Circuit Breakers and Molded-Case Switches for Use with Wind Turbines
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2227-2007	Flexible Motor Supply Cable and Wind Turbine Tray Cable
	UL 2736-2010	Single Pole Separable Interconnecting Cable Connectors for Use with Wind Turbine Generating Systems
	UL 4143-2018	Wind Turbine Generator — Life Time Extension (LTE)
	UL 6141-2016	Wind Turbines Permitting Entry of Personnel
	UL 6142-2012	Small Wind Turbine Generating Systems
695	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 218-2015	Fire Pump Controllers
	UL 448-2020	Centrifugal Stationary Pumps for Fire-Protection Service
	UL 448B-2023	Residential Fire Pumps Intended for One- and Two-Family Dwellings and Manufactured Homes
	UL 448C-2023	Stationary, Rotary-Type, Positive-Displacement Pumps for Fire Protection Service
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1004-5-2014	Fire Pump Motors
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1569-2018	Metal-Clad Cables
	UL 1724-2006	Fire Tests for Electrical Circuit Protective Systems
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
700	UL 924-2016	Emergency Lighting and Power Equipment
	UL 1008-2014	Transfer Switch Equipment
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 1449-2021	Surge Protective Devices
	UL 1724-2006	Fire Tests for Electrical Circuit Protective Systems
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
701	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 924-2016	Emergency Lighting and Power Equipment
	UL 1008-2014	Transfer Switch Equipment
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
702	UL 98-2016	Enclosed and Dead-Front Switches
	UL 1008-2014	Transfer Switch Equipment
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M-2022	Meter-Mounted Transfer Switches
705	UL 1008S-2012	Solid-State Transfer Switches
	UL 62-2018	Flexible Cords and Cables
	UL 98-2016	Enclosed and Dead-Front Switches
	UL 486D-2015	Sealed Wire Connector Systems
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1429-2000	Pullout Switches

Article	Standard Number	Standard Title
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 3001	Distributed Energy Resource Systems
	UL 3003-2015	Distributed Generation Cables
	UL 3010	Single Site Energy Systems
	UL 6141-2016	Wind Turbines Permitting Entry of Personnel
	UL 6142-2012	Small Wind Turbine Systems
	UL 9540-2020	Energy Storage Systems and Equipment
	UL 9741-2021	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
706	UL 248-2-2000	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3-2000	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4-2000	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5-2000	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6-2000	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses
	UL 248-8-2011	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9-2000	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10-2011	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-12-2011	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15-2018	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17-2018	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18-2022	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 489H-2017	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, for Use with Direct Current (DC) Microgrids
	UL 1066-2022	Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 9540-2020	Energy Storage Systems and Equipment
708	UL 1-2005	Flexible Metal Conduit
	UL 4-2004	Armored Cable
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 360-2013	Liquid-Tight Flexible Metal Conduit
	UL 493-2018	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	UL 497A-2001	Secondary Protectors for Communications Circuits
	UL 1008-2014	Transfer Switch Equipment
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 1008M-2022	Meter-Mounted Transfer Switches
	UL 1008S-2012	Solid-State Transfer Switches
	UL 1569-2018	Metal-Clad Cables
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
710	UL 1741-2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 8801-2022	Photovoltaic Luminaire Systems
	UL 9540-2020	Energy Storage Systems and Equipment
	UL 9741-2021	Electric Vehicle Power Export Equipment (EVPE)
	UL 62109-1-2014	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 13-2015	Power-Limited Circuit Cables

Article	Standard Number	Standard Title
725	UL 444-2017	Communications Cables
	UL 1424-2015	Cables for Power-Limited Fire-Alarm Circuits
	UL 1651-2015	Optical Fiber Cable
	UL 1666-2007	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke- Release Test for Electrical and Optical-Fiber Cables
	UL 1724-2006	Fire Tests for Electrical Circuit Protective Systems
	UL 2024-2019	Commercial Closed-Circuit Television Equipment
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 2556-2021	Wire and Cable Test Methods
	UL 1310-2018	Class 2 Power Units
	UL 5085-3-2006	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 9990-2021	Information and Communication Technology (ICT) Power Cables
	UL 60730-1	Automatic Electrical Controls
	UL 61010-2-201-2018	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-201: Particular Requirements for Control Equipment
726	UL 61800-5-1-2012	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 1400-1-2022	Fault-Managed Power Systems — Part 1 General Requirements
	UL 1400-2-2022	Fault-Managed Power Systems — Part 2 Requirements for Cables
728	UL 1666-2007	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2556-2021	Wire and Cable Test Methods
	UL 5-2016	Surface Metal Raceways and Fittings
	UL 5A-2015	Nonmetallic Surface Raceways and Fittings
	UL 5B-2004	Strut-Type Channel Raceways and Fittings
	UL 5C-2016	Surface Raceways and Fittings for Use with Data, Signal, and Control Circuits
	UL 209-2011	Cellular Metal Floor Raceways and Fittings
	UL 467-2022	Grounding and Bonding Equipment
	UL 514A-2013	Metallic Outlet Boxes
	UL 514C-2014	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 568-2002	Nonmetallic Cable Tray Systems
	UL 884-2016	Underfloor Raceways and Fittings
	UL 1724-2006	Fire Tests for Electrical Circuit Protective Systems
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
760	UL 268-2023	Smoke Detectors for Fire Alarm Systems
	UL 268A-2008	Smoke Detectors for Duct Application
	UL 486C-2018	Splicing Wire Connectors
	UL 497B-2004	Protectors for Data Communication and Fire Alarm Circuits
	UL 1424-2015	Cables for Power-Limited Fire-Alarm Circuits
	UL 1425-2015	Cables for Non-Power-Limited Fire-Alarm Circuits
	UL 1480-2016	Speakers for Fire Alarm and Signaling Systems, Including Accessories
	UL 1666-2007	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
	UL 60730-2-14-2013	Automatic Electrical Controls; Part 2: Particular Requirements for Electric Actuators

Article	Standard Number	Standard Title
770	UL 467-2022	Grounding and Bonding Equipment
	UL 568-2002	Nonmetallic Cable Tray Systems
	UL 1651-2015	Optical Fiber Cable
	UL 2024-2014	Optical Fiber and Communication Cable Raceway
	UL 2196-2017	Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables
800	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
	UL 444-2017	Communications Cables
	UL 467-2022	Grounding and Bonding Equipment
	UL 489A-2008	Circuit Breakers for Use in Communication Equipment
	UL 497-2001	Protectors for Paired-Conductor Communications Circuits
	UL 497A-2001	Secondary Protectors for Communications Circuits
	UL 497C-2001	Protectors for Coaxial Communications Circuits
	UL 497E-2011	Protectors for Antenna Lead-In Conductors
	UL 523-2006	Telephone Service Drop Wire
	UL 568-2002	Nonmetallic Cable Tray Systems
	UL 723-2018	Test for Surface Burning Characteristics of Building Materials
	UL 1581-2001	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 1666-2007	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
	UL 1685-2015	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1724-2006	Outline for Fire Tests for Electrical Circuit Protective Systems
	UL 1863-2004	Communication Circuit Accessories
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
	UL 2043-2013	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 2196-2017	Tests for Fire Resistive Cables
	UL 2556-2021	Wire and Cable Test Methods
	UL 62275-2021	Cable Management Systems — Cable Ties for Electrical Installations
	UL 62368-1	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
805	UL 497-2001	Protectors for Paired-Conductor Communications Circuits
	UL 497A-2001	Secondary Protectors for Communications Circuits
	UL 497C-2001	Protectors for Coaxial Communications Circuits
	UL 497E-2011	Protectors for Antenna Lead-In Conductors
	UL 523-2015	Telephone Service Drop Wire
810	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
	UL 150-2004	Antenna Rotators
	UL 452-2006	Antenna-Discharge Units
	UL 467-2022	Grounding and Bonding Equipment
	UL 497E-2011	Protectors for Antenna Lead-In Conductors
820	UL 444-2017	Communications Cables
	UL 497E-2011	Protectors for Antenna Lead-In Conductors
	UL 1655-2009	Community-Antenna Television Cables
830	UL 444-2017	Communications Cables
	UL 497A-2001	Secondary Protectors for Communications Circuits
	UL 497C-2001	Protectors for Coaxial Communications Circuits

Article	Standard Number	Standard Title
	UL 497E-2011	Protectors for Antenna Lead-In Conductors
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
840	UL 444-2017	Communications Cables
	UL 467-2022	Grounding and Bonding Equipment
	UL 498A-2008	Current Taps and Adapters
	UL 1310-2018	Class 2 Power Units
	UL 1651-2015	Optical Fiber Cable
	UL 1863-2004	Communication Circuit Accessories
	UL 2024-2014	Cable Routing Assemblies and Communications Raceways
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 11(A) and 11(B)	UL 1310-2018	Class 2 Power Units
	UL 1434-1998	Thermistor-Type Devices
	UL 5085-3-2006	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 12(A) and 12(B)	UL 1310-2018	Class 2 Power Units
	UL 1434-1998	Thermistor-Type Devices
	UL 5085-3-2006	Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers
	UL 62368-1-2012	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements

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

Article	Standard Number	Standard Title
110	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure
	UL 969-2017	Marking and Labeling Systems
	UL 9691-2021	Recommended Practice for Nameplates for Use in Electrical Installations
210	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
215	UL 1053-2015	Ground-Fault Sensing and Relaying Equipment
235	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 360	Liquid-Tight Flexible Metal Conduit
	UL 486C-2018	Splicing Wire Connectors
	UL 514B-2012	Conduit, Tubing and Cable Fittings
	UL 651-2011	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1660-2019	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2200-2012	Stationary Engine Generator Assemblies
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2876-2022	Remote Racking Devices for Switchgear and Controlgear
240	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure
245	IEEE C37.09	IEEE Standard Test Procedures for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V
	IEEE C37.41	IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.42	IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories
	NEMA C37.54	NEMA Standard Indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear — Conformance Test Procedures
300	UL 635-2012	Insulating Bushings
314	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
	UL 3004	Outline of Investigation for Medium Voltage Junction Boxes

Article	Standard Number	Standard Title
320	UL 514A-2013	Metallic Outlet Boxes
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
322	UL 5-2016	Surface Metal Raceways and Fittings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
324	UL 5-2016	Surface Metal Raceways and Fittings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
330	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
332	UL 1565-2022	Positioning Devices
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
334	UL 6-2022	Electrical Rigid Metal Conduit — Steel
	UL 6A-2008	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 651-2011	Schedule 40 and 80 Rigid PVC Conduit
	UL 797-2007	Electrical Metallic Tubing — Steel
	UL 797A-2014	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242-2006	Electrical Intermediate Metal Conduit — Steel
	UL 1565-2022	Positioning Devices
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
	UL 2420-2009	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515-2019	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A-2011	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.
335	UL 2250-2017	Instrumentation Tray Cable
337	UL 1565-2022	Positioning Devices
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
340	UL 493-2018	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 635-2012	Insulating Bushings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
344	UL 635-2012	Insulating Bushings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
348	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
350	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
352	UL 635-2012	Insulating Bushings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
353	UL 635-2012	Insulating Bushings
355	UL 635-2012	Insulating Bushings
	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
356	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
358	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
362	UL 2239-2015	Hardware for the Support of Conduit, Tubing and Cable
368	UL 857-2009	Busways
392	UL 568-2002	Nonmetallic Cable Tray Systems
400	UL 62-2018	Flexible Cords and Cables
	UL 498-2017	Attachment Plugs and Receptacles
	UL 498B-2022	Receptacles with Integral Switching Means
	UL 498D-2020	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E-2020	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514B-2012	Conduit, Tubing, and Cable Fittings
	UL 817-2015	Cord Sets and Power-Supply Cords
	UL 1650-2015	Portable Power Cable
	UL 1680-2003	Stage and Lighting Cables
402	UL 66-2023	Fixture Wire
408	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations

Article	Standard Number	Standard Title
409	UL 1436	Outlet Circuit Testers and Other Similar Indicating Devices
	UL 61010-1	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
	UL 61010-2-030	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-30: Particular Requirements for Testing and Measuring Circuits
424	UL 834-2004	Heating, Water Supply, and Power Boilers — Electric
	UL 1693-2010	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995-2015	Heating and Cooling Equipment
	UL 1996-2009	Electric Duct Heaters
	UL 60335-1-2204	Safety of Household and Similar Electrical Appliances, Part 1: General Requirements
	UL 60335-2-40-2019	Household and Similar Electrical Appliances — Safety — Part 2-40: Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
425	UL 834-2004	Heating, Water Supply, and Power Boilers — Electric
426	UL 1588-2002	Roof and Gutter De-Icing Cable Units
427	UL 515-2015	Electrical Resistance Trace Heating for Commercial Applications
	UL 1462-2006	Mobile Home Pipe Heating Cable
	UL 2049-2006	Residential Pipe Heating Cable
430	UL 248-13-2022	Low Voltage Fuses — Part 13: Semiconductor Fuses
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A	Medium Voltage Power Conversion Equipment
445	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
450	IEEE C57.12.00	IEEE Standard for General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
	IEEE C57.12.28	IEEE Standard for Pad-Mounted Equipment — Enclosure Integrity
	IEEE C57.12.29	IEEE C57.12.29 IEEE Standard for Pad-Mounted Equipment — Enclosure Integrity for Coastal Environments
	IEEE C57.16	IEEE Standard for Requirements, Terminology, and Test Code for Dry-Type Air-Core Series-Connected Reactors
	UL 50-2015	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E-2020	Enclosures for Electrical Equipment, Environmental Considerations
	UL 248-1-2022	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2-2000	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3-2000	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4-2000	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5-2000	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-8-2011	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9-2000	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 489-2016	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1561-2011	Dry-Type General Purpose and Power Transformers
	UL 1562	Standard for Transformers, Distribution, Dry-Type Over 600 Volts
	UL 5085-2-2021	Low Voltage Transformers — Part 2: General Purpose Transformers
460	UL 810-2019	Capacitors
	UL 1283-2017	Electromagnetic Interference Filters
	UL 60384-14-2014	Fixed Capacitors for Use in Electronic Equipment — Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains
470	UL 508-2018	Industrial Control Equipment
	UL 1283-2017	Electromagnetic Interference Filters
495	IEEE C37.09	IEEE Standard Test Procedures for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V
	IEEE C37.20.2	IEEE Standard for Metal-Clad Switchgear
	IEEE C37.20.3	IEEE Standard for Metal-Enclosed Interrupter Switchgear (1 kV–38 kV)
	IEEE C37.20.4	IEEE Standard for Indoor AC Switches (1 kV to 38 kV) for Use in Metal-Enclosed Switchgear
	IEEE C37.20.6	IEEE Standard for 4.76 kV to 38 kV Rated Ground and Test Devices Used in Enclosures
	IEEE C37.20.9	IEEE Standard for Metal-Enclosed Switchgear Rated 1 kV to 52 kV Incorporating Gas Insulating Systems

<u>Article</u>	<u>Standard Number</u>	<u>Standard Title</u>
	IEEE C37.23	IEEE Standard for Metal-Enclosed Bus
	IEEE C37.41	IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.42	IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.59	IEEE Standard for Requirements for Conversion of Power Switchgear Equipment
	IEEE C37.60	IEEE International Standard — High-voltage switchgear and controlgear — Part 111: Automatic circuit reclosers for alternating current systems up to and including 38 kV
	IEEE C37.74	IEEE Standard Requirements for Subsurface, Vault, and Padmounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV
	NEMA C37.54	American National Standard for Indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear — Conformance Test Procedures
	NEMA C37.55	American National Standard for Switchgear — Medium Voltage Metal-Clad Assemblies — Conformance Test Procedures
	NEMA C37.57	American National Standard for Switchgear — Metal-Enclosed Interrupter Switchgear Assemblies — Conformance Testing
	NEMA C37.58	American National Standard for Switchgear — Indoor AC Medium Voltage Switches for Use in Metal-Enclosed Switchgear — Conformance Test Procedures
	UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A	Medium Voltage Power Conversion Equipment
	UL 347C	Outline of Investigation for Medium Voltage Solid State Resistive Load Controllers, Up to 15KV
	UL 1008A-2017	Transfer Switch Equipment, Over 1000 Volts
	UL 2748	Arcing Fault Quenching Equipment
	UL 2877	Power Supplies, Medium Voltage
	UL 3004	Outline of Investigation for Medium Voltage Junction Boxes
500	ANSI/IEEE C2	National Electrical Safety Code, Section 127A, Coal Handling Areas
	ANSI/UL 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
	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 30-2024	Flammable and Combustible Liquids Code
	NFPA 32-2021	Standard for Drycleaning Facilities
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 35-2021	Standard for the Manufacture of Organic Coatings
	NFPA 36-2025	Standard for Solvent Extraction Plants
	NFPA 45-2024	Standard on Fire Protection for Laboratories Using Chemicals
	NFPA 55-2026	Compressed Gases and Cryogenic Fluids Code
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 59-2024	Utility LP-Gas Plant Code
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 497-2024	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

Article	Standard Number	Standard Title
	NFPA 499-2024	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	NFPA 780-2026	Standard for the Installation of Lightning Protection Systems
	NFPA 820-2024	Standard for Fire Protection in Wastewater Treatment and Collection Facilities
	UL 60079-29-2-2018	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	UL 120002-2022	Certificate Standard for AEx Equipment for Hazardous (Classified) Locations
	UL 120101-2019	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303-2020	Guide for Combustible Gas Detection as a Method of Protection
501	UL 62-2018	Flexible Cord and Cable
	UL 504-2022	Mineral-Insulated, Metal-Sheathed Cable
503	NFPA 505-2024	Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations
504	ISA-RP 12.06.01	Recommended Practice for Wiring Methods for Hazardous (Classified) Locations Instrumentation — Part 1: Intrinsic Safety
505	ANSI/API RP 14FZ	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations
	API RP 505	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	EI 15	Model Code of Safe Practice, Part 15: Area Classification Code for Installations Handling Flammable Fluids
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-60079-10-1 (12.24.01)	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive gas atmospheres
	ISA-60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30-2024	Flammable and Combustible Liquids Code
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 497-2024	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 780-2026	Standard for the Installation of Lightning Protection Systems
	UL 80079-20-1-2020	Explosive Atmospheres — Part 20-1: Material Characteristics for Gas and Vapour Classification — Test Methods and Data
	UL 120101-2019	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303-2020	Guide for Use of Detectors for Flammable Gases
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 499-2024	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

<u>Article</u>	<u>Standard Number</u>	<u>Standard Title</u>
511	NFPA 30A-2024	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 88A-2023	Standard for Parking Structures
512	ICC IFC	International Fire Code
	NFPA 1-2023	Fire Code
	NFPA 30-2024	Flammable and Combustible Liquids Code
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 36-2025	Standard for Solvent Extraction Plants
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 70B-2023	Standard for Electrical Equipment Maintenance
	NFPA 497-2024	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 30-2024	Flammable and Combustible Liquids Code
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 409-2022	Standard on Aircraft Hangars
514	NFPA 2-2023	Hydrogen Technologies Code
	NFPA 30A-2024	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 52-2023	Vehicular Natural Gas Fuel Systems Code
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 59-2024	Utility LP-Gas Plant Code
	NFPA 303-2026	Fire Protection Standard for Marinas and Boatyards
515	NFPA 30-2024	Flammable and Combustible Liquids Code
516	NFPA 13-2025	Standard for the Installation of Sprinkler Systems
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 91-2026	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
	NFPA 701-2023	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
620	UL 4-2004	Armored Cable
	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 66-2023	Fixture Wire
	UL 504-2022	Mineral Insulated Wire
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 1569-2018	Metal-Clad Cable
625	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
630	UL 1276-2015	Welding Cable
650	UL 1651-2015	Optical Fiber Cable
660	UL 62-2018	Flexible Cords and Cables
	UL 817-2015	Cord Sets and Power Supply Cords
668	UL 4-2004	Armored Cable
	UL 62-2018	Flexible Cords and Cables
670	UL 1740-2018	Standard for Robots and Robotic Equipment
	UL 2011-2022	Machinery
	UL 3100	Standard for Automated Mobile Platforms (AMPs)
675	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 1263-2020	Irrigation Cable
690	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
691	UL 3001-2023	Distributed Energy Generation and Storage Systems

<u>Article</u>	<u>Standard Number</u>	<u>Standard Title</u>
	UL 3010	Single Site Energy Systems
692	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
694	UL 44-2018	Thermoset-Insulated Wires and Cables
	UL 62-2018	Flexible Cords and Cables
	UL 83-2017	Thermoplastic-Insulated Wires and Cables
	UL 83A-2016	Fluoropolymer Insulated Wire
	UL 1063-2017	Machine-Tool Wires and Cables
	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
700	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3008	Automatic Interconnection Switches for Emergency Systems
701	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3008	Automatic Interconnection Switches for Emergency Systems
702	UL 3001-2023	Distributed Energy Generation and Storage Systems
705	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems
708	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure
710	UL 3001-2023	Distributed Energy Generation and Storage Systems
	UL 3010	Single Site Energy Systems

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Annex_A_Public_Comment_2026_NEC_2024-08-21.pdf	Informative Annex A Product Safety Standards - Tables A.1(a) and A.1(b)	

Statement of Problem and Substantiation for Public Comment

Revise Annex A Tables A.1(a) and A.1(b) with proposed changes in the attached file as follows:

1. UL standard publication dates have been replaced with UL standard's most recent edition number. Note that non-UL standards are not included in this public comment.
2. UL standard titles have been updated to match the current titles.
3. UL standards have been added or deleted based on proposed changes in the first draft.

Related Item

• Annex A •

Submitter Information Verification

Submitter Full Name: Charles Mercier
Organization: UL Standards & Engagement
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City:
State:
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Submittal Date: Wed Jul 10 09:42:12 EDT 2024
Committee: NEC-P01

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-7501-NFPA 70-2024

Statement: Table A.1 provides a list of NFPA publications referenced in this code. Table A.2 provides a list of product safety standards used for product listing where that listing is required by this code. Table A.3 provides a list of other publications referenced in this code.

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

Article	Standard Number	Standard Title
110	UL 10C, third edition	Positive Pressure Fire Tests of Door Assemblies
	UL 305, sixth edition	Panic Hardware
	UL 486D, seventh edition	Sealed Wire Connector Systems
	UL 2043, fifth edition	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
130	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
	<u>UL 3141, first edition</u>	<u>Power Control Systems</u>
	UL 60730-1, fifth edition	<u>Automatic Electrical Controls — Part 1: General Requirements</u>
210	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 935, tenth edition	Fluorescent-Lamp Ballasts
	UL 943, fifth edition	Ground Fault Circuit Interrupters
	UL 1029, fifth edition	High-Intensity-Discharge Lamp Ballasts
225	UL 1699, third edition	Arc-Fault Circuit-Interrupters
	UL 1699A, second edition	<u>Outlet Branch Circuit-Outlet Branch Circuit Arc-Fault Circuit-Interrupters</u>
	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
230	UL 360, seventh edition	Liquid-Tight Flexible Metal Conduit
	UL 651, eighth edition	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
	UL 1660, sixth edition	Liquid-Tight Flexible Nonmetallic Conduit
	UL 2515, second edition	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 67, thirteenth edition	Panelboards
	UL 98, fourteenth edition	Enclosed and Dead-Front Switches
	UL 218, third edition	Fire Pump Controllers
	UL 231, tenth edition	Power Outlets
	UL 360, seventh edition	Liquid-Tight Flexible Metal Conduit
	UL 414, ninth edition	Meter Sockets
	UL 486A-486B, third edition	Wire Connectors
	UL 486C, eighth edition	Splicing Wire Connectors
	UL 489, thirteenth edition	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 508, eighteenth edition	Industrial Control Equipment
	UL 508A, third edition	Industrial Control Panels
	UL 514B, sixth edition	<u>Conduit, Tubing, and Cable Fittings</u>
	UL 651, eighth edition	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
	UL 845, sixth edition	Motor Control Centers
	UL 857, thirteenth edition	Busways
	UL 869A, fourth edition	Reference Standard for Service Equipment
	UL 891, twelfth edition	Switchboards
	UL 977, fifth edition	Fused Power-Circuit Devices
	UL 1008, ninth edition	Transfer Switch Equipment
	UL 1008M, first edition	<u>Transfer Switch Equipment, Meter-Mounted Meter-Mounted Transfer Switches</u>
	UL 1008S, first edition	Solid-State Transfer Switches
	UL 1053, seventh edition	Ground-Fault Sensing and Relaying Equipment
	UL 1062, third edition	Unit Substations
	UL 1066, fifth edition	<u>Power Circuit Breakers up to 1000 V AC and 1500 V DC Used in Enclosures-Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures</u>
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
	UL 1429, fourth edition	Pullout Switches
	UL 1449, fifth edition	Surge Protective Devices
	UL 1558, fifth edition	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
	UL 1660, sixth edition	Liquid-Tight Flexible Nonmetallic Conduit
	UL 1740, fourth edition	Robots and Robotic Equipment
	UL 1953, seventh edition	Power Distribution Blocks
	UL 2011, seventh edition	Machinery
	UL 2200, third edition	Stationary Engine Generator Assemblies
	UL 2416, first edition	Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems
	UL 2446, first edition	Unitary Boiler Room Systems
	UL 2565, first edition	Industrial Metalworking and Woodworking Machine Tools

	UL 2735, first edition	Electric Utility Meters
	UL 2745, first edition	Meter Socket Adapters for Communications Equipment
	UL 2876, first edition	Remote Racking Devices for Switchgear and Controlgear
	UL 4248-1, third edition	Fuseholders — Part 1: General Requirements
	UL 60947-1, sixth edition	Low-Voltage Switchgear and Controlgear — Part 1: General Rules
	UL 61800-5-1, second edition	Adjustable Speed Electrical Power Drive Systems — Part 5-1: Safety Requirements — Electrical, Thermal and Energy
240	UL 248-1, fourth edition	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2, second edition	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3, second edition	Low-Voltage Fuses — Part 2: Class CA and CB Fuses
	UL 248-4, second edition	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5, second edition	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-6, second edition	Low-Voltage Fuses — Part 6: Class H Non-Renewable Fuses
	UL 248-8, third edition	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9, second edition	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 248-10, third edition	Low-Voltage Fuses — Part 10: Class L Fuses
	UL 248-11, third edition	Low-Voltage Fuses — Part 11: Plug Fuses
	UL 248-12, third edition	Low-Voltage Fuses — Part 12: Class R Fuses
	UL 248-15, third edition	Low-Voltage Fuses — Part 15: Class T Fuses
	UL 248-17, fifth edition	Low-Voltage Fuses — Part 17: Class CF Fuses
	UL 248-18, first edition	Low-Voltage Fuses — Part 18: Class CD Fuses
	UL 489, thirteenth edition	Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
	UL 489I, second edition	Solid State Molded-Case Circuit Breakers
	UL 943, fifth edition	Ground-Fault Circuit-Interrupters
	UL 1053, seventh edition	Ground-Fault Sensing and Relaying Equipment
	UL 1066, fifth edition	Power Circuit Breakers up to 1000 V AC and 1500 V DC Used in Enclosures Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
242	UL 4248-1, third edition	Fuseholders — Part 1: General Requirements
250	UL 1449, fifth edition	Surge Protective Devices
	UL 1, eleventh edition	Flexible Metal Conduit
	UL 4, fifteenth edition	Armored Cable
	UL 5, fifteenth edition	Surface Metal Raceways and Fittings
	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 153, thirteenth edition	Portable Electric Luminaires
	UL 360, seventh edition	Liquid-Tight Flexible Metal Conduit
	UL 467, eleventh edition	Grounding and Bonding Equipment
	UL 486A-486B, third edition	Wire Connectors
	UL 486C, eighth edition	Splicing Wire Connectors
	UL 486D, seventh edition	Sealed Wire Connector Systems
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable
	UL 514A, eleventh edition	Metallic Outlet Boxes
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 797, ninth edition	Electrical Metallic Tubing — Steel
	UL 797A, third edition	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
	UL 1569, fifth edition	Metal-Clad Cables
	UL 1652, third edition	Flexible Metallic Tubing
270	UL 1, eleventh edition	Flexible Metal Conduit
	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 360, seventh edition	Liquid-Tight Flexible Metal Conduit
	UL 467, eleventh edition	Grounding and Bonding Equipment
	UL 486A-486B, third edition	Wire Connectors
	UL 486C, eighth edition	Splicing Wire Connectors
	UL 486D, seventh edition	Sealed Wire Connector Systems
	UL 514A, eleventh edition	Metallic Outlet Boxes
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 797, ninth edition	Electrical Metallic Tubing — Steel
	UL 797A, third edition	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
	UL 1569, fifth edition	Metal-Clad Cables
300	UL 4, fifteenth edition	Armored Cable
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables

310	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer Insulated Wire
	UL 263, fourteenth edition	Fire Tests of Building Construction and Materials
	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable
	UL 746C, seventh edition	Polymeric Materials — Use in Electrical Equipment Evaluations
	UL 1569, fifth edition	<u>Metal-Clad Cables</u>
	UL 1581, fourth edition	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 2239, second edition	<u>Hardware for the Support of Conduit, Tubing, and Cable</u>
	UL 2556, fifth edition	Wire and Cable Test Methods
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer Insulated Wire
	UL 83B, first edition	Switchboard and Switchgear Wires and Cables
	UL 224, seventh edition	Extruded Insulating Tubing
	UL 493, tenth edition	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
	<u>UL 504, third edition</u>	<u>Mineral-Insulated, Metal-Sheathed Cable</u>
	UL 854, twelfth edition	Service-Entrance Cables
	UL 1063, ninth edition	Machine-Tool Wires and Cables
312	UL 1441, fifth edition	Coated Electrical Sleeving
	UL 1581, fourth edition	Reference Standard for Electrical Wires, Cables, and Flexible Cords
	UL 50, fourteenth edition	<u>Enclosures for Electrical Equipment, Non-Environmental Considerations</u>
	UL 50E, third edition	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C, fourth edition	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 2808, first edition	Energy Monitoring Equipment
	UL 61010-1, third edition	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
314	UL 61010-2-030, second edition	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-030: Particular Requirements for Testing and Measuring Circuits
	UL 50, fourteenth edition	<u>Enclosures for Electrical Equipment, Non-Environmental Considerations</u>
	UL 50E, third edition	<u>Enclosures for Electrical Equipment, Environmental Considerations</u>
	UL 486D, seventh edition	Sealed Wire Connector Systems
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 498B, first edition	Receptacles with Integral Switching Means
	UL 498D, first edition	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E, first edition	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514A, eleventh edition	Metallic Outlet Boxes
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
315	UL 514C, fourth edition	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D, second edition	Cover Plates for Flush-Mounted Wiring Devices
	UL 1953, seventh edition	Power Distribution Blocks
	ANSI C119.4	Electric Connectors — Connectors for Use between Aluminum-to-Aluminum and Aluminum-to-Copper Conductors Designed for Normal Operation at or Below 93°C and Copper-to-Copper Conductors Designed for Normal Operation at or Below 100°C
	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, fifteenth edition	Armored Cable
	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable
	UL 1072, fourth edition	Medium Voltage Power Cables
320	UL 1569, fifth edition	<u>Metal-Clad Cables</u>
	UL 4, fifteenth edition	Armored Cable
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	<u>UL 83, sixteenth edition</u>	<u>Thermoplastic-Insulated Wires and Cables</u>
	<u>UL 83A, first edition</u>	<u>Fluoropolymer Insulated Wire</u>
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 514C, fourth edition	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	<u>UL 1063, ninth edition</u>	<u>Machine-Tool Wires and Cables</u>

	UL 1565, sixth edition	Positioning Devices
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
322	UL 486A-486B, third edition	Wire Connectors
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 514A, eleventh edition	Metallic Outlet Boxes
324	UL 486A-486B, third edition	Wire Connectors
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
330	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 66, third edition	Fixture Wire
	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer-Insulated Wire
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 1063, ninth edition	Machine-Tool Wires and Cables
	UL 1565, sixth edition	Positioning Devices
	UL 1569, fifth edition	Metal-Clad Cables
	UL 2225, fifth edition	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
332	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
334	UL 719, thirteenth edition	Nonmetallic-Sheathed Cables
	UL 2256, first edition	Nonmetallic Sheathed Cable Interconnects
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
335	UL 2250, third edition	Instrumentation Tray Cable
336	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 1277, sixth edition	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members
	UL 2225, fifth edition	Cables and Cable-Fittings For Use In Hazardous (Classified) Locations
337	UL 1309A, first edition	Cable for Use in Mobile Installations
338	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 854, twelfth edition	Service-Entrance Cables
340	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 493, tenth edition	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
344	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
348	UL 1, eleventh edition	Flexible Metal Conduit
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
350	UL 360, seventh edition	Liquid-Tight Flexible Steel Conduit
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
352	UL 651, eighth edition	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
353	UL 651A, sixth edition	Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit
354	UL 1990, fourth edition	Nonmetallic Underground HDPE Conduit with Conductors
355	UL 2420, first edition	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515, second edition	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A, first edition	Supplemental Requirements for Extra-Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
356	UL 1660, sixth edition	Liquid-Tight Flexible Nonmetallic Conduit
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
358	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 797, ninth edition	Electrical Metallic Tubing — Steel
	UL 797A, third edition	Electrical Metallic Tubing — Aluminum and Stainless Steel
360	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 1652, third edition	Flexible Metallic Tubing
362	UL 1653, third edition	Electrical Nonmetallic Tubing
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
366	UL 870, ninth edition	Wireways, Auxiliary Gutters, and Associated Fittings
368	UL 509, second edition	Bus Drop Cable
370	ANSI/CSA C22.2 No. 273	Cablebus
371	UL 1386, first edition	Flexible Bus Systems
	UL 1387, first edition	Flexible Insulated Bus
374	UL 209, tenth edition	Cellular Metal Floor Raceways and Fittings
	UL 360, seventh edition	Liquid-Tight Flexible Metal Conduit
	UL 1660, sixth edition	Liquid-Tight Flexible Nonmetallic Conduit
376	UL 870, ninth edition	Wireways, Auxiliary Gutters, and Associated Fittings

378	UL 1953, seventh edition	Power Distribution Blocks
382	UL 870, ninth edition	Wireways, Auxiliary Gutters, and Associated Fittings
	UL 5A, fourth edition	Nonmetallic Surface Raceways and Fittings
	UL 183, fourth edition	Manufactured Wiring Systems
	UL 467, eleventh edition	Grounding and Bonding Equipment
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 498D, first edition	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E, first edition	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F, first edition	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M, first edition	Marine Shore Power Inlets
	UL 514D, second edition	Cover Plates for Flush-Mounted Wiring Devices
	UL 746C, seventh edition	Polymeric Materials — Use in Electrical Equipment Evaluations
	UL 943, fifth edition	Ground-Fault Circuit-Interruption
	UL 991, third edition	Tests for Safety-Related Controls Employing Solid-State Devices
	UL 1077, seventh edition	Supplementary Protectors for Use in Electrical Equipment
	UL 1699, third edition	Arc-Fault Circuit-Interruption
	UL 1998, third edition	Software in Programmable Components
384	UL 5B, second edition	Strut-Type Channel Raceways and Fittings
386	UL 5, fifteenth edition	Surface Metal Raceways and Fittings
388	UL 5A, fourth edition	Nonmetallic Surface Raceways and Fittings
392	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations
393	UL 13, fourth edition	Power-Limited Circuit Cables
	UL 50, fourteenth edition	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E, third edition	Enclosures for Electrical Equipment, Environmental Considerations
	UL 514C, fourth edition	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 1310, seventh edition	Class 2 Power Units
	UL 2043, fifth edition	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 2577, first edition	Suspended Ceiling Power Grid Systems and Equipment
	UL 62368-1, third edition	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
396	UL 1072, fourth edition	Medium-Voltage Power Cables
404	ANSI/NEMA WD 6–2016	Wiring Devices — Dimensional Specifications
404	UL 20, fourteenth edition	General-Use Snap Switches
	UL 98, fourteenth edition	Enclosed and Dead-Front Switches
	UL 98A, second edition	Open-Type Switches
	UL 363, eleventh edition	Knife Switches
	UL 489, thirteenth edition	<u>Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures</u> Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches
	UL 773, fifth edition	Plug-In Locking Type Photocontrols for Use with Area Lighting
	UL 773A, sixth edition	Nonindustrial Photoelectric Switches for Lighting Control
	UL 917, fifth edition	Clock-Operated Switches
	UL 977, fifth edition	Fused Power-Circuit Devices
	UL 1066, fifth edition	<u>Power Circuit Breakers up to 1000 V AC and 1500 V DC Used in Enclosures</u> Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
	UL 1472, second edition	Solid-State Dimming Controls
	UL 1429, fourth edition	Pullout Switches
	UL 60730-1, fifth edition	Automatic Electrical Controls — Part 1: General Requirements
	UL 60730-2-7, third edition	Automatic Electrical Controls for Household and Similar Use; — Part 2-7: Particular Requirements for Timers and Time Switches
	UL 60730-2-7, third edition	Automatic Electrical Controls for Household and Similar Use; — Part 2-7: Particular Requirements for Timers and Time Switches
406	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 498B, first edition	Receptacles with Integral Switching Means
	UL 498D, first edition	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E, first edition	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F, first edition	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 498M, first edition	Marine Shore Power Inlets
	UL 514A, eleventh edition	Metallic Outlet Boxes
	UL 514C, fourth edition	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
	UL 514D, second edition	Cover Plates for Flush-Mounted Wiring Devices

	UL 943, fifth edition	Ground-Fault Circuit-Interrupters
	UL 943B, third edition	Appliance Leakage-Current Interrupters
	UL 943C, second edition	Special Purpose Ground-Fault Circuit-Interrupters
	UL 970, first edition	Retail Fixtures and Merchandising Displays
	UL 1053, seventh edition	Ground-Fault Sensing and Relaying Equipment
		See 406.4(D)(8)
	UL 1286, sixth edition	Office Furnishings Systems
	UL 1310, seventh edition	Class 2 Power Units
	UL 1682, fifth edition	Plugs, Receptacles, and Cable Connectors, of the Pin and Sleeve Type
	UL 1691, second edition	Single Pole Locking-Type Separable Connectors
	UL 1699, third edition	Arc-Fault Circuit-Interrupters
	UL 1699A, second edition	Outlet Branch Circuit Arc-Fault Circuit-Interrupters AFCIs
		See 406.4(D)(4)(1)
408	UL 2999, first edition	Individual Commercial Office Furnishings
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 67, thirteenth edition	Panelboards
	UL 891, twelfth edition	Switchboards
	UL 1558, fifth edition	Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
409	UL 508, eighteenth edition	Industrial Control Equipment
	UL 508A, third edition	Industrial Control Panels
410	ANSI/CSA-C22.2 No. 184.2	Solid-State Controls for Lighting Systems (SSCLS)
410	UL 153, thirteenth edition	Portable Electric Luminaires
	UL 496, fourteenth edition	Lampholders
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 498B, first edition	Receptacles with Integral Switching Means
	UL 498D, first edition	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E, first edition	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 498F, first edition	Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
	UL 542, ninth edition	Fluorescent Lamp Starters
	UL 588, nineteenth edition	Seasonal and Holiday Decorative Products
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	UL 1685, fourth edition	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
	UL 1724, third edition	<u>Outline for Fire Tests for Electrical Circuit Protective Systems</u>
	UL 1863, fourth edition	<u>Communications-Circuit Accessories</u>
	UL 2024, fifth edition	Cable Routing Assemblies and Communications Raceways
	UL 2043, fifth edition	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
	UL 2196, second edition	<u>Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables</u> <u>Tests for Fire-Resistive Cables</u>
	UL 2556, fifth edition	Wire and Cable Test Methods
	UL 62275, third edition	Cable Management Systems — Cable Ties for Electrical Installations

	UL 62368-1, third edition	Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
805	UL 497, seventh edition UL 497A, third edition UL 497C, second edition UL 497E, fourth edition UL 523, second edition UL 62368-1, third edition	Protectors for Paired-Conductor Communications Circuits Secondary Protectors for Communications Circuits Protectors for Coaxial Communications Circuits Protectors for Antenna Lead-In Conductors Telephone Service Drop Wire Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
810	UL 150, fourth edition UL 452, seventh edition UL 467, eleventh edition UL 497E, fourth edition	Antenna Rotators Antenna-Discharge Units Grounding and Bonding Equipment Protectors for Antenna Lead-In Conductors
820	UL 444, fifth edition UL 497E, fourth edition	Communications Cables Protectors for Antenna Lead-In Conductors
830	UL 1655, second edition UL 444, fifth edition UL 497A, third edition UL 497C, second edition UL 497E, fourth edition UL 62368-1, third edition	Community-Antenna Television Cables Communications Cables Secondary Protectors for Communications Circuits Protectors for Coaxial Communications Circuits Protectors for Antenna Lead-In Conductors Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
840	UL 444, fifth edition UL 467, eleventh edition UL 498A, second edition UL 1310, seventh edition UL 1651, fourth edition UL 1863, fourth edition UL 2024, fifth edition UL 62368-1, third edition	Communications Cables Grounding and Bonding Equipment Current Taps and Adapters Class 2 Power Units Optical Fiber Cable Communications-Circuit Accessories Cable Routing Assemblies and Communications Raceways Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 11(A) and 11(B)	UL 1310, seventh edition UL 1434, first edition UL 5085-3, first edition UL 62368-1, third edition	Class 2 Power Units Thermistor-Type Devices Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements
Tables 12(A) and 12(B)	UL 1310, seventh edition UL 1434, first edition UL 5085-3, first edition UL 62368-1, third edition	Class 2 Power Units Thermistor-Type Devices Low Voltage Transformers — Part 3: Class 2 and Class 3 Transformers Audio/Video, Information and Communication Technology Equipment — Part 1: Safety Requirements

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

Article	Standard Number, Edition	Standard Title
110	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure
110	UL 969, fifth edition UL 9691, first edition	Marking and Labeling Systems Recommended Practice for Nameplates for Use in Electrical Installations
210	UL 1053, seventh edition	Ground-Fault Sensing and Relaying Equipment
215	UL 1053, seventh edition	Ground-Fault Sensing and Relaying Equipment
235	UL 6, fifteenth edition UL 6A, second edition UL 347, seventh edition UL 360, seventh edition UL 486C, eighth edition UL 514B, sixth edition UL 651, eighth edition UL 1008A, second edition UL 1242, fourth edition UL 1660, sixth edition UL 2200, third edition UL 2515, second edition UL 2876, first edition	Electrical Rigid Metal Conduit — Steel Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel Medium-Voltage AC Contactors, Controllers, and Control Centers Liquid-Tight Flexible Metal Conduit Splicing Wire Connectors Conduit, Tubing, and Cable Fittings Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Transfer Switch Equipment, Over 1000 Volts Electrical Intermediate Metal Conduit — Steel Liquid-Tight Flexible Nonmetallic Conduit Stationary Engine Generator Assemblies Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings Remote Racking Devices for Switchgear and Controlgear
240	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure

245	IEEE C37.09	IEEE Standard Test Procedures for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V
	IEEE C37.41	IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.42	IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories
	NEMA C37.54	NEMA Standard Indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear — Conformance Test Procedures
300	UL 635, third edition	Insulating Bushings
314	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
	UL 3004, second edition	Outline of Investigation for Medium Voltage Junction Boxes
320	UL 514A, eleventh edition	Metallic Outlet Boxes
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
322	UL 5, fifteenth edition	Surface Metal Raceways and Fittings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
324	UL 5, fifteenth edition	Surface Metal Raceways and Fittings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
330	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
332	UL 1565, sixth edition	Positioning Devices
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
334	UL 6, fifteenth edition	Electrical Rigid Metal Conduit — Steel
	UL 6A, second edition	Electrical Rigid Metal Conduit — Aluminum, Red Brass and Stainless Steel
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 651, eighth edition	<u>Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings</u> <u>Schedule 40 and 80 Rigid PVC Conduit</u>
	UL 797, ninth edition	Electrical Metallic Tubing — Steel
	UL 797A, third edition	Electrical Metallic Tubing — Aluminum and Stainless Steel
	UL 1242, fourth edition	Electrical Intermediate Metal Conduit — Steel
	UL 1565, sixth edition	Positioning Devices
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
	UL 2420, first edition	Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515, second edition	Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
	UL 2515A, first edition	Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.
335	UL 2250, third edition	Instrumentation Tray Cable
337	UL 1565, sixth edition	Positioning Devices
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
340	UL 493, tenth edition	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables
342	UL 635, third edition	Insulating Bushings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
344	UL 635, third edition	Insulating Bushings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
348	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
350	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
352	UL 635, third edition	Insulating Bushings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
353	UL 635, third edition	Insulating Bushings
355	UL 635, third edition	Insulating Bushings
	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
356	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
358	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
362	UL 2239, second edition	Hardware for the Support of Conduit, Tubing, and Cable
368	UL 857, thirteenth edition	Busways
392	UL 568, first edition	Nonmetallic Cable Tray Systems
400	UL 62, twentieth edition	Flexible Cords and Cables
	UL 498, sixteenth edition	Attachment Plugs and Receptacles
	UL 498B, first edition	Receptacles with Integral Switching Means
	UL 498D, first edition	Attachment Plugs, Cord Connectors and Receptacles with Arcuate (Locking Type) Contacts
	UL 498E, first edition	Attachment Plugs, Cord Connectors and Receptacles — Enclosure Types for Environmental Protection
	UL 514B, sixth edition	Conduit, Tubing, and Cable Fittings
	UL 817, twelfth edition	Cord Sets and Power-Supply Cords
	UL 1650, first edition	Portable Power Cable

	UL 1680, second edition	Stage and Lighting Cables
	<u>UL 2263, first edition</u>	<u>Electric Vehicle Cable</u>
	<u>NEMA WC 58-2017</u>	<u>Portable and Power Feeder Cables for Use in Mines and Similar Applications</u>
402	UL 66, third edition	Fixture Wire
408	UL 50, fourteenth edition	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E, third edition	Enclosures for Electrical Equipment, Environmental Considerations
409	UL 1436, sixth edition	Outlet Circuit Testers and Other Similar Indicating Devices
	UL 61010-1, third edition	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
	UL 61010-2-030, second edition	Electrical Equipment for Measurement, Control, and Laboratory Use — Part 2-30: Particular Requirements for Testing and Measuring Circuits
424	UL 834, fifth edition	Heating, Water Supply, and Power Boilers — Electric
	UL 1693, third edition	Electric Radiant Heating Panels and Heating Panel Sets
	UL 1995, fifth edition	Heating and Cooling Equipment
	UL 1996, fourth edition	Electric Duct Heaters
	UL 60335-1, sixth edition	Safety of Household and Similar Electrical Appliances, Part 1: General Requirements
	UL 60335-2-40, fourth edition	Household and Similar Electrical Appliances — Safety — Part 2-40: Part 2-40- Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers
425	UL 834, fifth edition	Heating, Water Supply, and Power Boilers — Electric
426	UL 1588, fourth edition	Roof and Gutter De-Icing Cable Units
427	UL 515, second edition	Electrical Resistance Trace Heating for Commercial Applications
	UL 1462, fourth edition	Mobile Home Pipe Heating Cable
	UL 2049, fourth edition	Residential Pipe Heating Cable
430	UL 248-13, third edition	Low Voltage Fuses — Part 13: Semiconductor Fuses
	UL 347, seventh edition	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A, second edition	Medium Voltage Power Conversion Equipment
445	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	<u>UL 3010, first edition</u>	<u>Single Site Energy Systems</u>
450	IEEE C57.12.00	IEEE Standard for General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
	IEEE C57.12.28	IEEE Standard for Pad-Mounted Equipment — Enclosure Integrity
	IEEE C57.12.29	IEEE C57.12.29 IEEE Standard for Pad-Mounted Equipment — Enclosure Integrity for Coastal Environments
	IEEE C57.16	IEEE Standard for Requirements, Terminology, and Test Code for Dry-Type Air-Core Series-Connected Reactors
450	UL 50, fourteenth edition	Enclosures for Electrical Equipment, Non-Environmental Considerations
	UL 50E, third edition	Enclosures for Electrical Equipment, Environmental Considerations
	UL 248-1, fourth edition	Low-Voltage Fuses — Part 1: General Requirements
	UL 248-2, second edition	Low-Voltage Fuses — Part 2: Class C Fuses
	UL 248-3, second edition	Low-Voltage Fuses — Part 3: Class CA and CB Fuses
	UL 248-4, second edition	Low-Voltage Fuses — Part 4: Class CC Fuses
	UL 248-5, second edition	Low-Voltage Fuses — Part 5: Class G Fuses
	UL 248-8, third edition	Low-Voltage Fuses — Part 8: Class J Fuses
	UL 248-9, second edition	Low-Voltage Fuses — Part 9: Class K Fuses
	UL 489, thirteenth edition	Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures
	UL 1561, fourth edition	Dry-Type General Purpose and Power Transformers
	UL 1562, fourth edition	<u>Standard for Transformers, Distribution, Dry-Type Over 600 Volts</u>
	UL 5085-2, second edition	Low Voltage Transformers — Part 2: General Purpose Transformers
460	UL 810, sixth edition	Capacitors
	UL 1283, seventh edition	Electromagnetic Interference Filters
	UL 60384-14, second edition	Fixed Capacitors for Use in Electronic Equipment — Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains
470	UL 508, eighteenth edition	Industrial Control Equipment
	UL 1283, seventh edition	Electromagnetic Interference Filters
495	IEEE C37.09	IEEE Standard Test Procedures for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V
	IEEE C37.20.2	IEEE Standard for Metal-Clad Switchgear
	IEEE C37.20.3	IEEE Standard for Metal-Enclosed Interrupter Switchgear (1 kV–38 kV)
	IEEE C37.20.4	IEEE Standard for Indoor AC Switches (1 kV to 38 kV) for Use in Metal-Enclosed Switchgear
	IEEE C37.20.6	IEEE Standard for 4.76 kV to 38 kV Rated Ground and Test Devices Used in Enclosures

	IEEE C37.20.9	IEEE Standard for Metal-Enclosed Switchgear Rated 1 kV to 52 kV Incorporating Gas Insulating Systems
	IEEE C37.23	IEEE Standard for Metal-Enclosed Bus
	IEEE C37.41	IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.42	IEEE Standard Specifications for High-Voltage (>1000 V) Fuses and Accessories
	IEEE C37.59	IEEE Standard for Requirements for Conversion of Power Switchgear Equipment
	IEEE C37.60	IEEE International Standard — High-voltage switchgear and controlgear — Part 111: Automatic circuit reclosers for alternating current systems up to and including 38 kV
	IEEE C37.74	IEEE Standard Requirements for Subsurface, Vault, and Padmounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV
	NEMA C37.54	American National Standard for Indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear — Conformance Test Procedures
	NEMA C37.55	American National Standard for Switchgear — Medium Voltage Metal-Clad Assemblies — Conformance Test Procedures
	NEMA C37.57	American National Standard for Switchgear — Metal-Enclosed Interrupter Switchgear Assemblies — Conformance Testing
	NEMA C37.58	American National Standard for Switchgear — Indoor AC Medium Voltage Switches for Use in Metal-Enclosed Switchgear — Conformance Test Procedures
495	UL 347, seventh edition	Medium-Voltage AC Contactors, Controllers, and Control Centers
	UL 347A, second edition	Medium Voltage Power Conversion Equipment
	UL 347C, first edition	Outline of Investigation for Medium Voltage Solid State Resistive Load Controllers, Up to 15KV
	UL 1008A, second edition	Transfer Switch Equipment, Over 1000 Volts
	UL 2748, first edition	Arcing Fault Quenching Equipment
	UL 2877, fourth edition	Power Supplies, Medium Voltage
	UL 3004, second edition	Outline of Investigation for Medium Voltage Junction Boxes
500	ANSI/IEEE C2	National Electrical Safety Code, Section 127A, Coal Handling Areas
	ANSI/UL 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
	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 30-2024	Flammable and Combustible Liquids Code
	NFPA 32-2021	Standard for Drycleaning Facilities
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 35-2021	Standard for the Manufacture of Organic Coatings

	NFPA 36-2025	Standard for Solvent Extraction Plants
	NFPA 45-2024	Standard on Fire Protection for Laboratories Using Chemicals
	NFPA 55-2026	Compressed Gases and Cryogenic Fluids Code
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 59-2024	Utility LP-Gas Plant Code
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 497-2024	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
	NFPA 499-2024	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
	NFPA 780-2026	Standard for the Installation of Lightning Protection Systems
500	NFPA 820-2024	Standard for Fire Protection in Wastewater Treatment and Collection Facilities
	UL 60079-29-2, second edition	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	UL 120002, second edition	<u>Recommended Practice for Certificates for Certificate Standard for AEx Equipment for Hazardous (Classified) Locations</u>
	UL 120101, first edition	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303, first edition	<u>Guide for Use of Detectors for Flammable Gases</u> Combustible Gas Detection as a Method of Protection
501	UL 62, twentieth edition	<u>Flexible Cords and Cables</u>
	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable
503	NFPA 505-2024	Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations
504	ISA-RP 12.06.01	Recommended Practice for Wiring Methods for Hazardous (Classified) Locations Instrumentation — Part 1: Intrinsic Safety
505	ANSI/API RP 14FZ	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations
	API RP 505	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2
	API RP 2003	Protection Against Ignitions Arising Out of Static Lightning and Stray Currents.
	ASME B1.20.1	Pipe Threads, General Purpose (Inch)
	EI 15	Model Code of Safe Practice, Part 15: Area Classification Code for Installations Handling Flammable Fluids
	IEEE 844.2	Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance
	IEEE 60079-30-2	Explosive Atmospheres — Part 30-2: Electrical resistance trace heating — Application guide for design, installation and maintenance
	IIAR 2	Standard for Safe Design of Closed-Circuit Ammonia Refrigeration Systems
	ISA-60079-10-1 (12.24.01)	Explosive Atmospheres — Part 10-1: Classification of Areas — Explosive gas atmospheres
	ISA-60079-29-2	Explosive Atmospheres — Part 29-2: Gas detectors — Selection, installation, use and maintenance of detectors for flammable gases and oxygen
	ISO 965-1	ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data
	ISO 965-3	ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads
	NFPA 30-2024	Flammable and Combustible Liquids Code
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 497-2024	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
505	NFPA 780-2026	Standard for the Installation of Lightning Protection Systems
	UL 80079-20-1, first edition	Explosive Atmospheres — Part 20-1: Material Characteristics for Gas and Vapour Classification — Test Methods and Data
	UL 120101, first edition	Definitions and Information Pertaining to Electrical Equipment in Hazardous (Classified) Locations
	UL 121303, first edition	Guide for Use of Detectors for Flammable Gases
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 499-2024	Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
511	NFPA 30A-2024	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 88A-2023	Standard for Parking Structures
512	ICC IFC	International Fire Code
	NFPA 1-2023	Fire Code
	NFPA 30-2024	Flammable and Combustible Liquids Code
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 36-2025	Standard for Solvent Extraction Plants
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 70B-2023	Standard for Electrical Equipment Maintenance
	NFPA 497-2024	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 30-2024	Flammable and Combustible Liquids Code
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 409-2022	Standard on Aircraft Hangars
514	NFPA 2-2023	Hydrogen Technologies Code
	NFPA 30A-2024	Code for Motor Fuel Dispensing Facilities and Repair Garages
	NFPA 52-2023	Vehicular Natural Gas Fuel Systems Code
	NFPA 58-2024	Liquefied Petroleum Gas Code
	NFPA 59-2024	Utility LP-Gas Plant Code
	NFPA 303-2026	Fire Protection Standard for Marinas and Boatyards
515	NFPA 30-2024	Flammable and Combustible Liquids Code
516	NFPA 13-2025	Standard for the Installation of Sprinkler Systems
	NFPA 33-2024	Standard for Spray Application Using Flammable or Combustible Materials
	NFPA 34-2024	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids
	NFPA 77-2024	Recommended Practice on Static Electricity
	NFPA 91-2026	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
	NFPA 701-2023	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
620	UL 4, fifteenth edition	Armored Cable
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 66, third edition	Fixture Wire
	UL 504, third edition	Mineral-Insulated, Metal-Sheathed Cable Mineral-Insulated Wire
	UL 1063, ninth edition	Machine-Tool Wires and Cables
	UL 1569, fifth edition	Metal-Clad Cables
625	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3010, first edition	Single Site Energy Systems
630	UL 1276, third edition	Welding Cable
650	UL 1651, fourth edition	Optical Fiber Cable
660	UL 62, twentieth edition	Flexible Cords and Cables
	UL 817, twelfth edition	Cord Sets and Power-Supply Cords
668	UL 4, fifteenth edition	Armored Cable
	UL 62, twentieth edition	Flexible Cords and Cables
670	UL 1740, fourth edition	Standard for Robots and Robotic Equipment
	UL 2011, seventh edition	Machinery
	UL 3100, first edition	Standard for Automated Mobile Platforms (AMPs)
675	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer Insulated Wire
	UL 1063, ninth edition	Machine-Tool Wires and Cables
	UL 1263, sixth edition	Irrigation Cable
690	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3010, first edition	Single Site Energy Systems
691	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3010, first edition	Single Site Energy Systems

692	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer Insulated Wire
	UL 1063, ninth edition	Machine-Tool Wires and Cables
	UL 3001, first edition	Distributed Energy Generation and Storage Systems
694	UL 3010, first edition	Single Site Energy Systems
	UL 44, nineteenth edition	Thermoset-Insulated Wires and Cables
	UL 62, twentieth edition	Flexible Cords and Cables
	UL 83, sixteenth edition	Thermoplastic-Insulated Wires and Cables
	UL 83A, first edition	Fluoropolymer Insulated Wire
	UL 1063, ninth edition	Machine-Tool Wires and Cables
700	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3008, third edition	Automatic Interconnection Switches for Emergency Systems
701	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3008, third edition	Automatic Interconnection Switches for Emergency Systems
702	UL 3001, first edition	Distributed Energy Generation and Storage Systems
705	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3010, first edition	Single Site Energy Systems
708	NEMA CY 10000-2023	Cybersecurity Implementation Guidance for Connected Electrical Infrastructure
710	UL 3001, first edition	Distributed Energy Generation and Storage Systems
	UL 3010, first edition	Single Site Energy Systems