Second Revision No. 8186-NFPA 70-2021 [Detail]

[Add new 411.3 and renumber following sections as per the attached word document]

411.3 Voltage Limitations.

The operating voltage of low-voltage lighting systems and their associated components shall not exceed 30 volts ac or 60 volts dc. If wet contact is likely to occur, the operating voltage of low-voltage lighting systems and their associated components shall not exceed 15 volts ac or 30 volts dc.

Informational Note: See 680.1 for swimming pools, fountains, and similar installations.

Supplemental Information

File Name	Description	Approved
Article_411_Re-number_SR-8186.docx	Re-numbered titles. For Editorial Only	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:29:05 EDT 2021

Committee Statement

Committee Statement: The mandatory language and exception were removed from the scope to comply with 3.1.4 of the NEC Style Manual.

Article 411 was renumbered to allow for a new section 411.3 to include the voltage limitations for low-voltage lighting systems which was deleted from the scope. The language was modified to clarify the required voltage limitations.

Response Message: SR-8186-NFPA 70-2021

Second Revision No. 8118-NFPA 70-2021 [Definition: Attachment Fitting, Weight Supporting (WSAF).]

Attachment Fitting, Weight-Supporting (WSAF). (Weight-Supporting Attachment Fitting)

A device that, by insertion into a weight-supporting ceiling receptacle, establishes a connection between the conductors of the attached utilization equipment and the branch-circuit conductors connected to the weight-supporting ceiling receptacle. (CMP-18)

Informational Note No. 1: A weight-supporting attachment fitting is different from an attachment plug because no cord is associated with the fitting. A weight-supporting attachment fitting in combination with a weight-supporting ceiling receptacle secures the associated utilization equipment in place and supports its weight.

Informational Note No. 2: See ANSI/NEMA WD 6, *American National Standard for Wiring Devices — Dimensional Specifications* , for the standard configuration of weight-supporting attachment fittings and related weight-supporting ceiling receptacles.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 11:44:19 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual. Informational note #2 was added to identify the dimensional specifications for weight-supporting attachment fitting configurations.

Response Message: SR-8118-NFPA 70-2021

Public Comment No. 1531-NFPA 70-2021 [Definition: Attachment Fitting, Weight Supporting (WSAF).]

Public Comment No. 563-NFPA 70-2021 [Definition: Attachment Fitting, Weight Supporting (WSAF).]

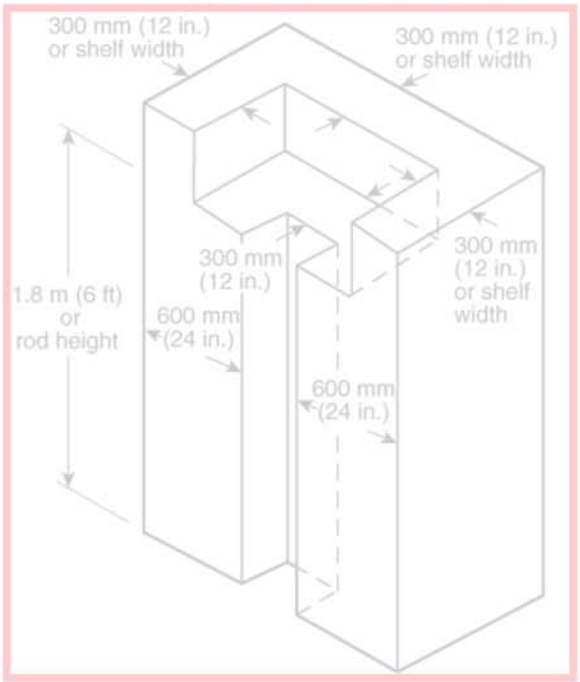
Public Comment No. 1667-NFPA 70-2021 [Definition: Attachment Fitting, Weight Supporting (WSAF).]

Second Revision No. 8119-NFPA 70-2021 [Definition: Clothes Closet Storage Space.]

Clothes Closet Storage Space.

~~The volume bounded by the sides and back closet walls and planes extending from the closet floor vertically to a height of 1.8 m (6 ft) or to the highest clothes-hanging rod and parallel to the walls at a horizontal distance of 600 mm (24 in.) from the sides and back of the closet walls, respectively, and continuing vertically to the closet ceiling parallel to the walls at a horizontal distance of 300 mm (12 in.) or the width of the shelf, whichever is greater; for a closet that permits access to both sides of a hanging rod, this space includes the volume below the highest rod extending 300 mm (12 in.) on either side of the rod on a plane horizontal to the floor extending the entire length of the rod.~~ The area within a clothes closet in which combustible materials can be kept. (410) (CMP-18)

~~**Figure Figure Informational Note Figure 100.1 Clothes Closet Storage Space.**~~



Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 11:52:21 EDT 2021

Committee Statement

Committee Statement: The contents and figure are moved to 410.16 to comply with NEC Style Manual. The changes to the definition provide simplification and clarity.

Response Message: SR-8119-NFPA 70-2021

Public Comment No. 1677-NFPA 70-2021 [Definition: Clothes Closet Storage Space.]

Public Comment No. 1187-NFPA 70-2021 [Definition: Clothes Closet Storage Space.]

Second Revision No. 8123-NFPA 70-2021 [Definition: Connector, Load]

Connector, Load. (Load Connector)

An electromechanical connector used for power from the busbar to utilization equipment. (393) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:04:24 EDT 2021

Committee Statement

Committee Statement: The change is made to comply with NEC Style Manual 2.2.2.3.1 (Searchable Terms).

Response Message: SR-8123-NFPA 70-2021

Public Comment No. 1738-NFPA 70-2021 [Definition: Connector, Load]

Second Revision No. 8126-NFPA 70-2021 [Definition: Connector, Pendant.]

Connector, Pendant. (Pendant Connector)

An electromechanical or mechanical connector used to suspend low-voltage luminaire or utilization equipment below the grid rail and to supply power to connect from the busbar to utilization equipment. (393) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:14:35 EDT 2021

Committee Statement

Committee Statement: The change is made to comply with NEC Style Manual 2.2.2.3.1 (Searchable Terms).

Response Message: SR-8126-NFPA 70-2021

Public Comment No. 1743-NFPA 70-2021 [Definition: Connector, Pendant.]

Second Revision No. 8127-NFPA 70-2021 [Definition: Connector, Power Feed.]

Connector, Power Feed. (Power Feed Connector)

An electromechanical connector used to connect the power supply to a power distribution cable, to connect directly to the busbar, or to connect from a power distribution cable to the busbar. (393) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:15:53 EDT 2021

Committee Statement

Committee Statement: The change is made to comply with NEC Style Manual 2.2.2.3.1 (Searchable Terms).

Response Message: SR-8127-NFPA 70-2021

Public Comment No. 1746-NFPA 70-2021 [Definition: Connector, Power Feed.]

Second Revision No. 8128-NFPA 70-2021 [Definition: Connector, Rail to Rail.]

Connector, Rail to Rail. (Rail to Rail Connector)

An electromechanical connector used to interconnect busbars from one ceiling grid rail to another grid rail. (393) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:17:09 EDT 2021

Committee Statement

Committee Statement: The change is made to comply with NEC Style Manual 2.2.2.3.1 (Searchable Terms).

Response Message: SR-8128-NFPA 70-2021

Public Comment No. 1748-NFPA 70-2021 [Definition: Connector, Rail to Rail.]

Second Revision No. 8125-NFPA 70-2021 [Definition: Connector.]

Connector.

~~A term used to refer to an~~ An electromechanical fitting. (393) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:13:11 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual. The change adds clarity.

Response Message: SR-8125-NFPA 70-2021

Public Comment No. 1742-NFPA 70-2021 [Definition: Connector.]

Second Revision No. 8117-NFPA 70-2021 [Definition: Multioutlet Assembly.]

Multioutlet Assembly.

A surface, flush, or freestanding assemblage ~~consisting of~~ with a raceway and fittings or other enclosure provided with one or more receptacles, for the purpose of supplying power to utilization equipment. (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 11:27:47 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual.

Response Message: SR-8117-NFPA 70-2021

Public Comment No. 1666-NFPA 70-2021 [Definition: Multioutlet Assembly.]

Public Comment No. 825-NFPA 70-2021 [Definition: Multioutlet Assembly.]

Second Revision No. 8129-NFPA 70-2021 [Definition: Photovoltaic (PV) Powered Sign.]

Sign, Photovoltaic (PV) Powered. [Photovoltaic (PV) Powered Sign] (PV Powered Sign) .

A complete sign powered by solar energy consisting of all components and subassemblies for installation either as an off-grid stand-alone, on-grid interactive, or non-grid interactive system. (600) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:18:46 EDT 2021

Committee Statement

Committee Statement: This update resolves conflicts between the first revision definition text (FR-7641-NFPA 70-2020) and the NEC Style Manual. Specifically, 2.2.2.3 Base Term and 2.2.25 Alternate Term style guidance is implemented.

Response Message: SR-8129-NFPA 70-2021

Public Comment No. 1618-NFPA 70-2021 [Definition: Photovoltaic (PV) Powered Sign.]

Second Revision No. 8130-NFPA 70-2021 [Definition: Receptacle, Weight Supporting Ceiling (WSCR).]

Receptacle, Weight-Supporting Ceiling (WSCR). (Weight-Supporting Ceiling Receptacle)

A contact device installed at ~~the~~ an outlet box for the connection and support of luminaries ~~and~~ or ceiling-suspended (paddle) fans using a weight-supporting attachment fitting (~~WASF~~ WSAF). (CMP-18)

Informational Note: See ANSI/NEMA WD 6, *American National Standard for Wiring Devices — Dimensional Specifications* , for the standard configuration of weight-supporting ceiling receptacles and related weight-supporting attachment fittings.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:41:01 EDT 2021

Committee Statement

Committee Statement: The typographical error in FR-7639-NFPA 70-2020 which added the definition of a Weight-Supporting Ceiling Receptacle is corrected. This definition incorrectly referred to a weight-supporting attachment fitting (WSAF) as a WASF which was fixed. Also, the searchable title was added to comply with the NEC Style Manual, specifically 2.2.2.3.1 "Searchable Title.

Informational note is added to provide reference information to users that weight-supporting ceiling receptacles and related weight-supporting attachment fittings now have a standard configuration established in ANSI/NEMA WD 6, “American National Standard for Wiring Devices – Dimensional Specifications”, just as do attachment plugs and related types of receptacles.

Response Message: SR-8130-NFPA 70-2021

Public Comment No. 1624-NFPA 70-2021 [Definition: Receptacle, Weight Supporting Ceiling (WSCR).]

Public Comment No. 1275-NFPA 70-2021 [Definition: Receptacle, Weight Supporting Ceiling (WSCR).]

Public Comment No. 1532-NFPA 70-2021 [Definition: Receptacle, Weight Supporting Ceiling (WSCR).]

Public Comment No. 564-NFPA 70-2021 [Definition: Receptacle, Weight Supporting Ceiling (WSCR).]

Second Revision No. 8120-NFPA 70-2021 [Definition: Retrofit Kit, General Use.]

Retrofit Kit, General Use. (General Use Retrofit Kit)

A kit consisting of primary parts, which does not include all the parts for a complete subassembly but includes a list of required parts and installation instructions to complete the subassembly in the field. (600) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 11:55:04 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual.

Response Message: SR-8120-NFPA 70-2021

Public Comment No. 1669-NFPA 70-2021 [Definition: Retrofit Kit, General Use.]

Second Revision No. 8121-NFPA 70-2021 [Definition: Retrofit Kit, Sign Specific.]

Retrofit Kit, Sign Specific. (Sign Specific Retrofit Kit)

A kit consisting of the necessary parts and hardware to allow for field installation in a host sign, based on the included installation instructions. (600) (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 11:56:56 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual.

Response Message: SR-8121-NFPA 70-2021

Public Comment No. 1670-NFPA 70-2021 [Definition: Retrofit Kit, Sign Specific.]

Second Revision No. 8124-NFPA 70-2021 [Definition: Retrofit Kit.]

Retrofit Kit.

A ~~general term for a~~ complete subassembly of parts and devices for field conversion of utilization equipment. (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 12:11:24 EDT 2021

Committee Statement

Committee Statement: This second revision makes changes to align the definition with the NEC Style Manual.

Response Message: SR-8124-NFPA 70-2021

Public Comment No. 1668-NFPA 70-2021 [Definition: Retrofit Kit.]

Second Revision No. 8201-NFPA 70-2021 [New Definition after Definition: Part-Winding Motors.]

Passenger Transportation Facilities.

Any area open to the public associated with passenger transportation such as an airport, bus terminal, highway rest stop and service area, marina, seaport, ferry slip, subway station, train station, or port of entry. (CMP-18)

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 16:43:50 EDT 2021

Committee Statement

Committee Statement: Term “passenger transportation facilities” was inserted to 406.4(G) therefore the panel added it’s definition to 100.

Response Message: SR-8201-NFPA 70-2021

Second Revision No. 8191-NFPA 70-2021 [Section No. 393.6(B)]

(B) Assembly of Listed Parts.

A low-voltage suspended ceiling power distribution system assembled from the following parts, listed according to the appropriate function, shall be permitted:

(1) Listed low-voltage utilization equipment

(2) Listed Class 2 power supply

(3) Listed or identified fittings, including connectors and grid rails with bare conductors

(4) Listed low-voltage cables in accordance with ~~725.179~~ 722.179 , conductors in raceways, or other fixed wiring methods for the secondary circuit

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:51:58 EDT 2021

Committee Statement

Committee Statement: Section updated to align with the newly split Article 725.

Response Message: SR-8191-NFPA 70-2021

Second Revision No. 8192-NFPA 70-2021 [Section No. 393.14(B)]

(B) Insulated Conductors.

Exposed insulated secondary circuit conductors shall be listed, of the type, and installed as described as follows:

(1) Class 2 cable supplied by a listed Class 2 power source and installed in accordance with Part I of Article 722 and Parts I and ~~III~~ II of Article 725

(2) Wiring methods described in Chapter 3

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:55:10 EDT 2021

Committee Statement

Committee Statement: Section updated to align with the newly split Article 725.

Response Message: SR-8192-NFPA 70-2021

Second Revision No. 8162-NFPA 70-2021 [Section No. 406.3(A)]

(A) Receptacles.

Receptacles shall be listed and marked with the manufacturer's name or identification and voltage and ampere ratings. Receptacles shall not be ~~permitted to be~~ reconditioned.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 10:23:18 EDT 2021

Committee Statement

Committee Statement: The text "permitted to be" was deleted in 406.3(A) for clarification and ease of use.

Response Message: SR-8162-NFPA 70-2021

Second Revision No. 8137-NFPA 70-2021 [Section No. 406.3(D)]

(D) ~~Receptacles for Copper-Clad Aluminum Conductors~~ Receptacle Terminations .

Receptacle terminations shall be in accordance with the following:

(1) Terminals of 15-ampere and 20-ampere receptacles not marked CO/ALR shall be used with copper and copper-clad aluminum conductors only.

(2) Terminals marked CO/ALR shall be permitted to be used with aluminum, copper, and copper-clad aluminum conductors ~~that are sized in accordance with 240.4(D)~~ .

(3) ~~Screwless~~ Receptacles installed using screwless terminals of the conductor push-in type construction (also known as *push-in-terminals*) ~~employed in a receptacle~~ shall be installed on 15-ampere branch circuits and shall be connected with 14 AWG solid copper wire only unless listed and marked for other types of conductors .

Informational Note: See UL 498, *Attachment Plugs and Receptacles* , for information regarding screwless terminals of various type constructions employed on receptacles. Screwless terminals of the separable-terminal assembly, spring-action clamp, and insulation-displacement type constructions are not classified in UL 498 as screwless terminals of the conductor push-in type construction (also known as push-in terminals).

Supplemental Information

File Name	Description	Approved
NEC_SR-8137_406.3_D_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 14:48:47 EDT 2021

Committee Statement

Committee Statement: CMP 18 made the change for the following reasons:

Receptacles (wiring devices) rated 15 and 20 amperes are suitable for installation with copper and copper-clad aluminum as identified in the UL RTRT guide information. This will help alleviate questions regarding receptacle termination that are being constantly asked by installers.

With the new allowance for 14 copper-clad aluminum, to ensure the Code is clear, the use of push-in type terminals of a receptacle are presently only suitable for 14 AWG solid copper conductors only.

The UL498 Standard and associated guide information under category code RTRT for receptacles under “Terminals” is very specific and limits a receptacle with push-in terminals, permits only 14 AWG solid copper conductors to be used at this time.

An option was added to provide future allowance for other conductor types (i.e., “stranded 14 AWG copper or even 14 AWG copper-clad aluminum), to be installed using push-in type terminals where the additional evaluation to the applicable UL498 standard has been completed and the listing and device markings permit the

application.

The revised language removed the reference to 240.4(D)

The informational note was added to 406.3(D) to provide clarity on receptacle terminal constructions.

Response Message: SR-8137-NFPA 70-2021

Public Comment No. 1462-NFPA 70-2021 [Section No. 406.3(D)]

Public Comment No. 113-NFPA 70-2021 [Section No. 406.3(D)]

Public Comment No. 1943-NFPA 70-2021 [Section No. 406.3(D)]

Public Comment No. 2009-NFPA 70-2021 [Section No. 406.3(D)]

Public Comment No. 815-NFPA 70-2021 [Section No. 406.3(C)]

Second Revision No. 8145-NFPA 70-2021 [Section No. 406.3(H)]

~~**(H)** Receptacle Faceplate Connections.~~

~~All 125-volt 15- or 20-ampere receptacle connections tightened by use of tools shall not be used as points of connection for faceplate power unless specifically evaluated and identified by the receptacle manufacturer.~~

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 15:53:06 EDT 2021

Committee Statement

Committee Statement: This information is specific to faceplates, not receptacles and is more appropriately located in 406.6, which is specific to “receptacle faceplates (cover plates).”

Response Message: SR-8145-NFPA 70-2021

Public Comment No. 114-NFPA 70-2021 [Section No. 406.3(H)]

Public Comment No. 1756-NFPA 70-2021 [Section No. 406.3(H)]

Second Revision No. 8372-NFPA 70-2021 [Section No. 406.4(D)(5)]

(5) Tamper-Resistant Receptacles.

Listed tamper-resistant receptacles shall be provided where replacements are made at receptacle outlets that are required to be tamper-resistant elsewhere in this *Code*, except ~~where a nongrounding receptacle is replaced with another nongrounding receptacle, or where aluminum branch-circuit conductors are directly terminated on a CO/ALR receptacle replaced with another CO/ALR receptacle.~~ in one of the following cases:

(1) Where a nongrounding receptacle is replaced with another nongrounding receptacle

(2) Where aluminum branch-circuit conductors are directly terminated on a CO/ALR receptacle, installed as replacement

Supplemental Information

File Name	Description	Approved
NEC_SR-8372_406.4_D_5_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Tue Oct 26 11:21:15 EDT 2021

Committee Statement

Committee Statement: "Replace with another CO/ALR receptacle" was removed and "installed as replacement" was added for clarity. Format was changed to tabulation for clarity.

Response Message: SR-8372-NFPA 70-2021

Public Comment No. 1829-NFPA 70-2021 [Section No. 406.4(D)(5)]

Second Revision No. 8147-NFPA 70-2021 [Section No. 406.4(G)]

(G) Protection of Floor Receptacles.

Protection for floor receptacles shall be in accordance with the following:

(1) ~~Standpipes~~ Physical protection of floor receptacles shall allow floor-cleaning equipment to be operated without damage to receptacles.

(2) All 125-volt, single-phase, 15- and 20-ampere floor receptacles installed in food courts ~~or places of awaiting transportation~~ and waiting spaces of passenger transportation facilities where food or drinks are allowed shall be GFCI protected.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 16:47:33 EDT 2021

Committee Statement

Committee Statement: The term “standpipes” has been removed and changed to “physical protection” to better clarify the intent and specific need of physically protecting the floor receptacle from damage by floor-cleaning equipment.

“Places awaiting transportation” has been replaced by the term “passenger transportation facilities” to identify what is meant by places awaiting transportation. These locations include not just the food court but the waiting spaces in these locations.

The addition of GFCI protection of all 125-volt, single-phase, 15- and 20-ampere floor receptacles installed in specified locations is intended to provide public protection against potential electric shock due to accidental spillage of refreshments.

Response Message: SR-8147-NFPA 70-2021

Public Comment No. 235-NFPA 70-2021 [Section No. 406.4(G)]

Public Comment No. 622-NFPA 70-2021 [Section No. 406.4(G)]

Public Comment No. 1382-NFPA 70-2021 [Section No. 406.4(G)]

Public Comment No. 1656-NFPA 70-2021 [Section No. 406.4(G)]

Public Comment No. 1674-NFPA 70-2021 [Section No. 406.4(G)]

Second Revision No. 8143-NFPA 70-2021 [Section No. 406.6(D)]

(D) Receptacle Faceplate (Cover Plates) with Integral Night Light and/or USB Charger.

A flush device cover plate that additionally provides a night light and/or Class 2 output connector(s) shall be listed and constructed such that the night light and/or Class 2 circuitry is integral with the flush device cover plate.

~~Such a faceplate shall connect to the branch circuit using approved wiring methods. It shall not connect through the use of friction or spring contact members with the screw heads or other components of the receptacle unless specifically evaluated and identified by the receptacle manufacturer.~~ Listed receptacle faceplates with integral night light, USB charger, or both, that rely solely on spring-tensioned contacts shall be connected to only brass or copper alloy receptacle terminal screws and shall be rated 1 watt or less.

Exception: Effective January 1, 2026, spring-tensioned contact connections to steel receptacle terminal screws shall be permitted if the receptacle faceplate is specifically listed and identified for connection to steel receptacle terminal screws.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 15:23:31 EDT 2021

Committee Statement

Committee Statement: The phrase “listed for the purpose” does not provide clear direction as to the objective of the listing. The second revision to Section 406.6(D) provides clear prescriptive requirements on the use of spring-tensioned contacts to power receptacle faceplate accessories. These requirements do not currently exist in UL 514D.

The implementation date for the exception is to provide time to evaluate a possible conflict with UL 498 regarding the use of steel screws to carry current and to develop safety requirements in UL 514D for faceplate connection methods.

Response Message: SR-8143-NFPA 70-2021

Public Comment No. 1665-NFPA 70-2021 [Section No. 406.6(D)]

Public Comment No. 1653-NFPA 70-2021 [Section No. 406.6(D)]

Public Comment No. 169-NFPA 70-2021 [Section No. 406.6(D)]

Public Comment No. 115-NFPA 70-2021 [Section No. 406.6(D)]

Second Revision No. 8163-NFPA 70-2021 [Section No. 406.7]

406.7 Attachment Plugs, Cord Connectors, and Flanged Surface Devices.

All attachment plugs, cord connectors, and flanged surface devices (inlets and outlets) shall be listed and marked with the manufacturer's name or identification and voltage and ampere ratings. Attachment plugs, cord connectors, and flanged surface devices shall not be ~~permitted to be~~ reconditioned.

(A) Construction of Attachment Plugs and Cord Connectors.

Attachment plugs and cord connectors shall be constructed so that there are no exposed current-carrying parts except the prongs, blades, or pins. The cover for wire terminations shall be a part that is essential for the operation of an attachment plug or connector (dead-front construction).

(B) Connection of Attachment Plugs.

Attachment plugs shall be installed so that their prongs, blades, or pins are not energized unless inserted into an energized receptacle or cord connectors. No receptacle shall be installed so as to require the insertion of an energized attachment plug as its source of supply.

(C) Attachment Plug Ejector Mechanisms.

Attachment plug ejector mechanisms shall not adversely affect engagement of the blades of the attachment plug with the contacts of the receptacle.

(D) Flanged Surface Inlet.

A flanged surface inlet shall be installed such that the prongs, blades, or pins are not energized unless an energized cord connector is inserted into it.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 10:25:16 EDT 2021

Committee Statement

Committee Statement: The text "permitted to be" was deleted in 406.7 for clarification and ease of use.

Response Message: SR-8163-NFPA 70-2021

Second Revision No. 8150-NFPA 70-2021 [Sections 406.9(A), 406.9(B)]

(A) Damp Locations.

A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle is covered (attachment plug cap not inserted and receptacle covers closed).

An installation suitable for wet locations shall also be considered suitable for damp locations.

A receptacle shall be considered to be in a location protected from the weather where located under roofed open porches, canopies, marquees, and the like, and will not be subjected to a beating rain or water runoff. All 125- and 250-volt nonlocking receptacles shall be a listed weather-resistant type. Hinged covers of outlet box hoods shall be able to open at least 90 degrees, or fully open if the cover is not designed to open 90 degrees from the closed to open position, after installation.

Informational Note: See ANSI/NEMA WD 6–2016, *Wiring Devices — Dimensional Specifications*, for the types of receptacles covered by this requirement.

(B) Wet Locations.

(1) Receptacles of 15 Amperes and 20 Amperes in a Wet Location.

Receptacles of 15 amperes and 20 amperes, 125 volts and 250 volts installed in a wet location shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted. An outlet box hood installed for this purpose shall be listed and shall be identified as "extra-duty." Other listed products, enclosures, or assemblies providing weatherproof protection that do not utilize an outlet box hood need not be identified "extra duty." Hinged covers of outlet box hoods shall be able to open at least 90 degrees, or fully open if the cover is not designed to open 90 degrees from the closed to open position, after installation.

Informational Note No. 1: See ANSI/UL 514D–2016, *Cover Plates for Flush-Mounted Wiring Devices*, for extra-duty outlet box hoods. "Extra duty" identification and requirements are not applicable to listed receptacles, faceplates, outlet boxes, enclosures, or assemblies that are identified as either being suitable for wet locations or rated as one of the outdoor enclosure–type numbers of Table 110.28 that does not utilize an outlet box hood.

Exception: 15- and 20-ampere, 125- through 250-volt receptacles installed in a wet location and subject to routine high-pressure spray washing shall be permitted to have an enclosure that is weatherproof when the attachment plug is removed.

All 15- and 20-ampere, 125- and 250-volt nonlocking-type receptacles shall be listed and so identified as the weather-resistant type.

Informational Note No. 2: See ANSI/NEMA WD 6–2016, *Wiring Devices — Dimensional Specifications*, for receptacle configurations. The configuration of weather-resistant receptacles covered by this requirement are identified as 5-15, 5-20, 6-15, and 6-20.

(2) Other Receptacles.

All other receptacles installed in a wet location shall be listed ~~and so identified as the~~ weather-resistant type, and installation shall comply with 406.9(B)(2)(a) or (B)(2)(b).

(a) A receptacle installed in a wet location, where the product intended to be plugged into it is not attended while in use, shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed.

(b) A receptacle installed in a wet location where the product intended to be plugged into it will be attended while in use (e.g., portable tools) shall have an enclosure that is weatherproof when the attachment plug is removed.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 17:05:20 EDT 2021

Committee Statement

Committee Statement: Both 406.9(A) Damp locations and 406.9(B) Wet locations were modified to require hinged covers of outlet box hoods to fully open if the cover is not designed to open 90 degrees, from the closed to open position, after installation.

Additionally, the term “extra – duty” and “Extra duty” were replaced with extra duty (no quotes or dash between extra-duty) in 406.9(B) and Informational Note No.1.

Response Message: SR-8150-NFPA 70-2021

Public Comment No. 1831-NFPA 70-2021 [Section No. 406.9]

Public Comment No. 93-NFPA 70-2021 [Section No. 406.9(A)]

Public Comment No. 639-NFPA 70-2021 [Sections 406.9(A), 406.9(B)]

Second Revision No. 8152-NFPA 70-2021 [Section No. 406.9(C)]

(C) Bathtub and Shower Space.

Receptacles shall not be installed inside of the tub or shower or within a zone measured 900 mm (3 ft) horizontally from any outside edge of the bathtub or shower stall, including the space outside the bathtub or shower stall space below the zone.

The zone also includes the space measured vertically from the floor to 2.5 m (8 ft) above the top of the bathtub rim or shower stall threshold. The identified zone is all-encompassing and shall include the space directly over the bathtub or shower stall and the space below this zone, but not the space separated by a floor, wall, ceiling, room door, window, or fixed barrier.

Exception No. 1: Receptacles installed in accordance with 680.73 shall be permitted.

Exception No. 2: In bathrooms with less than the required zone, the receptacle(s) required by 210.52(D) shall be permitted to be installed opposite the bathtub rim or shower stall threshold on the farthest wall within the room.

Exception No. 3: Weight supporting ceiling receptacles (WSCR) shall be permitted to be installed for listed luminaires that employ a weight supporting attachment fitting (WSAF) in damp locations complying with 410.10(D).

Exception No. 4: In a dwelling unit, a single receptacle shall be permitted for an electronic toilet or personal hygiene device such as an electronic bidet seat. The receptacle shall be readily accessible and not located in the space between the toilet and the bathtub or shower.

Informational Note No. 1: See 210.8(A) (1) for GFCI requirements in a bathroom.

Informational Note No. 2: See 210.11(C) for bathroom branch circuits.

Informational Note No. 3: See 210.21(B)(1) for single receptacle on an individual branch.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 17:16:40 EDT 2021

Committee Statement

Committee Statement: It is quite common for a toilet to be located next to a bathtub or shower in a residential bathroom. Existing text could prevent the installation of a receptacle that is necessary for the operation of an electronic toilet (also known as a “smart toilet”) or personal hygiene device (e.g., electronic bidet seat) where a toilet is located within 3 feet horizontally of a bathtub or shower. Products like electronic toilets and personal hygiene devices were not taken into consideration during the first revision process. The proposed exception is consistent with TIA 1598.

GFCI does provide protection but not against all hazards. The installation presented by the commenter is one of the installation practices that this requirement is intended to prohibit.

Receptacles shall not be installed “inside of the tub or shower or” was added for clarity.

Response Message: SR-8152-NFPA 70-2021

Public Comment No. 1441-NFPA 70-2021 [Section No. 406.9(C)]

Public Comment No. 112-NFPA 70-2021 [Section No. 406.9(C)]

Public Comment No. 354-NFPA 70-2021 [Section No. 406.9(C)]

Public Comment No. 328-NFPA 70-2021 [Section No. 406.9(C)]

Second Revision No. 8153-NFPA 70-2021 [Section No. 406.12]

406.12 Tamper-Resistant Receptacles.

All 15- and 20-ampere, 125- and 250-volt nonlocking-type receptacles in the following locations shall be listed tamper-resistant receptacles:

(1) All dwelling units, boathouses, mobile homes and manufactured homes, including their attached and detached garages, accessory buildings ~~to dwelling units~~ , and ~~their~~ common areas

(2) Guest rooms and guest suites of hotels, motels, and their common areas

(3) Child care facilities

(4) Preschools and education facilities

(5) Within clinics, medical and dental offices, and outpatient facilities, the following spaces ~~and the like~~ :

a. Business offices accessible to the general public

b. Lobbies, ~~corridors,~~ and waiting spaces~~, and spaces used for patient sleeping~~

c. Spaces of nursing homes and limited care facilities wired in accordance with Chapters 1 through 4 of this *Code* where these spaces are used exclusively as patient sleeping rooms

(6) Places of awaiting transportation, gymnasiums, skating rinks, fitness centers, and auditoriums

(7) Dormitory units

(8) Residential care/assisted living facilities, social and substance abuse rehabilitation facilities, ~~convents,~~ and group homes

(9) Foster care facilities, nursing homes, and psychiatric hospitals

(10) Areas of agricultural buildings accessible to the general public and any common areas

Informational Note No. 1: See ANSI/NEMA WD 6-2016, *Wiring Devices — Dimensional Specifications*. This requirement would include receptacles identified as 5-15, 5-20, 6-15, and 6-20.

Informational Note No. 2: See NFPA 5000-2021, *Building Construction and Safety Code*, and the *International Building Code* (IBC)-2021 for more information on occupancy classifications for the types of facilities covered by this requirement.

Informational Note No. 3: Areas of agricultural building are frequently converted to hospitality areas. These areas can include petting zoos, stables, and buildings used for recreation or educational purposes where receptacles are installed.

Exception to (1) through (10): Receptacles in the following locations shall not be required to be tamper resistant:

(1) Receptacles located more than 1.7 m (5 ½ ft) above the floor

(2) Receptacles that are part of a luminaire or appliance

(2) ~~A single receptacle that is not readily accessible and that supplies one appliance, or a duplex receptacle that is not readily accessible and that supplies two appliances, where the receptacle outlet is installed within the space occupied by or designated for each appliance that, in normal use, is not easily moved from one place to another and that is cord-and-plug-connected in accordance with~~ 400.10(A)(6) ~~, (A)(7), or (A)(8)~~

(3) Where the receptacle outlet is installed within the space occupied by or designated for each appliance that, in normal use, is not easily moved from one place to another and is cord-and-plug-connected in accordance with 400.10(A)(6) , (A)(7), or (A)(8) the following are permitted:

a. A single receptacle that is not readily accessible and supplies one appliance

b. A duplex receptacle that is not readily accessible and supplies two appliances

(4) Nongrounding receptacles used for replacements as permitted in 406.4(D)(2)(a)

Supplemental Information

File Name	Description	Approved
NEC_SR-8153_406.12_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Thu Oct 21 17:36:12 EDT 2021

Committee Statement

Committee Statement: Informational note no. 3 was added to clarify what is meant by areas of agricultural buildings.

Article 406.12(5) was modified to include areas not covered 517.10 (B).

The term “and the like” was removed as this phrase is not in compliance with 3.3.4 of the NEC Style Manual.

Exception No. 3 was re-organized to comply with 3.3.1.2 of the NEC Style Manual.

Additionally, removing “to dwelling units” does improve language.

Additionally, “convents” did not adequately reflect the intent of a religious affiliated childcare facility and was removed.

Response Message: SR-8153-NFPA 70-2021

Public Comment No. 116-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 643-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 642-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 640-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 252-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 641-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 644-NFPA 70-2021 [Section No. 406.12]

Public Comment No. 2092-NFPA 70-2021 [Section No. 406.12]

Second Revision No. 8164-NFPA 70-2021 [Section No. 410.7]

410.7 Reconditioned Equipment.

Luminaires, lampholders, ballasts, LED drivers, lamps, and retrofit kits shall not be ~~permitted to be~~ reconditioned. If a retrofit kit is installed in a luminaire in accordance with the installation instructions, the retrofitted luminaire shall not be considered reconditioned.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 10:28:56 EDT 2021

Committee Statement

Committee Statement: The text "shall not be permitted to be" was simplified to "shall not be reconditioned" for clarification and ease of use.

Response Message: SR-8164-NFPA 70-2021

Public Comment No. 816-NFPA 70-2021 [Section No. 410.7]

Second Revision No. 8165-NFPA 70-2021 [Section No. 410.10(F)]

(F) Luminaires Installed in or Under Roof Decking.

Luminaires installed in exposed or concealed locations under roof decking where subject to physical damage~~,~~ shall be installed and supported so there is not less than 38 mm (1½ in.) measured from the lowest surface of the roof decking to the top of the luminaire.

Exception: The 38 mm (1 ½ in.) spacing is not required where metal-corrugated sheet roof decking is covered with a minimum thickness 50 mm (2 in.) concrete slab, measured from the top of the corrugated roofing.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 10:31:30 EDT 2021

Committee Statement

Committee Statement: This exception was added to recognize the additional protection provided by a concrete slab and to correlate with the allowance coming into 300.4(E).

Response Message: SR-8165-NFPA 70-2021

Public Comment No. 718-NFPA 70-2021 [Section No. 410.10(F)]

Public Comment No. 1834-NFPA 70-2021 [Section No. 410.10(F)]

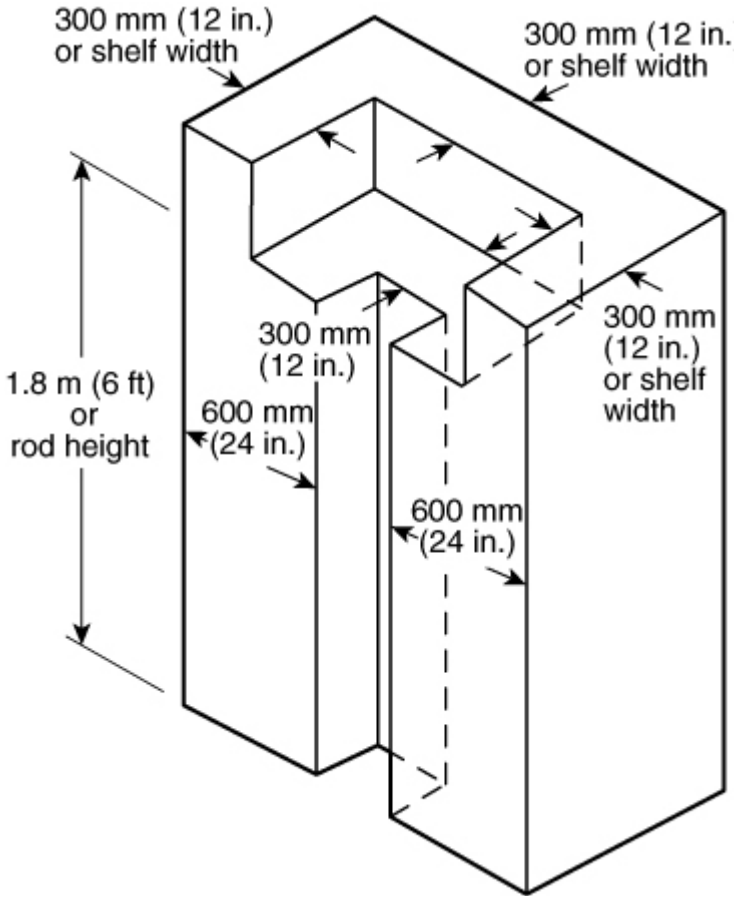
Second Revision No. 8166-NFPA 70-2021 [Section No. 410.16]

410.16 Luminaires in Clothes Closets.

(A) Clothes Closet Storage Space.

The clothes closet storage space shall be the volume bounded by the sides and back closet walls and planes extending from the closet floor vertically to a height of 1.8 m (6 ft) or to the highest clothes-hanging rod and parallel to the walls at a horizontal distance of 600 mm (24 in.) from the sides and back of the closet walls, respectively. The volume extends vertically to the closet ceiling parallel to the walls at a horizontal distance of 300 mm (12 in.) or the width of the shelf, whichever is greater. For a closet that permits access to both sides of a hanging rod, the clothes closet storage space includes the volume below the highest rod extending 300 mm (12 in.) on either side of the rod on a plane horizontal to the floor extending the entire length of the rod. See Figure 410.16(A) .

Figure 410.16(A) Clothes Closet Storage Space.



(B) Luminaire Types Permitted.

Only luminaires of the following types shall be permitted in a clothes closet:

(1) Surface-mounted or recessed incandescent or LED luminaires with completely enclosed light sources

(2) Surface-mounted or recessed fluorescent luminaires

(3) Surface-mounted fluorescent or LED luminaires identified as suitable for installation within the clothes closet storage space

(C) Luminaire Types Not Permitted.

Incandescent luminaires with open or partially enclosed lamps and pendant luminaires or lampholders shall not be permitted.

(D) Location.

The minimum clearance between luminaires installed in clothes closets and the nearest point of a clothes closet storage space shall be as follows:

(1) 300 mm (12 in.) for surface-mounted incandescent or LED luminaires with a completely enclosed light source installed on the wall above the door or on the ceiling.

(2) 150 mm (6 in.) for surface-mounted fluorescent luminaires installed on the wall above the door or on the ceiling.

(3) 150 mm (6 in.) for recessed incandescent or LED luminaires with a completely enclosed light source installed in the wall or the ceiling.

(4) 150 mm (6 in.) for recessed fluorescent luminaires installed in the wall or the ceiling.

(4) ~~Surface-mounted fluorescent or LED luminaires shall be permitted to be installed within the clothes closet storage space where identified for this use.~~

Exception: Surface-mounted fluorescent or LED luminaires shall be permitted to be installed within the clothes closet storage space where identified for this use.

Supplemental Information

File Name	Description	Approved
NEC_SR-8166_Fig_410.16_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 10:46:16 EDT 2021

Committee Statement

Committee Statement: The text and figure was relocated. This change will move the requirement that was embedded in the definition of “Clothes Closet Storage Space” to Article 410 to comply with 2.2.2.2 of the NEC Style Manual. The clause is restructured to provide clarity.

Response Message: SR-8166-NFPA 70-2021

Public Comment No. 68-NFPA 70-2021 [Definition: Clothes Closet Storage Space.]

Public Comment No. 1678-NFPA 70-2021 [Section No. 410.16]

Second Revision No. 8167-NFPA 70-2021 [Section No. 410.40]

410.40 Equipment Grounding Conductor.

Luminaires and lighting equipment shall be connected to an equipment grounding conductor as required by ~~250.112 and~~ Part V of this article.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:22:22 EDT 2021

Committee Statement

Committee Statement: Since 250.112(J) points to 410 Part V for luminaire grounding requirements, 410.40 is a circular reference that reveals no information. Accordingly, reference to 250.112 was removed.

Response Message: SR-8167-NFPA 70-2021

Public Comment No. 719-NFPA 70-2021 [Section No. 410.40]

Public Comment No. 1458-NFPA 70-2021 [Section No. 410.40]

Second Revision No. 8170-NFPA 70-2021 [Section No. 410.42]

410.42 Luminaire(s) with Exposed Conductive ~~Parts~~ Surfaces .

Exposed conductive ~~parts that are accessible to unqualified persons~~ surfaces shall be connected to an equipment grounding conductor.

Exception: Exposed conductive ~~parts~~ surfaces that comply with any of the following shall not be required to be connected to an equipment grounding conductor:

(1) ~~Parts~~ Surfaces separated from all live parts by a listed system of double insulation

(2) ~~Small~~ Surfaces on small isolated parts, such as mounting screws, clips, and decorative bands on glass spaced at least 38 mm (1½ in.) from lamp terminals

(3) ~~Portable~~ Surfaces on portable luminaires with a polarized attachment plug

~~**(A)** Equipment Grounding Conductor Required.~~

~~Exposed conductive parts that are accessible to unqualified persons shall be connected to an equipment grounding conductor.~~

~~**(A)** Equipment Grounding Conductor Not Required.~~

~~Exposed conductive parts that comply with any of the following shall not be required to be connected to an equipment grounding conductor:~~

(0) ~~Parts separated from all live parts by a listed system of double insulation~~

(0) ~~Small isolated parts, such as mounting screws, clips, and decorative bands on glass spaced at least 38 mm (1 ½ in.) from lamp terminals~~

(0) ~~Portable luminaires with a polarized attachment plug~~

Supplemental Information

File Name	Description	Approved
NEC_SR-8170_406.42_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:29:43 EDT 2021

Committee Statement

Committee Statement: Language was changed to use appropriate Article 100 definition of Exposed Conductive Surfaces that eliminates the need to use the phrase “unqualified persons”. Changed to exception format for clarity.

Response Message: SR-8170-NFPA 70-2021

Public Comment No. 720-NFPA 70-2021 [Section No. 410.42]

Public Comment No. 1847-NFPA 70-2021 [Section No. 410.42]

Second Revision No. 8171-NFPA 70-2021 [Section No. 410.44]

410.44 Connection to the Equipment Grounding Conductor.

Luminaires and equipment that require connection to an equipment grounding conductor in accordance with 410.42 ~~410.42(A) shall be provided with means for connecting a wire-type~~ shall be mechanically connected to an equipment grounding conductor ~~that complies with~~ as specified in ~~250.8~~ 250.118 and is sized in accordance with 250.122.

Exception No. 1: Replacement luminaires shall be permitted to connect an equipment grounding conductor in the same manner as replacement receptacles in compliance with 250.130(C). The luminaire shall then comply with 410.42.

Exception No. 2: Where no equipment grounding conductor exists at the outlet, replacement luminaires that are GFCI protected or do not have exposed conductive parts shall not be required to be connected to an equipment grounding conductor.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:33:42 EDT 2021

Committee Statement

Committee Statement: Reference to 250.118 was reintroduced because it provides alternative mechanical connections to a wire-type equipment grounding conductor.

Response Message: SR-8171-NFPA 70-2021

Public Comment No. 1851-NFPA 70-2021 [Section No. 410.44]

Public Comment No. 1242-NFPA 70-2021 [Section No. 410.44]

Second Revision No. 8172-NFPA 70-2021 [Section No. 410.71(1)]

(1) General.

In indoor locations other than dwellings and associated accessory structures, fluorescent or LED luminaires that utilize double-ended lamps and contain ballast(s) or LED driver(s) that can be serviced in place shall have a disconnecting means either internal or external to each luminaire. For existing installed luminaires without disconnecting means, at the time a ballast or LED driver is added or replaced a disconnecting means shall be installed. The line side terminals of the disconnecting means shall be guarded.

Exception No. 1: A disconnecting means shall not be required for luminaires installed in hazardous (classified) location(s).

Exception No. 2: A disconnecting means shall not be required for luminaires that provide emergency illumination required in 700.16.

Exception No. 3: For cord-and-plug-connected luminaires, an accessible separable connector or an accessible plug and receptacle shall be permitted to serve as the disconnecting means.

~~Exception No. 4: Where more than one luminaire is installed and supplied by other than a multiwire branch circuit, a disconnecting means shall not be required for every luminaire when the design of the installation includes disconnecting means, such that the illuminated space cannot be left in total darkness.~~

Exception No. 4: Disconnecting means shall not be required for every luminaire in a building area if all of the following conditions apply:

(1) More than one luminaire is installed in the building area

(2) The luminaires are not connected to a multiwire branch circuit

(3) The design of the installation includes disconnecting means

(4) The building area will not be left in total darkness should only one disconnect be opened

Supplemental Information

File Name	Description	Approved
NEC_SR-8172_410.71_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:50:02 EDT 2021

Committee Statement

Committee Statement: Exception No. 4 was revised for usability and clarity in accordance with 3.3.1.2 of the NEC Style Manual.

Response Message: SR-8172-NFPA 70-2021

Public Comment No. 721-NFPA 70-2021 [Section No. 410.70]

Second Revision No. 8173-NFPA 70-2021 [Section No. 410.136(B)]

(B) Combustible Low-Density Cellulose Fiberboard.

Where a surface-mounted luminaire containing a ballast, transformer, LED driver, or power supply is to be installed on combustible low-density cellulose fiberboard, it shall be marked for this condition or shall be spaced not less than 38 mm (1½ in.) from the surface of the fiberboard. Where such luminaires are partially or wholly recessed, ~~the provisions of~~ 410.110 through 410.126 shall apply.

Informational Note: See ASTM E84-20, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or ANSI/UL 723-2018, *Standard for Test for Surface Burning Characteristics of Building Materials*. Combustible low-density cellulose fiberboard includes sheets, panels, and tiles that have a density of 320 kg/m^3 (20 lb/ft^3) or less and that are formed of bonded plant fiber material but does not include solid or laminated wood or fiberboard that has a density in excess of 320 kg/m^3 (20 lb/ft^3) or is a material that has been integrally treated with fire-retarding chemicals to the degree that the flame spread index in any plane of the material will not exceed 25, determined in accordance with tests for surface burning characteristics of building materials.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:54:04 EDT 2021

Committee Statement

Committee Statement: The phrase “the provisions of” was removed to comply with 4.1.3 of the NEC Style Manual.

Response Message: SR-8173-NFPA 70-2021

Public Comment No. 722-NFPA 70-2021 [Section No. 410.136(B)]

Second Revision No. 8174-NFPA 70-2021 [Section No. 410.155(B)]

(B) Equipment Grounding Conductor.

Lighting track shall be connected to the equipment grounding conductor in accordance with Part ~~VI~~ V of this ~~Article~~ article , ~~250 ,~~ and the track sections shall be securely coupled to maintain continuity of the circuitry, polarization, and grounding throughout.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:56:24 EDT 2021

Committee Statement

Committee Statement: The reference to Part VI of Article 250 was changed to “Part V of this Article”. Since 250.112 (J) points to 410 Part V for luminaire grounding requirements, this removes a circular reference.

Response Message: SR-8174-NFPA 70-2021

Public Comment No. 724-NFPA 70-2021 [Section No. 410.155(B)]

Second Revision No. 8175-NFPA 70-2021 [Section No. 410.182]

410.182 Equipment Grounding Conductor.

Lighting equipment identified for horticultural use shall be connected to the equipment grounding conductor in accordance with Part ~~VI of Article~~ 250 ~~and Part~~ V of this article.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 11:59:08 EDT 2021

Committee Statement

Committee Statement: The reference to Part VI of Article 250 was removed, leaving the reference to “Part V of this Article”. Since 250.112 (J) points to 410 Part V for luminaire grounding requirements, this removes a circular reference.

Response Message: SR-8175-NFPA 70-2021

Public Comment No. 725-NFPA 70-2021 [Section No. 410.182]

Second Revision No. 8176-NFPA 70-2021 [Section No. 410.184]

410.184 Ground-Fault Circuit-Interrupter (GFCI) Protection and Special Purpose Ground-Fault Circuit-Interrupter (SPGFCI) Protection .

Lighting equipment identified for horticultural use and employing flexible cord(s) with one or more separable connector(s) or attachment plug(s) shall be supplied by lighting outlets protected by a listed ~~ground-fault circuit interrupter~~ GFCI .

Exception: Circuits exceeding 150 volts to ground shall be protected by a listed ~~special purpose ground-fault circuit interrupter~~ SPGFCI .

Informational Note: See UL 943C, *Outline of Investigation for Special Purpose Ground-Fault Circuit-Interrupters*, for information on special purpose ground-fault circuit interrupters.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 12:01:26 EDT 2021

Committee Statement

Committee Statement: This revision aligns the language with the accepted terms "Ground-Fault Circuit-Interrupter" and "Special Purpose Ground-Fault Circuit-Interrupter" to ensure consistency with Article 100 definitions.

Response Message: SR-8176-NFPA 70-2021

Public Comment No. 726-NFPA 70-2021 [Section No. 410.184]

Public Comment No. 926-NFPA 70-2021 [Section No. 410.184]

Second Revision No. 8177-NFPA 70-2021 [Section No. 410.186]

410.186 Support.

Fittings identified for support of horticultural lighting equipment shall be ~~designed specifically for the horticultural lighting equipment on which they are installed, shall be~~ used in accordance with the installation instructions provided~~,~~ and shall be securely fastened.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 12:07:11 EDT 2021

Committee Statement

Committee Statement: The phrase “designed specifically for…” was removed because it was vague and unenforceable, in accordance with 3.2.1 of the NEC Style Manual.

Since the supports are identified for the purpose, it is not necessary to refer to the product design.

Response Message: SR-8177-NFPA 70-2021

Public Comment No. 727-NFPA 70-2021 [Section No. 410.186]

Second Revision No. 8178-NFPA 70-2021 [Section No. 410.193]

410.193 Installation.

Luminaires ~~intended to emit germicidal irradiation~~ shall be installed in accordance with the manufacturer's instructions and equipment markings.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 12:15:56 EDT 2021

Committee Statement

Committee Statement: The redundant use of "intended to emit germicidal irradiation" was eliminated. The title of Part XVII as well as Section 410.191 already references germicidal irradiation luminaires so repeating the language is unnecessary.

Response Message: SR-8178-NFPA 70-2021

Second Revision No. 8179-NFPA 70-2021 [Section No. 410.195]

410.195 Locations Not Permitted.

(A) General Lighting.

Luminaires ~~intended to emit germicidal irradiation~~ shall not be installed as lighting for general illumination unless such use is indicated in the manufacturer's instructions.

(B) Installed Location.

Luminaires ~~intended to emit germicidal irradiation~~ shall not be installed where likely to be subject to physical damage.

(C) Dwellings.

Luminaires ~~intended to emit germicidal irradiation~~ shall not be installed in a dwelling unless listed and identified for use in dwellings.

(D) Mounting Height.

Luminaires ~~intended to emit germicidal irradiation and~~ installed in a building space that will be occupied during luminaire operation shall not be mounted below the minimum height specified by its listing and installation instructions.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 12:17:40 EDT 2021

Committee Statement

Committee Statement: The redundant use of "intended to emit germicidal irradiation" was eliminated. The title of Part XVII as well as Section 410.191 already references germicidal irradiation luminaires so repeating the language is unnecessary.

Response Message: SR-8179-NFPA 70-2021

Public Comment No. 226-NFPA 70-2021 [Sections Part XVII., 410.190, 410.191, 410.193, 410.195]

Second Revision No. 8184-NFPA 70-2021 [Section No. 411.1]

411.1 Scope.

This article covers lighting systems and their associated components operating at ~~no more than 30 volts ac or 60 volts dc. Where wet contact is likely to occur, the limits are 15 volts ac or 30 volts dc~~ low voltage .

~~*Exception: This article shall not apply to lighting systems and associated components that exceed 15 volts ac or 30 volts dc where wet contact is likely to occur.*~~

~~Informational Note: See 680.1 for swimming pools, fountains, and similar installations.~~

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:26:12 EDT 2021

Committee Statement

Committee Statement: The mandatory language and exception were removed from the scope to comply with 3.1.4 of the NEC Style Manual.

Article 411 was renumbered to allow for a new section 411.3 to include the voltage limitations for low-voltage lighting systems which was deleted from the scope. The language was modified to clarify the required voltage limitations.

Response Message: SR-8184-NFPA 70-2021

Public Comment No. 728-NFPA 70-2021 [Section No. 411.1]

Second Revision No. 8187-NFPA 70-2021 [Section No. 411.4(A)]

(A) Listed System.

The luminaires, power supply, and luminaire fittings (including the exposed bare conductors) of a low-voltage lighting system shall be listed for use as part of the same identified lighting system ~~and installed in accordance with its listing~~ .

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:35:09 EDT 2021

Committee Statement

Committee Statement: Section 411.4(A) was revised to comply with 4.1.1 of the NEC Style Manual.

Response Message: SR-8187-NFPA 70-2021

Public Comment No. 785-NFPA 70-2021 [Section No. 411.4(A)]

Second Revision No. 8202-NFPA 70-2021 [Section No. 411.4 [Excluding any Sub-Sections]]

Low-voltage lighting systems shall comply with 411.5(A) or (B). Listed low-voltage lighting systems or a lighting system assembled from listed parts shall not be ~~permitted to be~~ reconditioned.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 17:10:03 EDT 2021

Committee Statement

Committee Statement: The text in 411.4 “permitted to be” was deleted for clarity and ease of use.

Response Message: SR-8202-NFPA 70-2021

Second Revision No. 8182-NFPA 70-2021 [Section No. 411.6]

411.7 Secondary Circuits.

(A) Grounding.

Secondary circuits shall not be grounded.

Exception: Secondary circuits supplied by a Class 2 power source ~~complying with the requirements of 725.60~~ listed and identified as suitable for secondary grounding shall be permitted to be grounded.

(B) Isolation.

The secondary circuit shall be insulated from the branch circuit by an isolating transformer.

(C) Bare Conductors.

Exposed bare conductors and current-carrying parts shall be permitted for indoor installations only. Bare conductors shall not be installed less than 2.1 m (7 ft) above the finished floor, unless specifically listed for a lower installation height.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 13:00:07 EDT 2021

Committee Statement

Committee Statement: The exception only applies to Class 2 power sources that are listed and identified for secondary grounding.

The second revision was made to ensure that power sources are identified for secondary grounding when they have been evaluated and found suitable for that application. The reference to 725.60 was removed due to redundancy.

Response Message: SR-8182-NFPA 70-2021

Second Revision No. 8188-NFPA 70-2021 [Section No. 411.8]

~~**411.8** Hazardous (Classified) Locations.~~

~~Where installed in hazardous (classified) locations, low-voltage lighting systems shall conform with the requirements for such locations in addition to this article.~~

Submitter Information Verification

Committee: NEC-P18
Submittal Date: Fri Oct 22 14:37:00 EDT 2021

Committee Statement

Committee Statement: Section 411.8 was deleted to comply with 4.1.1 of the NEC Style Manual.
Response Message: SR-8188-NFPA 70-2021

Public Comment No. 788-NFPA 70-2021 [Section No. 411.8]

Second Revision No. 8194-NFPA 70-2021 [Section No. 600.4(E)]

~~**(E)** Durability.~~

~~Marking labels shall be permanent and able to withstand the environment involved.~~

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 15:03:11 EDT 2021

Committee Statement

Committee Statement: This section is removed to comply with NEC Style Manual 4.1.1 and the following section is renumbered because it repeats a requirement in 110.21(B).

Response Message: SR-8194-NFPA 70-2021

Public Comment No. 800-NFPA 70-2021 [Section No. 600.4(E)]

Second Revision No. 8195-NFPA 70-2021 [Section No. 600.5(D)]

(D) Wiring Methods.

Wiring methods used to supply signs shall comply with 600.5(D)(1), (D)(2), and (D)(3).

(1) Supply.

The wiring method used to supply signs and outline lighting systems shall terminate within a sign, an outline lighting system enclosure, a suitable box, a conduit body, or panelboard.

(2) Enclosures as Pull Boxes.

~~Electrical enclosures integral to the sign that are listed and labeled for the purpose are permitted to be used for voltages up to 600 volts as pull or junction boxes for conductors supplying other adjacent signs, outline lighting systems, or floodlights that are part of a sign and shall be permitted to contain both branch and secondary circuit conductors. Neon transformer boxes listed and labeled for the purpose shall be permitted to contain multiple voltages over 1000 volts. A disconnecting means shall be provided to de-energize all ungrounded conductors in the enclosures.~~

(a) ~~Electrical~~ Listed and labeled electrical enclosures integral to the sign ~~that are listed and labeled for the purpose are~~ shall be permitted to be used for voltages up to 600 volts as pull or junction boxes for conductors supplying the following:

(1) Other adjacent signs

(2) Outline lighting systems

(3) Floodlights that are part of a sign

(b) The enclosures in 600.5(D)(2)(a) shall be permitted to contain both branch and secondary circuit conductors.

(c) ~~Neon~~ Listed and labeled neon transformer boxes ~~listed and labeled for the purpose~~ shall be permitted to contain multiple voltages over 1000 volts. A disconnecting means shall be provided to de-energize all ungrounded conductors in the enclosures.

(3) Metal or Nonmetallic Poles.

Metal or nonmetallic poles used to support signs shall be permitted to enclose supply conductors, provided the poles and conductors are installed in accordance with 410.30(B).

Supplemental Information

File Name	Description	Approved
NEC_SR-8195_600.5_D_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18
Submittal Date: Fri Oct 22 15:17:46 EDT 2021

Committee Statement

Committee Section 600.5(D)(2) has been modified to comply with 3.3.1.2 of the NEC Style

Statement: manual.

Response Message: SR-8195-NFPA 70-2021

Public Comment No. 801-NFPA 70-2021 [Section No. 600.5(D)(2)]

Second Revision No. 8196-NFPA 70-2021 [Section No. 600.6]

600.6 Disconnects.

Each sign and outline lighting system, feeder conductor(s), or branch circuit(s) supplying a sign, outline lighting system, or skeleton tubing shall be controlled by an externally operable switch or circuit breaker that opens all ungrounded conductors and controls no other load. ~~The indicating means of the disconnect shall be in accordance with 400.7 and clearly indicate the open (off) and closed (on) position. The switch or circuit breaker shall open all ungrounded conductors simultaneously on multiwire branch circuits in accordance with 210.4(B) .~~ Signs and outline lighting systems located within fountains shall have the disconnect located in accordance with 680.13.

Exception No. 1: A disconnecting means shall not be required for an exit directional sign located within a building.

Exception No. 2: A disconnecting means shall not be required for cord-connected signs with an attachment plug.

Informational Note: The location of the disconnect is intended to allow service or maintenance personnel and first responders complete and local control of the disconnecting means.

(A) Location.

The disconnecting means shall be accessible and located in accordance with 600.6(A)(1), 600.6(A)(2), or 600.6(A)(3). If the ~~resulting location of the~~ disconnecting means is remote from the sign it controls, it shall comply with 600.6(A)(4).

(1) At Point of Entry to a Sign.

The disconnect shall be located at the point the feeder circuit or branch circuit(s) supplying a sign or outline lighting system enters a sign enclosure, a sign body, or a pole in accordance with 600.5(D)(3). The disconnect shall open all ungrounded conductors where it enters the enclosure of the sign or pole.

Exception No. 1: A disconnect shall not be required for branch circuit(s) or feeder conductor(s) passing through the sign where not accessible and enclosed in a Chapter 3 listed raceway or metal-jacketed cable identified for the location.

Exception No. 2: A disconnect shall not be required at the point of entry to a sign enclosure or sign body for branch circuit(s) or feeder conductor(s) that supply an internal panelboard(s) in a sign enclosure or sign body. The conductors shall be enclosed where not accessible in a Chapter 3 listed raceway or metal-jacketed cable identified for the location. A field-applied permanent ~~warning~~ hazard label that is visible during servicing shall be applied to the raceway at or near the point of entry into the sign enclosure or sign body. The ~~warning~~ danger label shall ~~comply with 110.21(B) and~~ state the following: "Danger. This raceway contains energized conductors." The marking shall include the location of the disconnecting means for the energized conductor(s). The disconnecting means shall be capable of being locked in the open position in accordance with 110.25.

(2) Within Sight of the Sign.

The disconnecting means shall be within sight of the sign or outline lighting system that it controls. Where the disconnecting means is out of the line of sight from any section that is able to be energized, the disconnecting means shall be lockable in accordance with 110.25. A permanent field-applied marking identifying the location of the disconnecting means shall be applied to the sign in a location visible during servicing. ~~The warning label shall comply with 110.21(B) .~~

(3) Within Sight of the Controller.

The following shall apply for signs or outline lighting systems operated by electronic or electromechanical controllers located external to the sign or outline lighting system:

(1) The disconnecting means shall be located within sight of the controller or in the same enclosure with the controller.

(2) The disconnecting means shall disconnect the sign or outline lighting system and the controller from all ungrounded supply conductors.

(3) The disconnecting means shall be designed such that no pole can be operated independently and shall be lockable in accordance with 110.25.

Exception: Where the disconnecting means is not located within sight of the controller, a permanent field-applied marking identifying the location of the disconnecting means shall be applied to the controller in a location visible during servicing. ~~The warning label shall comply with 110.21(B) .~~

(4) Remote Location.

The disconnecting means, if located remote from the sign, sign body, or pole, shall be mounted at an accessible location available to first responders and service personnel. The location of the disconnect shall be marked with a label at the sign location and marked as the disconnect for the sign or outline lighting system. ~~The label shall comply with 110.21(B) .~~

(B) Control Switch Rating.

Switches, flashers, and similar devices controlling transformers and electronic power supplies shall be rated for controlling inductive loads or have a current rating not less than twice the current rating of the transformer or the electronic power supply.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 15:43:24 EDT 2021

Committee Statement

Committee Statement: Revisions in the text are made to comply with NEC Style Manual 4.1.1.and 4.1.2. Rules referencing 110.21 is repeated unnecessarily throughout the section. References to 400.7 indicating means of a disconnect is in error and repeats a Chapter Four requirement in 404.7 to comply with the NEC Style Manual. A repeated requirement to 210.4(B) is removed. The term “warning” is replaced with “danger” to reflect the language required on the label. Text was added into 600.6(A) for clarity of the disconnecting location.

Response Message: SR-8196-NFPA 70-2021

Public Comment No. 806-NFPA 70-2021 [Section No. 600.6]

Public Comment No. 803-NFPA 70-2021 [Section No. 600.6(A) [Excluding any Sub-Sections]]

Second Revision No. 8200-NFPA 70-2021 [Section No. 600.7(B)(3)]

(3) Metal Building Parts.

Metal parts of a building shall not be ~~permitted to be~~ used as a means for bonding metal parts and equipment of signs or outline lighting systems together or to the transformer or power-supply equipment grounding conductor of the supply circuit.

Submitter Information Verification

Committee: NEC-P18
Submittal Date: Fri Oct 22 16:17:26 EDT 2021

Committee Statement

Committee Statement: The text "permitted to be" was removed for clarity and ease of use.
Response Message: SR-8200-NFPA 70-2021

Second Revision No. 8197-NFPA 70-2021 [Section No. 600.7(B)(7)]

(7) Bonding Conductors.

Bonding conductors installed outside of a sign or raceway shall be protected from physical damage. Bonding conductors shall comply with 250.120 and 250.122. Bonding conductor size shall also comply with one of the following:

(1) Bonding conductors shall be copper and not smaller than 14 AWG.

(2) Bonding conductors shall be copper-clad aluminum and not smaller than 12 AWG.

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 15:52:08 EDT 2021

Committee Statement

Committee Statement: Adding the word “also” further clarifies the intent.

Response Message: SR-8197-NFPA 70-2021

Public Comment No. 238-NFPA 70-2021 [Section No. 600.7(B)(7)]

Second Revision No. 8198-NFPA 70-2021 [Section No. 600.32(A)(4)]

(4) Spacing from Grounded Parts.

Other than at the location of connection to a metal enclosure or sign body, nonmetallic conduit or flexible nonmetallic conduit shall ~~be spaced not less than 38 mm (1 ½ in.) from grounded or bonded parts when the conduit contains a conductor operating at 100 Hz or less, and shall be spaced not less than 45 mm (1 ¾ in.) from grounded or bonded parts when the conduit contains a conductor operating at more than 100 Hz.~~ comply with the following:

(1) Be spaced not less than 38 mm (1 ½ in.) from grounded or bonded parts when the conduit contains a conductor operating at 100 Hz or less, or

(2) Be spaced not less than 45 mm (1 ¾ in.) from grounded or bonded parts when the conduit contains a conductor operating at more than 100 Hz

Supplemental Information

File Name	Description	Approved
NEC_SR-8198_600.32_A_4_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 15:56:38 EDT 2021

Committee Statement

Committee Statement: Section 600.32 (A)(4) has been modified to comply with 3.3.1.2 of the NEC Style manual.

Response Message: SR-8198-NFPA 70-2021

Public Comment No. 813-NFPA 70-2021 [Section No. 600.32(A)(4)]

Second Revision No. 8384-NFPA 70-2021 [Section No. 600.35]

600.35 Retrofit Kits.

(A) General.

A general-use or sign-specific retrofit kit for a sign or outline lighting system shall include installation instructions and requirements for field conversion of a host sign. The retrofit kit shall be listed and labeled.

(B) Installation.

The retrofit kit shall be installed in accordance with the installation instructions.

(1) Wiring Methods.

Wiring methods shall be in accordance with Chapter 3.

Exception: If powered from a Class 2 source, wiring methods shall be in accordance with 600.12(C)(1)(2) and (C)(2), 600.24, and 600.33.

(2) Damaged Parts.

All parts that are not replaced by a retrofit kit shall be inspected for damage. Any part found to be damaged or damaged during conversion of the sign shall be replaced or repaired to maintain the sign or outline lighting system's dry, damp, or wet location rating.

~~**(3)** Workmanship.~~

~~Field conversion workmanship shall be in accordance with 110.12 .~~

(3) Marking.

The retrofitted sign shall be marked in accordance with 600.4(B).

Supplemental Information

File Name	Description	Approved
NEC_SR-8384_600.35_B_CMP18.docx	For staff use	

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Tue Oct 26 12:30:46 EDT 2021

Committee Statement

Committee Statement: List item (3) of 600.35(B) is removed to comply with 4.1.1 of the NEC Style Manual and the section is renumbered. There are different installation requirements for retrofit kits used in signs. These kits are uniquely different than other retrofit kits and need to be addressed in this section.

Response Message: SR-8384-NFPA 70-2021

Public Comment No. 1554-NFPA 70-2021 [Section No. 600.35]

Second Revision No. 8193-NFPA 70-2021 [Section No. 605.3]

605.3 General.

Wiring systems shall be identified as suitable for providing power for lighting accessories and utilization equipment used within office furnishings. A wired partition shall not extend from floor to ceiling. These assemblies shall be installed and used only as provided for by this article.

Exception: Where permitted by the authority having jurisdiction, these relocatable wired partitions shall be permitted to extend to, but shall not penetrate, the ceiling.

~~**(A)** Use.~~

~~These assemblies shall be installed and used only as provided for by this article.~~

~~**(A)** Hazardous (Classified) Locations.~~

~~Where used in hazardous (classified) locations, these assemblies shall comply with the requirements for such locations in addition to this article.~~

Submitter Information Verification

Committee: NEC-P18

Submittal Date: Fri Oct 22 14:58:10 EDT 2021

Committee Statement

Committee Statement: 605.3 subsections were renumbered and 605.3(B) is removed to comply with 4.1.1 of the NEC Style Manual.

The text of 605.3(A) was relocated to 605.3 after the deletion of 605.3(B).

Response Message: SR-8193-NFPA 70-2021

Public Comment No. 814-NFPA 70-2021 [Section No. 605.3(B)]