



National Fire Protection Association

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WORKING DRAFT OF NEC CODE-MAKING **PANEL 14 MEETING OUTPUT**

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

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This is a working draft, prepared by NFPA staff, to record the output generated at the Code-Making Panel 14 Second Draft Meeting. It includes draft copies of the Second Revisions and any Global Revisions.

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



[update the following NFPA 30A extracts as shown]

Table 515.5 Electrical Area Classifications

Location	Division Zone		Extent of Classified Area
Indoor equipment installed where flammable vapor–air mixtures can exist under normal operation (see Informational Note)	1	0	The entire area associated with such equipment where flammable gases or vapors are present continuously or for long periods of time
	1	1	Area within 1.5 m (5 ft) of any edge of such equipment, extending in all directions
	2	2	Area between 1.5 m and 2.5 m (5 ft and 8 ft) of any edge of such equipment, extending in all directions; also, space up to 900 mm (3 ft) above floor or grade level within 1.5 m to 7.5 m (5 ft to 25 ft) horizontally from any edge of such equipment ¹
Outdoor equipment installed where flammable vapor–air mixtures can exist under normal operation	1	0	The entire area associated with such equipment where flammable gases or vapors are present continuously or for long periods of time
	1	1	Area within 900 mm (3 ft) of any edge of such equipment, extending in all directions
	2	2	Area between 900 mm (3 ft) and 2.5 m (8 ft) of any edge of such equipment, extending in all directions; also, space up to 900 mm (3 ft) above floor or grade level within 900 mm to 3.0 m (3 ft to 10 ft) horizontally from any edge of such equipment
Tank storage installations inside buildings	1	1	All equipment located below grade level
	2	2	Any equipment located at or above grade level

Location	Division Zone		Extent of Classified Area
Tank — aboveground, fixed roof	1	0	Inside fixed roof tank
	1	1	Area inside dike where dike height is greater than the distance from the tank to the dike for more than 50 percent of the tank circumference
	2	2	Within 3.0 m (10 ft) from shell, ends, or roof of tank; also, area inside dike to level of top of dike wall
	1	0	Area inside of vent piping or opening
	1	1	Within 1.5 m (5 ft) of open end of vent, extending in all directions
	2	2	Area between 1.5 m and 3.0 m (5 ft and 10 ft) from open end of vent, extending in all directions
Tank — aboveground, floating roof			
With fixed outer roof	1	0	Area between the floating and fixed roof sections and within the shell
With no fixed outer roof	1	1	Area above the floating roof and within the shell
Tank vault — interior	1	1	Entire interior volume, if Class I liquids are stored within
Underground tank fill opening	1	1	Any pit, box, or space below grade level, if any part is within a Division 1 or 2, or Zone 1 or 2 classified location
	2	2	Up to 450 mm (18 in.) above grade level within a horizontal radius of 3.0 m (10 ft) from a loose fill connection, and within a horizontal radius of 1.5 m (5 ft) from a tight fill connection
Vent — discharging upward	1	0	Area inside of vent piping or opening
	1	1	Within 900 mm (3 ft) of open end of vent, extending in all directions

Location	Division Zone		Extent of Classified Area
	2	2	Area between 900 mm and 1.5 m (3 ft and 5 ft) of open end of vent, extending in all directions
Drum and container filling — outdoors or indoors	1	0	Area inside the drum or container
	1	1	Within 900 mm (3 ft) of vent and fill openings, extending in all directions
	2	2	Area between 900 mm and 1.5 m (3 ft and 5 ft) from vent or fill opening, extending in all directions; also, up to 450 mm (18 in.) above floor or grade level within a horizontal radius of 3.0 m (10 ft) from vent or fill opening
Pumps, bleeders, withdrawal fittings			
Indoor	2	2	Within 1.5 m (5 ft) of any edge of such devices, extending in all directions; also, up to 900 mm (3 ft) above floor or grade level within 7.5 m (25 ft) horizontally from any edge of such devices
Outdoor	2	2	Within 900 mm (3 ft) of any edge of such devices, extending in all directions. Also, up to 450 mm (18 in.) above grade level within 3.0 m (10 ft) horizontally from any edge of such devices
Pits and sumps			
Without mechanical ventilation	1	1	Entire area within a pit or sump if any part is within a Division 1 or 2 or Zone 1 or 2 classified location
With adequate mechanical ventilation	2	2	Entire area within a pit or sump if any part is within a Division 1 or 2 or Zone 1 or 2 classified location
Containing valves, fittings, or piping, and not within a Division 1 or 2 or Zone 1 or 2 classified location	2	2	Entire pit or sump
Drainage ditches, separators, impounding basins			

Location	Division Zone		Extent of Classified Area
Outdoor	2	2	Area up to 450 mm (18 in.) above ditch, separator, or basin; also, area up to 450 mm (18 in.) above grade within 4.5 m (15 ft) horizontally from any edge
Indoor			Same as pits and sumps
Tank vehicle and tank car ²			
Loading through open dome	1	0	Area inside of the tank
	1	1	Within 900 mm (3 ft) of edge of dome, extending in all directions
	2	2	Area between 900 mm and 4.5 m (3 ft and 15 ft) from edge of dome, extending in all directions
Loading through bottom connections with atmospheric venting	1	0	Area inside of the tank
	1	1	Within 900 mm (3 ft) of point of venting to atmosphere, extending in all directions
	2	2	Area between 900 mm and 4.5 m (3 ft and 15 ft) from point of venting to atmosphere, extending in all directions; also, up to 450 mm (18 in.) above grade within a horizontal radius of 3.0 m (10 ft) from point of loading connection
Loading through closed dome with atmospheric venting	1	1	Within 900 mm (3 ft) of open end of vent, extending in all directions
	2	2	Area between 900 mm and 4.5 m (3 ft and 15 ft) from open end of vent, extending in all directions; also, within 900 mm (3 ft) of edge of dome, extending in all directions
Loading through closed dome with vapor control	2	2	Within 900 mm (3 ft) of point of connection of both fill and vapor lines extending in all directions
Bottom loading with vapor control or any bottom unloading	2	2	Within 900 mm (3 ft) of point of connections, extending in all directions; also up to 450 mm (18 in.) above grade within a horizontal radius of 3.0 m (10 ft) from point of connections

Location	Division Zone		Extent of Classified Area
Storage and repair garage for tank vehicles	1	1	All pits or spaces below floor level
	2	2	Area up to 450 mm (18 in.) above floor or grade level for entire storage or repair garage
Garages for other than tank vehicles	Unclassified		If there is any opening to these rooms within the extent of an outdoor classified location, the entire room shall be classified the same as the area classification at the point of the opening.
Outdoor drum storage	Unclassified		
Inside rooms or storage lockers used for the storage of Class I liquids	2	2	Entire room or locker
Indoor warehousing where there is no flammable Class I liquid transfer	Unclassified		If there is any opening to these rooms within the extent of an indoor classified location, the classified location shall extend through the opening to the same extent as if the wall, curb, or partition did not exist.
Office and rest rooms	Unclassified		If there is any opening to these rooms within the extent of an indoor classified location, the room shall be classified the same as if the wall, curb, or partition did not exist.
Piers and wharves			See Figure 515.5.

¹The release of Class I liquids can generate vapors to the extent that the entire building, and possibly an area surrounding it, should be considered a Class I, Division 2 or Zone 2 location.

²When classifying extent of area, consideration shall be given to the fact that tank cars or tank vehicles can be spotted at varying points. Therefore, the extremities of the loading or unloading positions shall be used. [30:Table 7.3.3]

Informational Note No. 4: See NFPA 30-2024, *Flammable and Combustible Liquids Code*, Section 7.3 for additional information.

Figure 515.5 Area Classification for a Marine Terminal Handling Flammable Class I Liquids. [30:Figure 29.3.22]

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[Update the NFPA 30A extracts as shown]

511.5 Area Classification, General.

Where Class I liquids or gaseous fuels are stored, handled, or ~~transferred~~ dispensed, electrical wiring and electrical utilization equipment shall be designed in accordance with the requirements for Class I, Division 1 or 2 hazardous (classified) locations as classified in accordance with 500.5 and 500.6, and Article 511. A Class I location shall not extend beyond an unpierced wall, roof, or other solid partition that has no openings. [30A:8.3.1, 8.3.3]

511.5(E)(2) Alcohol-Based Windshield Washer Fluid.

The area used for storage, handling, or dispensing ~~into motor vehicles~~ of methyl alcohol-based windshield washer fluid in repair garages shall be unclassified unless otherwise classified by a provision of 511.5. [30A:8.3.2 ~~1~~, ~~Exception~~]

514.5(B)(1) Class I Locations.

Table 514.5(B)(1) shall be applied where Class I liquids are stored, handled, or dispensed and shall be used to delineate and classify motor fuel dispensing facilities and commercial garages as defined in Article 100. Table 515.5 shall be used for the purpose of delineating and classifying aboveground tanks. A Class I location shall not extend beyond an unpierced wall, roof, or other solid partition. [~~30A:8.1, 8.2, 8.3~~]

Table 514.5(B)(1) Class I Locations — Motor Fuel Dispensing Facilities

⁴Ceiling-mounted hose reel. [30A:Table 8.3.3 ~~1~~]

Table 514.5(B)(2) Electrical Equipment Classified Areas for Dispensing Devices

Dispensing Device	Extent of Classified Area	
	Class I, Division 1	Class I, Division 2
Compressed natural gas (CNG)	Entire space within the dispenser enclosure	1.5 m (5 ft) in all directions from dispenser enclosure
Liquefied natural gas (LNG)	Entire space within the dispenser enclosure	3 m (10 ft) in all directions from the dispenser enclosure
Liquefied petroleum gas (LP-Gas)	Entire space within the dispenser enclosure; 450-mm <u>46 cm</u> (18 in.) from the exterior surface of the dispenser enclosure to an elevation of 1.22 m (4 ft) above the base of the dispenser; the entire pit or open space beneath the dispenser and within 6 m	Up to 450-mm <u>46 cm</u> (18 in.) above ground and within 6 m (20 ft) horizontally from any edge of the dispenser enclosure, including pits or trenches within this area when

Dispensing Device	Extent of Classified Area	
	Class I, Division 1	Class I, Division 2
	(20 ft) horizontally from any edge of the dispenser when the pit or trench is not mechanically ventilated	provided with adequate mechanical ventilation

[30A:Table 12.6.2]

514.5(B)(3)

- (d) Aboveground tanks storing CNG, LNG, or LP-Gas shall be separated from each other by at least 6 m (20 ft) and from dispensing devices that dispense liquid or gaseous motor vehicle fuels by at least 6 m (20 ft). [30A:12.3.4 3]

514.11 Circuit Disconnects.

(A) Emergency Electrical Disconnects.

Fuel dispensing systems shall be provided with one or more clearly identified emergency shutoff devices or electrical disconnects. Such devices or disconnects shall be installed in approved locations ~~but~~ not less than 6 m (20 ft) or more than 30 m (100 ft) from the fuel dispensing devices that they serve. Additional shutoff devices or electrical disconnects shall be permitted to be located less than 6 m (20 ft) or greater than 30 m (100 ft) from an individual dispenser. Emergency shutoff devices or electrical disconnects shall disconnect power to all dispensing devices ~~not supplied by circuits that are identified to be intrinsically safe~~; to all remote pumps serving the dispensing devices; to all associated power, control, and signal circuits; ~~and~~ to all other electrical equipment in the hazardous (classified) locations; and to electrical receptacles over or adjacent to the hazardous (classified) locations surrounding the fuel dispensing devices. Emergency shutoff devices or electrical disconnects shall mechanically or electrically isolate other fluid transfer systems serving the fuel dispensing area. Intrinsically safe electrical equipment shall not be required to be disconnected by the emergency shutoff device or the electrical disconnect. When more than one emergency shutoff device or electrical disconnect is provided, all devices shall be interconnected. Resetting from an emergency shutoff condition shall require manual intervention. ~~and the~~ The manner of resetting shall be approved ~~by the authority having jurisdiction~~. [30A:6.7] The emergency shutoff device shall disconnect simultaneously from the source of supply, all conductors of the circuits, including the grounded conductor, if any. Equipment grounding conductors shall remain connected.

Exception: Intrinsically safe systems shall not be required to meet this requirement.

(B) Attended Self-Service Motor Fuel Dispensing Facilities.

At attended motor fuel dispensing facilities, the devices or disconnects shall be readily accessible to the attendant and labeled with an approved sign stating "EMERGENCY FUEL SHUTOFF" or equivalent language. [30A:6.7.10]

(C) Unattended Self-Service Motor Fuel Dispensing Facilities.

At unattended motor fuel dispensing facilities, the devices or disconnects shall be readily accessible to patrons. ~~and at~~ At least one additional device or disconnect shall be readily accessible to each group of dispensing devices on an individual island. The device(s) or disconnect(s) shall be labeled with an approved sign stating "EMERGENCY FUEL SHUTOFF" or equivalent language. [30A:6.7.11 2]

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[Update the NFPA 33 extracts as follows]

Limited Finishing Workstation.

A power-ventilated apparatus that is capable of confining the vapors, mists, residues, dusts, or deposits that are generated by a limited spray application process. Such apparatus is not a spray booth or spray room, as herein defined.

[~~33:3.3.23~~ 5.1] (CMP-14)

Spray Booth.

A power-ventilated enclosure for a spray application operation or process that confines and limits the escape of the material being sprayed, including vapors, mists, dusts, and residues that are produced by the spraying operation and conducts or directs these materials to an exhaust system. [~~33:3.3.21~~ 19] (CMP-14)

Informational Note: A spray booth is an enclosure or insert within a larger room used for spraying, coating, and/or dipping applications. A spray booth can be fully enclosed or have open front or face and can include a separate conveyor entrance and exit. The spray booth is provided with a dedicated ventilation exhaust with supply air from the larger room or from a dedicated air supply.

Spray Room.

A power-ventilated fully enclosed room with a specified fire resistance rating used ~~exclusively~~ for ~~open~~ spraying of flammable or combustible materials.

[~~33:3.3.20~~ 22] (CMP-14)

516.7(D)(3) Open-Top Spray Booths.

For spraying operations conducted within an open top spray booth, any electrical wiring or utilization equipment located within the space 915 mm (3 ft) vertically above the booth shall be identified for Class I, Division 2; Class I Zone 2; Class II, Division 2; or Zone 22 locations, whichever is applicable. In addition, any electrical wiring or utilization equipment located and within 915 mm (3 ft) in all directions of other ~~booth~~ openings other than the top also shall be ~~considered~~ identified for Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22 whichever is applicable. [~~33:6.5.3~~]

(4) Enclosed Spray Booths and Spray Rooms.

For spray application operations confined to an enclosed spray booth or room, electrical area classification shall be as follows:

- (1) The area within 915 mm (3 ft) of any opening shall be classified as Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22 locations, whichever is applicable, as shown in Figure 516.7(D)(4).
- (2) Where automated spray application equipment is used, the area outside the access doors shall be unclassified provided the door interlock prevents the spray application operations when the door is open.

- (3) Where exhaust air from a liquid spray operation is ~~permitted to be~~ recirculated and all of the requirements of Section 7.5 of NFPA 33 are met, both of the following shall apply:
- a. The interior of any path downstream of the concentration monitor ~~recirculation path from the secondary particulate filters~~ up to and including the air supply plenum shall be classified as a Class I, Division 2; ~~or Class I, Zone 2; Class II, Division 2; or Zone 22~~ locations, whichever is applicable.
 - b. The interior of fresh air supply ducts shall be unclassified.
- (4) Where exhaust air is not recirculated, the interior of fresh air supply ducts and fresh air supply plenums shall be unclassified.

[33:6.5.4]

(5) Limited Finishing Workstations.

- (a) For limited finishing workstations, the area inside the 915 mm (3 ft) space horizontally and vertically beyond the volume enclosed by the outside surface of the curtains or partitions shall be classified as Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22, as shown in Figure 516.7(D)(5).
- (b) A limited finishing workstation shall be designed and constructed to have all of the following:
 - (1) A dedicated make-up air supply and air supply plenum [33:14.3.2.1]
 - (2) A limited finishing workstation that is enclosed by one of the following:
 - (a) Curtains or partitions that are noncombustible or limited combustible
 - (b) Curtains or partitions that can successfully pass Test Method 2 in NFPA 701
 - (c) Curtains or partitions that exhibit all of the following characteristics when tested in accordance with NFPA 286:
 - (i) During the 40 kW (136,486 Btu/hr) exposure, flames do not spread to the ceiling.
 - (ii) The flame does not spread to the outer extremity of the sample on any wall or ceiling.
 - (iii) Flashover, as defined in NFPA 286 does not occur.
 - (iv) The peak heat release rate throughout the test does not exceed 800 kW (2,729,714 Btu/hr).
 - (v) The total smoke release throughout the test does not exceed 1000 m² (10,764 ft²).
 - (d) Curtains or partitions that exhibit a maximum rate of heat release of 100 kW (341,214 Btu/hr) when tested in accordance with NFPA 289 using a 20 kW (68,242 Btu/hr) ignition source

(e) Curtains or partitions that are classified as welding curtains by ANSI/FM 4950, Welding Pads, Welding Blankets and Welding Curtains for Hot Work Operations

[33:14.3.2.2]

(3) A dedicated mechanical exhaust and filtration system [33:14.3.2.3]

(4) An approved automatic extinguishing system [33:14.3.2.4]

Informational Note: See NFPA 101-2024, *Life Safety Code*, for information on how to determine whether a material is noncombustible or limited combustible.

- (c) The amount of material sprayed in a limited finishing workstation shall not exceed 3.8 L (1 gal) in any 8-hour period. [33:14.3.3]
- (d) Curtains or partitions shall be fully closed during any spray operations. [33:14.3.5]
- (e) The equipment within the limited finishing workstation shall be interlocked such that the spray application equipment cannot be operated unless the exhaust ventilation system is operating and functioning properly and spray application is automatically stopped if the exhaust ventilation system fails. [33:14.3.6.2]
- (f) Any limited finishing workstation used for spray application operations shall not be used for any operation that is capable of producing sparks or particles of hot metal or for operations that involve open flames or electrical utilization equipment capable of producing sparks or particles of hot metal. [33:14.3.7]
- (g) Where industrial air heaters are used to elevate the air temperature for drying, curing, or fusing operations, a high limit switch shall be provided to automatically shut off the drying apparatus if the air temperature in the limited finishing workstation exceeds the maximum discharge-air temperature allowed by the standard that the heater is listed to or 93°C (200°F), whichever is less. [33:14.3.8.1]
- (h) A means shall be provided to show that the limited finishing workstation is in the drying or curing mode of operation and that the limited finishing workstation is to be unoccupied. [33:14.3.8.2]
- (i) Any containers of flammable or combustible liquids shall be removed from the limited finishing workstation before the drying apparatus is energized. [33:14.3.8.3]
- (j) Portable spot-drying, curing, or fusion apparatus shall be permitted to be used in a limited finishing workstation, provided that it is not located within the hazardous (classified) location established by NFPA 33-2024, *Standard for Spray Application Using Flammable or Combustible Materials*, Section 14.3.5 when spray application operations are being conducted. [33:14.3.9]
- (k) Recirculation of exhaust air shall be permitted when the provisions of 516.7(D)(4)(3) are both met. [33:14.3.10]

516.8(B) Wiring and Equipment — Vapors and Residues.

Unless specifically listed for locations containing deposits of dangerous quantities of flammable or combustible vapors, mists, residues, dusts, or deposits (as applicable), there shall be no electrical equipment in any spray area as herein defined whereon

deposits of combustible residue could readily accumulate, except wiring in rigid metal conduit, intermediate metal conduit, Type MI cable, or in metal boxes or fittings containing no taps, splices, or terminal connections. ~~[33:6.4.2]~~

516.8(D) Portable Equipment.

Portable electric luminaires or other utilization equipment shall not be used in a spray area during spray operations.

Exception No. 1: Where portable electric luminaires are required for operations in spaces not readily illuminated by fixed lighting within the spraying area, they shall be of the type identified for Class I, Division 1 or Zone 1 locations where readily ignitable residues could be present. ~~[33:6.9]~~

Exception No. 2: Where portable electric drying apparatus is used in spray booths and the following requirements are met:

- (1) The apparatus and its electrical connections are not located within the spray enclosure during spray operations.*
- (2) Electrical equipment within 450 mm (18 in.) of the floor is identified for Class I, Division 2 or Zone 2 locations.*
- (3) All metallic parts of the drying apparatus are electrically bonded and grounded.*
- (4) Interlocks are provided to prevent the operation of spray equipment while drying apparatus is within the spray enclosure, to allow for a 3-minute purge of the enclosure before energizing the drying apparatus and to shut off drying apparatus on failure of ventilation system.*

516.10(A)(10) Other Than Nonincendive Equipment.

Spray equipment that cannot be classified as nonincendive shall comply with 516.10(A)(10)(a) and (A)(10)(b).

- (a) Conveyors, hangers, and application equipment shall be arranged so that a minimum separation of at least twice the sparking distance is maintained between the workpiece or material being sprayed and electrodes, electrostatic atomizing heads, or charged conductors. Warnings defining this safe distance shall be posted. ~~[33:11.4.1]~~
- (b) The equipment shall provide an automatic means of rapidly de-energizing the high-voltage elements in the event the distance between the goods being painted and the electrodes or electrostatic atomizing heads falls below that specified in 516.10(A)(10)(a). ~~[33:11.3.8]~~ 4.2]

516.10(C)(4) Electrostatic Fluidized Beds.

Electrostatic fluidized beds and associated equipment shall be of identified types. The high-voltage circuits shall be designed such that any discharge produced when the charging electrodes of the bed are approached or contacted by a grounded object shall not be of sufficient intensity to ignite any powder-air mixture likely to be encountered or to result in an appreciable shock hazard. ~~[33:15.14.1]~~

- (a) Transformers, power packs, control apparatus, and all other electrical portions of the equipment shall be located outside the powder-coating area or shall otherwise comply with the requirements of 516.10(C)
 - (1). ~~[33:15.14.2]~~

Exception: The charging electrodes and their connections to the power supply shall be permitted within the powder-coating area.

- (b) All electrically conductive objects within the powder-coating area shall be electrically connected to ~~adequately~~ grounded ~~ed~~ with a resistance of not more than 1 megohm . This requirement shall also apply to any person nel who might enter the area. The powder-coating equipment shall carry a prominent, permanently installed warning regarding the necessity for grounding these objects. [33:15.14.3]

Informational Note: See 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*, and NFPA 77-2024, *Recommended Practice on Static Electricity*, for information on grounding and bonding for static electricity purposes.

- (c) Objects or material being coated shall be maintained in electrical contact ~~(less than 1 megohm)~~ with the conveyor or other support in order to ensure ~~proper~~ grounding. Hangers shall be ~~regularly~~ cleaned to ensure effective electrical contact. Areas of ~~electrical~~ contact shall be sharp points or knife edges where possible. [33:15.14.5]
- (d) The electrical equipment and compressed air supplies shall be interlocked with a ventilation system so that the equipment cannot be operated unless the ventilating fans are in operation. [33:15.14.6]

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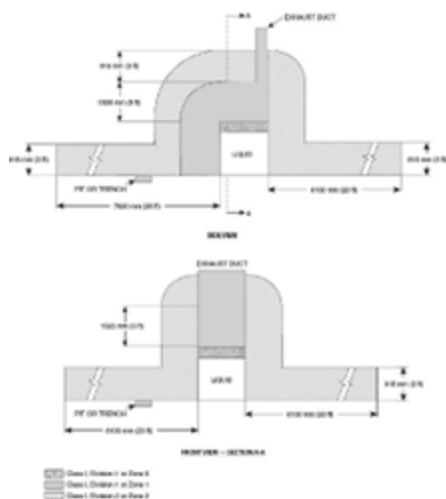
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516.8(F) Static Electric Discharges.

Exception: Those objects required by the process to be at high voltage shall not be required to be connected to ground with a resistance of not more than 1 megohm.
[34:6.8.1]

[Replace figure 516.29(3) with the following figure]



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[Update NFPA 499 extracts as follows]

Fibers/Flyings, Combustible. (Combustible Fibers/Flyings)

Fibers/flyings, where any dimension is greater than 500 µm in nominal size, which can form an explosible mixture when suspended in air at standard atmospheric pressure and temperature. [499:3.3.4.1] (CMP-14)

Informational Note No. 1: This definition and Informational Notes No. 2 and No. 3 have been extracted from NFPA 499-2024, *Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas*. The NFPA 499 reference is in brackets. Only editorial changes were made to the extracted text to make it consistent with this code.

Informational Note No. 2: Section 500.5(D) defines a Class III location. Combustible fibers/flyings can be similar in physical form to ignitable fibers/flyings and protected using the same electrical equipment installation methods. Examples of fibers/flyings include flat platelet-shaped particulate, such as metal flake, and fibrous particulate, such as particle board core material. If the smallest dimension of a combustible material is greater than 500 µm, it is unlikely that the material would be combustible fibers/flyings, as determined by test. Finely divided solids with lengths that are large compared to their diameter or thickness usually do not pass through a 500 µm sieve, yet when tested could potentially be determined to be explosible. [499:A.3.3.4.1]

Informational Note No. 3: See ASTM E1226, *Standard Test Method for Explosibility of Dust Clouds*, ISO 6184-1, *Explosion protection systems — Part 1: Determination of explosion indices of combustible dusts in air*, or ~~ISO/IEC~~ UL 80079-20-2, *Explosive atmospheres — Part 20-2: Material characteristics — Combustible dusts test methods*, for procedures for determining the explosibility of dusts. A material that is found to not present an explosible mixture could still be an ignitable fiber/flying, as defined in this article. Historically, the explosibility condition has been described as presenting a flash fire or explosion hazard. It could be understood that the potential hazard due to the formation of an explosible mixture when suspended in air at standard atmospheric pressure and temperature would include ignition. [499:A.3.3.4.1]

500.6(B)(2) Group F.

Atmospheres containing combustible carbonaceous dusts that have more than 8 percent total entrapped volatiles (see ASTM D3175-2017, *Standard Test Method for Volatile Matter in the Analysis Sample of Coal and Coke*, for coal and coke dusts) or that have been sensitized by other materials so that they present an explosion hazard. [499:3.3.9.1.2] Although ~~€~~ coal, carbon black, charcoal, and coke dusts are examples of carbonaceous dusts only those atmospheres containing combustible carbonaceous dust that have more than 8 percent total entrapped volatiles are Class II, Group F. [499:A.3.3.9.1.2]

Informational Note: Testing of specific dust samples, following established ASTM testing procedures, is a method used to identify the combustibility of a specific dust and the need to classify those locations containing that material as Group F.

506.6 Material Groups.

For the purposes of testing, approval, and area classification, various air mixtures (not oxygen enriched) shall be grouped as follows:

- (1) Group IIIC: Combustible metal dust, including combustible metal fibers/flyings. [499:3.3.9 8 .2.1]
- (2) Group IIIB: Combustible dust other than combustible metal dust. [499:3.3.8 9 .2.2]
- (3) Group IIIA: Combustible fibers/flyings or ignitable fibers/flyings other than metal. [499:3.3.8 9 .2.3]

Informational Note No. 1: Group IIIA materials are larger particle-size Group IIIB materials and do not include metal dust or metal fibers/flyings. [499:A.3.3.8 9 .2.3]

Informational Note No. 2: Examples of ignitable fibers/flyings include rayon, cotton (including cotton linters and cotton waste), sisal, jute, hemp, cocoa fiber, oakum, and baled waste kapok.

Informational Note No. 3: Combustible fibers/flyings include flat platelet-shaped particulates, such as metal flakes, and fibrous board, such as particle board.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Fri Oct 18 14:24:35 EDT 2024

Committee Statement

Committee Statement: This revision updates extracted text in accordance with the Extract Policy. For substantiation on any changes, see the first and second draft reports for the source document.

Response Message: SR-8022-NFPA 70-2024



Second Revision No. 7930-NFPA 70-2024 [Detail]

[See attached word document "CMP 14 SR 7930" for revisions to be balloted separately in Table 505.15(C)(2)]

Table 505.15(C)(2) Wiring Methods With Flexible Connections for Use in Zone 2 Locations

Add text in last column/row

Type PLTC-ER Cable	722.121	(1) This cable shall be used in Class 2 or Class 3 circuits. (2) The cable shall be terminated with listed fittings. (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.
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Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP_14_SR_7930.docx		
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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Thu Oct 17 16:57:21 EDT 2024

Committee Statement

Committee Statement:	This revision includes requirements for power limitation for PLTC-ER flexible wiring methods in Zone 2 locations. These requirements are needed to address safety concerns of not limiting the voltage and power. This revision aligns with requirements in 501.10(B)(2) and 506.15(C)(1).
Response Message:	SR-7930-NFPA 70-2024

Table 505.15(C)(2) Wiring Methods With Flexible Connections for Use in Zone 2 Locations		
Wiring Methods	Reference	Zone 2 Requirements
Flexible Metal Fittings		Flexible metal fittings shall be listed.
Type MC Cable	Article 330, Part II	The listed interlocked armor type MC cable shall be terminated with listed fittings.
Type ITC-ER Cable	Article 335, Part II	
Type TC-ER Cable Type TC-ER-HL Cable	Article 336, Part II	
Type P Cable FMC	Article 337, Part II Article 348, Part II	(1) The conduit shall be terminated with listed fittings. (2) The conduit shall be bonded in accordance with 505.30. The conduit shall be terminated with listed fittings.
LFMC	Article 350, Part II	
LFNC	Article 356, Part II	
Flexible Cord	Table 400.4	The cord shall comply with the requirements of 505.17.
Type EO Cable Type ETP Cable Type ETT Cable	Table 400.4	(1) These wiring methods shall be permitted for elevator use. (2) The cable shall be terminated with listed fittings.
Type PLTC-ER Cable	722.121	<u>(1) This cable shall be used in Class 2 or Class 3 circuits.</u> <u>(2) The cable shall be terminated with listed fittings.</u> <u>(3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.</u>



Second Revision No. 7612-NFPA 70-2024 [Definition: Equipment, Portable. (Portable Equipment)]

Equipment, Portable [as applied to hazardous (classified) locations] . (Portable Equipment)

Equipment with electrical components suitable to be carried or moved by a single person without mechanical aids. (544)-(CMP-14)

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 01:55:22 EDT 2024

Committee Statement

Committee Statement: This revision clarifies that the term 'portable equipment' is applied to equipment in hazardous (classified) locations that can be carried or moved by a single person. The proposed definition of 'portable equipment' in PC-63 is too broad and would encompass almost anything within the scope of the NEC that can be moved with mechanical assistance or that has a cord

Response Message: SR-7612-NFPA 70-2024



Second Revision No. 8006-NFPA 70-2024 [Definitions (100): Cannabis Oi... to Cannabis Oi...]

Definitions (100): Cannabis Oi... to Cannabis Oi...

Cannabis Oil Post-Processing Equipment.

Equipment that is used in the final processing stages of the extracted plant oil- ~~(e.g., (CMP-14)~~

Informational Note: Examples of cannabis oil post-processing equipment include vacuum ovens, rotary evaporators, and solvent recovery pumps}.

Cannabis Oil Preparatory Equipment.

Equipment that is used to prepare the plant material for subsequent extraction of the plant oil ~~(e.g., (CMP-14)~~

Informational Note: Examples of cannabis oil preparatory equipment include trimming, deseeding, and drying/curing } equipment.

Cannabis Oil Systems.

Any combination of cannabis oil equipment needed for the overall extraction process- ~~(e.g., cannabis oil (CMP-14)~~

Informational Note: Examples of cannabis oil systems include any combination of cannabis oil preparatory equipment, cannabis oil extraction equipment, cannabis oil booths, and cannabis oil post-processing equipment}.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Fri Oct 18 12:32:24 EDT 2024

Committee Statement

Committee Statement: Revisions were made to the definitions to convert the parenthetical expressions to informational notes to comply with the NEC® Style Manual.

Response Message: SR-8006-NFPA 70-2024

Public Comment No. 484-NFPA 70-2024 [Definition: Cannabis Oil Booths.]



Second Revision No. 7502-NFPA 70-2024 [Section No. 500.2]

500.2 Listing Requirements.

The following equipment shall be listed:

- (1) ~~Where~~ If used, gas detection equipment ~~that is listed~~ shall be listed for Class I, Division 1 and for the detection of the specific gas or vapor to be encountered

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Mon Oct 14 11:32:12 EDT 2024

Committee Statement

Committee Statement: The section was revised for clarity. The revision deleted the word “that” and changed it to ‘shall be listed’. This revision turns the statement into a requirement, and uses the proper word “if” in lieu of “where” to comply with the NEC® Style Manual 3.5.4.

Response Message: SR-7502-NFPA 70-2024

[Public Comment No. 972-NFPA 70-2024 \[Section No. 500.2\]](#)

[Public Comment No. 762-NFPA 70-2024 \[Section No. 500.2\]](#)



Second Revision No. 7507-NFPA 70-2024 [Section No. 500.5(D)]

[See "CMP 14 SR 7507" word document For revisions]

(D) Class III Locations.

Class III locations shall be locations meeting the requirements of 500.5(D)(1) and 500.5(D)(1)(b).

(1) Class III, Division 1.

Class III, Division 1 locations shall include those locations specified in 500.5(D)(1) and 500.5(D)(2).

(a) *Combustible Fibers/Flyings*. Locations where nonmetal combustible fibers/flyings are in the air under normal operating conditions in quantities sufficient to produce explosible mixtures or where mechanical failure or abnormal operation of machinery or equipment might cause combustible fibers/flyings to be produced and might also provide a source of ignition through simultaneous failure of electrical equipment, through operation of protection devices, or from other causes shall be classified as Class III, Division 1. Locations where metal combustible fibers/flyings may be present in quantities sufficient to be hazardous in normal or abnormal operating conditions shall be classified as Class II, Division 1, Group E.

Informational Note No. 1: Such locations usually include some parts of rayon, cotton, and other textile mills; associated manufacturing and processing plants; cotton gins and cotton-seed mills; flax-processing plants; clothing manufacturing plants; woodworking plants; and establishments and industries involving similar hazardous processes or conditions.

Informational Note No. 2: Combustible fibers/flyings include flat platelet-shaped particulates, such as metal flakes, and fibrous board, such as particle board.

(b) *Ignitable Fibers/Flyings*. Locations where ignitable fibers/flyings are handled, manufactured, or used shall be classified as Class III, Division 1.

Informational Note No. 1: Such locations usually include some parts of rayon, cotton, and other textile mills; associated manufacturing and processing plants; cotton gins and cotton-seed mills; flax-processing plants; clothing manufacturing plants; woodworking plants; and establishments and industries involving similar hazardous processes or conditions.

Informational Note No. 2: Ignitable fibers/flyings can include rayon, cotton (including cotton linters and cotton waste), sisal or henequen, istle, jute, hemp, tow, cocoa fiber, oakum, baled waste kapok, Spanish moss, excelsior, and other materials of similar nature.

(2) Class III, Division 2.

Class III, Division 2 locations shall include those locations specified in 500.5(D)(2) and 500.5(D)(2)(b).

(a) *Combustible Fibers/Flyings*. Locations where nonmetal combustible fibers/flyings might be present in the air in quantities sufficient to produce explosible mixtures due to abnormal operations or where accumulations of nonmetal combustible fibers/flyings accumulations are present but are insufficient to interfere with the normal operation of electrical equipment or other apparatus but could, as a result of infrequent malfunctioning of handling or processing equipment, become suspended in the air shall be classified as Class III, Division 2.

(b) *Ignitable Fibers/Flyings*. Locations where ignitable fibers/flyings are stored or handled, other than in the process of manufacture, shall be classified as Class III, Division 2.

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Mon Oct 14 12:17:47 EDT 2024

Committee Statement

Committee Statement: This revision separates out metal fibers/flyings into its own section because (a) nonmetal fibers/flyings requirements are different.

The charging language in this section was incorrect in the first draft and incorrectly pointed to the wrong sections. The charging language was updated to identify the proper sections.

Response Message: SR-7507-NFPA 70-2024

[Public Comment No. 983-NFPA 70-2024 \[Section No. 500.5\(D\)\(1\)\]](#)

[Public Comment No. 1969-NFPA 70-2024 \[Section No. 500.5\(D\)\]](#)

(D) Class III Locations.

Class III locations shall be locations meeting the requirements of 500.5(D)(1) and 500.5(D)(2)(a)(b).

(1) Class III, Division 1.

Class III, Division 1 locations shall include those locations specified in 500.5(D)(1)(a) through and 500.5(D)(1)(b)(2).

- (a) *Combustible nonmetal Fibers/Flyings.* Locations where nonmetal combustible fibers/flyings are in the air under normal operating conditions in quantities sufficient to produce explosible mixtures or where mechanical failure or abnormal operation of machinery or equipment might cause combustible fibers/flyings to be produced and might also provide a source of ignition through simultaneous failure of electrical equipment, through operation of protection devices, or from other causes shall be classified as Class III, Division 1. ~~Locations where metal combustible fibers/flyings may be present in quantities sufficient to be hazardous in normal or abnormal operating conditions shall be classified as Class II, Division 1, Group E.~~

Informational Note No. 1: Such locations usually include some parts of rayon, cotton, and other textile mills; associated manufacturing and processing plants; cotton gins and cotton-seed mills; flax-processing plants; clothing manufacturing plants; woodworking plants; and establishments and industries involving similar hazardous processes or conditions.

Informational Note No. 2: Combustible fibers/flyings include flat platelet-shaped particulates, such as ~~metal flakes, and~~ fibrous board, ~~such as~~ particle board.

- ~~(b) *Combustible Metal Fibers/Flyings.* Locations where metal combustible fibers/flyings ~~may~~ might be present in quantities sufficient to be hazardous in normal or abnormal operating conditions shall be classified as Class II, Division 1, Group E.~~

Informational Note: Combustible metal fibers/flyings include flat platelet-shaped particulates, such as metal flakes.

- ~~(c)~~ *Ignitable Fibers/Flyings.* Locations where ignitable fibers/flyings are handled, manufactured, or used shall be classified as Class III, Division 1.

Informational Note No. 1: Such locations usually include some parts of rayon, cotton, and other textile mills; associated manufacturing and processing plants; cotton gins and cotton-seed mills; flax-processing plants; clothing manufacturing plants; woodworking plants; and establishments and industries involving similar hazardous processes or conditions.

Informational Note No. 2: Ignitable fibers/flyings can include rayon, cotton (including cotton linters and cotton waste), sisal or henequen, istle, jute, hemp, tow, cocoa fiber, oakum, baled waste kapok, Spanish moss, excelsior, and other materials of similar nature.

(2) Class III, Division 2.

Class III, Division 2 locations shall include those locations specified in 500.5(D)(2)(a) and 500.5(D)(2)(b).

- (a) *Combustible Fibers/Flyings.* Locations where nonmetal combustible fibers/flyings might be present in the air in quantities sufficient to produce explosible mixtures due to abnormal operations or where accumulations of nonmetal combustible fibers/flyings accumulations are present but are insufficient to interfere with the normal operation of electrical equipment or other apparatus but could, as a result of infrequent malfunctioning of handling or processing equipment, become suspended in the air shall be classified as Class III, Division 2.
- (b) *Ignitable Fibers/Flyings.* Locations where ignitable fibers/flyings are stored or handled, other than in the process of manufacture, shall be classified as Class III, Division 2.



Second Revision No. 7552-NFPA 70-2024 [Section No. 500.7(D)]

(D) Purged and Pressurized.

This protection technique shall be permitted for equipment in any hazardous (classified) location for which it is identified.

Informational Note: If the equipment inside the control panel is protected by pressurization, the use of gas detection equipment does not eliminate the need for the purge cycle.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Mon Oct 14 16:20:47 EDT 2024

Committee Statement

Committee Statement: The proposed informational note is not applicable to gas detection as a protection technique. This revision adds an information note to 500.7(D) to provide guidance to purged and pressurized protection technique.

Response Message: SR-7552-NFPA 70-2024

Public Comment No. 1511-NFPA 70-2024 [Section No. 500.7(K)(4)]



Committee Comment No. 7565-NFPA 70-2024 [Section No. 500.30]

[See "CMP 14 SR 7565" word document for revisions]

500.30 Bonding in Hazardous (Classified) Locations.

Regardless of the voltage of the electrical system, wiring systems and equipment in Class I, Division 1, Class I, Division 2, Class II, Division 1, Class II, Division 2, Class III, Division 1, and Class III, Division 2 locations shall comply with the specific bonding requirements in 500.30(A) and 500.30(B) in addition to the applicable general bonding and grounding requirements.

Exception: Uninsulated exposed parts shall be in accordance with 501.25, 502.25, or 503.25, as applicable.

(A) Specific Bonding Means.

(1)

The locknut-bushing and double-locknut types of contacts shall not be depended on for bonding purposes. Bonding jumpers with identified fittings or other means of bonding shall be used. These specific bonding means shall apply to all metal raceways, fittings, boxes, cable trays, enclosures, and other parts of the raceway system between Class I locations and the point of grounding for service equipment or point of grounding for a separately derived system. Metal struts, angles, or channels provided for support and mechanical or physical protection as permitted in 335.4(5), 336.10(7)(c), or 794.135(C) shall be bonded in accordance with 250.102.

(2)

Where the branch circuit overcurrent protection is located on the load side of the disconnecting means, the specific bonding means shall be permitted to end at the nearest point where the grounded circuit conductor and the grounding electrode conductor are connected together on the line side of the building or structure disconnecting means as specified in 250.32(B).

(B) Specific Bonding for Flexible Metal Conduit and Liquidtight Flexible Metal Conduit.

Flexible metal conduit and liquidtight flexible metal conduit shall comply with 500.30(B)(1) and 500.30(B)(2).

(1)

Flexible metal conduit and liquidtight flexible metal conduit shall include an equipment bonding jumper of the wire type in accordance with 250.102.

(2)

In Class I, Division 2 locations, the bonding jumper shall not be required where all of the following are met:

- (1) Listed liquidtight flexible metal conduit 1.8 m (6 ft) or less in length, with fittings listed for grounding is used.
- (2) Overcurrent protection is limited to 10 amperes or less.
- (3) The load is part of a meter, instrument, or relay circuit.

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Mon Oct 14 17:16:37 EDT 2024

Committee Statement

Committee Statement: This revision places the requirements for bonding in hazardous (classified) locations in the correct location in the Code correlating with the requirements in 250.100. 250.92 is under the heading of Services which can confuse the user of the Code. The revision simplifies the language in the section, removing redundant references to language in Chapters 1 through 4, and reorganizing the requirements into a numbered list for usability. The term “branch circuit overcurrent protection” is revised to OCPD to align terminology throughout the Code. This is in reference to Global PC-1654.

Response Message: CC-7565-NFPA 70-2024

[Public Comment No. 1654-NFPA 70-2024 \[Global Input\]](#)

[Public Comment No. 721-NFPA 70-2024 \[Section No. 500.30\]](#)

[Public Comment No. 1884-NFPA 70-2024 \[Section No. 500.30\]](#)

[Public Comment No. 720-NFPA 70-2024 \[Section No. 500.30\]](#)

[Public Comment No. 627-NFPA 70-2024 \[Section No. 500.30\]](#)

500.30 Bonding in Hazardous (Classified) Locations.

~~Regardless of the voltage of the electrical system, wiring systems and equipment in Class I, Division 1, Class I, Division 2, Class II, Division 1, Class II, Division 2, Class III, Division 1, and Class III, Division 2 locations shall comply with the specific bonding requirements in 500.30(A) and 500.30(B) in addition to the applicable general bonding and grounding requirements.~~

~~Exception: Uninsulated exposed parts shall be in accordance with 501.25, 502.25, or 503.25, as applicable~~

(A) Specific Bonding Means Permitted.

~~(1)~~

~~Regardless of the voltage of the electrical system, the bonding of normally non-current-carrying metal parts of electrical equipment, raceways, metal-clad cable, and metal enclosures containing electrical equipment in any hazardous (classified) location shall be provided by one or more of the following bonding means whether or not equipment grounding conductors of the wire type are installed in the raceway or in a multiconductor cable assembly: The locknut-bushing and double-locknut types of contacts shall not be depended on for bonding purposes. Bonding jumpers with identified fittings or other means of bonding shall be used. These specific bonding means shall apply to all metal raceways, fittings, boxes, cable trays, enclosures, and other parts of the raceway system between Class I locations and the point of grounding for service equipment or point of grounding for a separately derived system. Metal struts, angles, or channels provided for support and mechanical or physical protection as permitted in 335.4(5), 336.10(7)(c), or 794.135(C) shall be bonded in accordance with 250.102.~~

- ~~(1) Connections made up wrenchtight using threaded couplings, threaded entries, or listed threaded hubs on enclosures~~
- ~~(2) Threadless couplings and connectors if made up tight for metal raceways and metal-clad cables~~
- ~~(3) Other listed devices, such as bonding-type locknuts, bushings, or bushings with bonding jumpers~~

~~(B2)~~ Specific Bonding Means Not Permitted.

~~The following bonding means shall not be permitted.~~

- ~~(1) Locknuts-bushings and double-locknut types of connections Where the branch circuit overcurrent protection is located on the load side of the disconnecting means, the specific bonding means shall be permitted to end at the nearest point where the grounded circuit conductor and the grounding electrode conductor are connected together on the line side of the building or structure disconnecting means as specified in 250.32(B).~~
- ~~(+)(2) Bonding locknuts used around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts~~

(CB) Specific Bonding for Flexible Metal Conduit and Liquidtight Flexible Metal Conduit.

Flexible metal conduit and liquidtight flexible metal conduit shall comply with 500.30(CB)(1) and 500.30(CB)(2).

(1)

Flexible metal conduit and liquidtight flexible metal conduit shall include an equipment bonding jumper of the wire type in accordance with 250.102.122.

(2)

In Class I, Class II, or Class III, Division 2 locations, the bonding jumper shall not be required where all of the following are met:

- (1) Listed liquidtight flexible metal conduit 1.8 m (6 ft) or less in length, with fittings listed for grounding is used.
- (2) Overcurrent protection is limited to 10 amperes or less.
- (3) The load is part of a meter, instrument, or relay circuit.



Second Revision No. 7577-NFPA 70-2024 [Section No. 501.3]

[See attached "CMP 14 SR 7577" word document for more legible version of revisions.]

501.3 Reconditioned Equipment.

(A) Permitted to be Installed.

Reconditioned Any changes to the explosion protection features of reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.

(1) Reconditioned Motors or Generators.

Reconditioning of a Class I, Division 1 explosionproof motor or a Class I, Division 1 explosionproof generator

assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.

Informational Note No. 2: See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation*, for information on equipment repair, overhaul, and reclamation.

(1) Listed or Identified Equipment.

(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned

when installed (or reinstalled) in a hazardous (classified) location. Reconditioning of a Class I, Division 1 explosionproof motor or a Class I, Division 1 explosionproof generator

—

(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned

when installed (or reinstalled) in a hazardous (classified) location, in accordance with 500.8(A). Reconditioning of a motor or generator with explosionproof construction features is considered to take place when the motor or generator is removed from service for repairs, including replacement of a failed bearing. The explosionproof features of any reconditioned, explosionproof motor or generator are verified as a part of the reconditioning or refurbishing process.

Informational Note No. 1: See UL 674, *Electric Motors and Generators for Use in Hazardous (Classified) Locations* for construction and test requirements for explosionproof motors and generators.

Informational Note No. 2: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.

(2) Intrinsically Safe Equipment.

Replacement of printed circuit board assemblies or modules with like for like components provided by the original manufacturer, shall be permitted.

(2) Other Equipment.

Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.

(B) Not Permitted to be Installed

(

+

Reserved)

~~Intrinsically Safe Equipment~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Mon Oct 14 18:05:30 EDT 2024

Committee Statement

Committee Statement: This revision clarifies the requirements for reconditioned equipment. The text related to motors, generators, and intrinsically safe equipment has been replaced with more generic text to address additional equipment based on listing/identification or other permission. Unnecessary text has been deleted to resolve conflicts with 110.20 and ensure compliance with the NEC Style Manual.

Response Message: SR-7577-NFPA 70-2024

[Public Comment No. 623-NFPA 70-2024 \[Section No. 501.3\]](#)

[Public Comment No. 765-NFPA 70-2024 \[Section No. 501.3\]](#)

501.3 Reconditioned Equipment.

(A) Permitted to be Installed.

Any changes to the explosion protection features of any reconditioned equipment shall be ~~verified~~assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.

Informational Note No. 2: See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation*, for information on equipment repair, overhaul, and reclamation.

(1) Listed or Identified Equipment.

(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.

(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.

(2) Other Equipment.

Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.

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

~~(A) Permitted to be Installed.~~

~~Reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.~~

~~(1) Reconditioned Motors or Generators.~~

~~Reconditioning of a Class I, Division 1 explosionproof motor or a Class I, Division 1 explosionproof generator listed for use in hazardous (classified) locations shall be listed as reconditioned when installed (or reinstalled) in a hazardous (classified) location. Reconditioning of a Class I, Division 1 explosionproof motor or a Class I, Division 1 explosionproof generator identified for use in hazardous (classified) locations shall be identified as reconditioned when installed (or reinstalled) in a hazardous (classified) location, in accordance with 500.8(A). Reconditioning of a motor or generator with explosionproof construction features is considered to take place when the motor or generator is removed from service for repairs, including replacement of a failed bearing. The explosionproof features of any reconditioned, explosionproof motor or generator are verified as a part of the reconditioning or refurbishing process.~~

~~Informational Note No. 1: See UL 674, *Electric Motors and Generators for Use in Hazardous (Classified) Locations* for construction and test requirements for explosionproof motors and generators.~~

~~Informational Note No. 2: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.~~

~~(2) Intrinsically Safe Equipment.~~

~~Replacement of printed circuit board assemblies or modules with like-for-like components provided by the original manufacturer, shall be permitted.~~

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

~~(1) Intrinsically Safe Equipment.~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~



Second Revision No. 7675-NFPA 70-2024 [Section No. 501.10(A)(1)]

[See CMP 14 SR 7675 Word document for revisions.]

(1) General.

In Class I, Division 1 locations, the following wiring methods shall be permitted:

Informational Note:- See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :

- Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC), including RMC or IMC conduit systems with supplemental corrosion protection coatings.
- PVC conduit, RTRC conduit, or HDPE conduit, where encased in a concrete envelope a minimum of 50 mm (2 in.) thick and provided with not less than 600 mm (24 in.) of cover measured from the top of the conduit to grade. The concrete encasement shall be permitted to be omitted where it is in accordance with 514.8(C) or 515.8(A). RMC or IMC conduit shall be used for the last 600 mm (24 in.) of the underground run to emergence or to the point of connection to the aboveground raceway. An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of non-current-carrying metal parts.
- Type MI cable terminated with fittings listed for the location. Type MI cable shall be installed and supported to avoid tensile stress at the termination fittings.

In restricted industrial establishments, Type MC-HL cable listed for use in Class I, Division 1 or Zone 1 locations,

One or more of the wiring methods of Table 501.10(A)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied:

Table 501.10(A)(1) Wiring Methods for Use in Class I, Division 1 Locations		
Wiring Methods	Reference	Class I, Division 1 Requirements
Type MC-HL Cable	Article 330, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type MC-HL cable, with a gas/vaportight continuous corrugated metallic sheath, and an overall jacket of suitable polymeric material

, and

(1) .
(2) The cable shall be terminated with fittings listed for the cable and location.
(3) The cable shall contain a separate equipment grounding conductor

(s) in accordance with 250.122 , and terminated with fittings listed for the application. If installed

(1) .

(2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray.

, the cable shall be

(1) when installed in accordance with Article 392, Part II.

22. Type MC-HL

(1)	<u>Article 332,</u> <u>Part II</u>	(1) <u>The cable shall be</u>
<u>Type MI Cable</u>		

~~installed in accordance with Article 330, Part II.~~ In restricted industrial establishments,

(1) <u>terminated with fittings listed for the cable, and location.</u>	<u>Article 335,</u> <u>Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u>
(2) <u>The cable shall be secured and supported in a manner to avoid tensile stress at the termination fittings.</u>		
<u>Type ITC-HL Cable</u>		(2) <u>The cable shall be listed Type ITC-HL cable</u>

listed for use in Class I, Division 1 or Zone 1 locations;

(1) with a gas/vaportight continuous corrugated metallic sheath, and an overall jacket of suitable polymeric material

;

(1) .
(2) The cable shall be terminated with fittings listed for the

application

(1) cable, and

~~installed in accordance with 335.10.~~

- ~~Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in raceways in accordance with 501.10(A).~~ These

~~optical fiber cables shall be sealed in accordance with 501.15 -
In restricted industrial establishments,~~

(1) application.	Article 336, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type TC-ER-HL cable . (3) The cable shall be terminated with fittings listed for
Type TC-ER-HL Cable		

~~use in Class I, Division 1 or Zone 1 locations, for applications~~

(1) the cable, and location. (2) The cable shall not be subject to physical damage. (3) This wiring method shall be limited to 600 volts nominal or less

~~, where the cable is not subject to physical damage and is~~

(1) <u> </u>	<u>Article 337,</u> <u>Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> (3) <u>The cable shall be terminated with fittings listed for the cable, and location.</u>
<u>Type P Cable</u>		

If installed

(1) (2) <u>This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray.</u>

, the cable shall be

(1) <u>when installed in accordance with Article 392</u>
--

~~.22. Type TC-ER-HL cable shall be installed in accordance with 336.10 : Informational~~
Note:- See

(1) <u> , Part II.</u>	<u>Article 342,</u> <u>Part II</u>	<u>The conduit connections shall be threaded.</u>
<u>IMC (including IMC with supplemental corrosion protection coatings)</u>		
<u>RMC (including RMC with supplemental corrosion protection coatings)</u>	<u>Article 344,</u> <u>Part II</u>	(1) <u>The conduit shall be encased in a concrete envelope a minimum of</u>
<u>PVC Conduit</u>	<u>Article 352,</u> <u>Part II</u>	

		50 mm (2 in.) thick and provided with not less than 600 mm (24 in.) of cover measured from the top of the conduit to grade. (2) The concrete encasement shall be permitted to be omitted where it is in accordance with 514.8(C) or 515.8(A). (3) RMC or IMC conduit shall be used for the last 600 mm (24 in.) of the underground run to emergence or to the point of connection to the aboveground raceway. (4) An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of non-current-carrying metal parts.
HDPE Conduit	Article 353, Part II	
RTRC Conduit	Article 355, Part II	

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* .

Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of cables and

HL cables and all cable fittings.

~~In restricted industrial establishments, listed Type P cable with metal braid armor and an overall jacket, terminated with fittings listed for the location, and installed in accordance with Article 337 , Part II. If installed in a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in accordance with 392.22 :~~

Informational Note No.

~~4~~

3 : See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations* , for information on construction, testing, and marking of Type P cable.

~~Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of cables and fittings.~~

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

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Committee Statement

Committee Statement: This revision replaces list items, with Table 501.10(A)(1) for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging statement was revised to clarify that the table contains the wiring methods to be used in class I division 1 locations. The text related to TC-ER-HL cable indicating it can be installed in tray was removed because Type TC cable can be installed in tray in accordance with Part II of Article 336.

Response Message: SR-7675-NFPA 70-2024

Public Comment No. 166-NFPA 70-2024 [Section No. 501.10(A)(1)]

(A) Class I, Division 1.

(1) General.

One or more of the wiring methods of Table 501.10(A)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied:

In Class I, Division 1 locations, the following wiring methods shall be permitted:

<u>Table 501.10(A)(1) Wiring Methods for Use in Class I, Division 1 Locations</u>		
<u>Wiring Methods</u>	<u>Reference</u>	<u>Class I, Division 1 Requirements</u>
<u>Type MC-HL Cable</u>	<u>Article 330, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type MC-HL cable, with a gas/vaportight continuous corrugated metallic sheath, and an overall jacket of suitable polymeric material.</u> <u>(3) The cable shall be terminated with fittings listed for the cable and location.</u> <u>(4) The cable shall contain a separate equipment grounding conductor.</u> <u>(5) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.</u>
<u>Type MI Cable</u>	<u>Article 332, Part II</u>	<u>(1) The cable shall be terminated with fittings listed for the cable, and location.</u> <u>(2) The cable shall be secured and supported in a manner to avoid tensile stress at the termination fittings.</u>
<u>Type ITC-HL Cable</u>	<u>Article 335, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type ITC-HL cable with a gas/vaportight continuous corrugated metallic</u>

		<u>sheath, and an overall jacket of suitable polymeric material.</u> <u>(3) The cable shall be terminated with fittings listed for the cable, and application.</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type TC-ER-HL cable.</u> <u>(3) The cable shall be terminated with fittings listed for the cable, and location.</u> <u>(4) The cable shall not be subject to physical damage.</u> <u>(5) This wiring method shall be limited to 600 volts nominal or less.</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> <u>(3) The cable shall be terminated with fittings listed for the cable, and location.</u> <u>(4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.</u>
<u>IMC (including IMC with supplemental corrosion protection coatings)</u>	<u>Article 342, Part II</u>	<u>The conduit connections shall be threaded.</u>

<u>RMC (including RMC with supplemental corrosion protection coatings)</u>	<u>Article 344, Part II</u>	
<u>PVC Conduit</u>	<u>Article 352, Part II</u>	<u>(1) The conduit shall be encased in a concrete envelope a minimum of 50 mm (2 in.) thick and provided with not less than 600 mm (24 in.) of cover measured from the top of the conduit to grade.</u> <u>(2) The concrete encasement shall be permitted to be omitted where it is in accordance with 514.8(C) or 515.8(A).</u> <u>(3) RMC or IMC conduit shall be used for the last 600 mm (24 in.) of the underground run to emergence or to the point of connection to the aboveground raceway.</u> <u>(4) An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of non-current-carrying metal parts.</u>
<u>HDPE Conduit</u>	<u>Article 353, Part II</u>	
<u>RTRC Conduit</u>	<u>Article 355, Part II</u>	

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment* [as applied to hazardous (classified) locations].

- ~~1.—Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC), including RMC or IMC conduit systems with supplemental corrosion protection coatings.~~
- ~~2.—PVC conduit, RTRC conduit, or HDPE conduit, where encased in a concrete envelope a minimum of 50 mm (2 in.) thick and provided with not less than 600 mm (24 in.) of cover measured from the top of the conduit to grade. The concrete~~

encasement shall be permitted to be omitted where it is in accordance with 514.8(C) or 515.8(A). RMC or IMC conduit shall be used for the last 600 mm (24 in.) of the underground run to emergence or to the point of connection to the aboveground raceway. An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of non-current-carrying metal parts.

- 3.—Type MI cable terminated with fittings listed for the location. Type MI cable shall be installed and supported to avoid tensile stress at the termination fittings.
- 4.—In restricted industrial establishments, Type MC-HL cable listed for use in Class I, Division 1 or Zone 1 locations, with a gas/vaportight continuous corrugated metallic sheath, an overall jacket of suitable polymeric material, and a separate equipment grounding conductor(s) in accordance with 250.122, and terminated with fittings listed for the application. If installed in a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in accordance with 392.22. Type MC-HL cable shall be installed in accordance with Article 330, Part II.
- 5.—In restricted industrial establishments, Type ITC-HL cable listed for use in Class I, Division 1 or Zone 1 locations, with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material, terminated with fittings listed for the application, and installed in accordance with 335.10.
- 6.—Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in raceways in accordance with 501.10(A). These optical fiber cables shall be sealed in accordance with 501.15.
- 7.—In restricted industrial establishments, Type TC-ER-HL cable listed for use in Class I, Division 1 or Zone 1 locations, for applications limited to 600 volts nominal or less, where the cable is not subject to physical damage and is terminated with fittings listed for the location. If installed in a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in accordance with 392.22. Type TC-ER-HL cable shall be installed in accordance with 336.10.

Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of HL cables and all cable fittings.

- 8.1. In restricted industrial establishments, listed Type P cable with metal braid armor and an overall jacket, terminated with fittings listed for the location, and installed in accordance with Article 337, Part II. If installed in a ladder, ventilated

~~trough, or ventilated channel cable tray, the cable shall be installed in accordance with 392.22.~~

Informational Note No. ~~4~~³: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

Informational Note No. 4: See 500.8(C)(5) for the ambient temperature range requirements.

~~Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables and fittings.~~



Second Revision No. 7686-NFPA 70-2024 [Section No. 501.10(A)(2)]

[See "CMP 14 SR 7686" Word document for revisions]

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation

or

, to allow for movement after installation , or during maintenance,

the following shall be permitted:

- Flexible fittings listed for the location:
- Flexible cord in accordance with 501.140 , terminated with cord connectors listed for the location:

In restricted industrial establishments, Type

one or more of the wiring methods of Table 501.10(A)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements:

Table 501.10(A)(2) Wiring Methods With Flexible Connections for Use in Class I, Division 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class I, Division 1 Requirements</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type TC-ER-HL cable</u>

listed for Class I, Division 1 or Zone 1 locations for applications

- (1) .
- (2) The cable shall be terminated with fittings listed for the cable and location.
- (3) The cable shall not be subject to physical damage.
- (4) This wiring method shall be limited to 600 volts nominal or less

where the cable is not subject to physical damage and is

(1) <u>.</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> (3) <u>The cable shall be terminated with fittings listed for the cable and location.</u>
<u>Type P Cable</u>		

The cable shall be installed in accordance with 336.10 .Informational Note

(1)		
<u>Flexible Cord</u>	<u>Table 400.4</u>	<u>The cord shall comply with the requirements of 501.140(B) .</u>
<u>Flexible Metal Fittings</u>		<u>Flexible metal fittings shall be listed for the location.</u>

Informational Note No. 1 : See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of HL cables and all cable fittings.

- ~~In restricted industrial establishments, listed Type P cable with metal braid armor and an overall jacket where the cable is terminated with fittings listed for the location and installed in accordance with Article 337, Part II.~~

Informational Note No.

~~4~~

2 : See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations* , for information on construction, testing, and marking of Type P cable fittings.

~~Informational~~

Informational Note No.

~~2~~

3 :

~~See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of cable fittings~~

See 500.8(C)(5) for the ambient temperature range requirements .

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 501.10(A)(2), for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging statement was revised to clarify that the table contains the flexible wiring methods to be used in Class I, Division 1 locations.

Response Message: SR-7686-NFPA 70-2024

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation, ~~or~~ to allow for movement after installation, ~~or~~ during maintenance, one or more of the wiring methods of Table 501.10(A)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied~~only the following shall be permitted.~~

<u>Table 501.10(A)(2) Wiring Methods With Flexible Connections for Use in Class I, Division 1 Locations</u>		
<u>Wiring Methods</u>	<u>Reference</u>	<u>Class I, Division 1 Requirements</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type TC-ER-HL cable.</u> <u>(3) The cable shall be terminated with fittings listed for the cable and location.</u> <u>(4) The cable shall not be subject to physical damage.</u> <u>(5) This wiring method shall be limited to 600 volts nominal or less.</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> <u>(3) The cable shall be terminated with fittings listed for the cable and location.</u>
<u>Flexible Cord</u>	<u>Table 400.4</u>	<u>The cord shall comply with the requirements of 501.140(B).</u>
<u>Flexible Metal Fittings</u>		<u>Flexible metal fittings shall be listed for the location.</u>

~~1.—Flexible fittings listed for the location.~~

~~2.—Flexible cord in accordance with 501.140, terminated with cord connectors listed for the location.~~

~~3.—In restricted industrial establishments, Type TC-ER-HL cable listed for Class I, Division 1 or Zone 1 locations for applications limited to 600 volts nominal or less where the cable is not subject to physical damage and is terminated with fittings listed for the location. The cable shall be installed in accordance with 336.10.~~

Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of HL cables and all cable fittings.

~~4.—In restricted industrial establishments, listed Type P cable with metal braid armor and an overall jacket where the cable is terminated with fittings listed for the location and installed in accordance with Article 337, Part II.~~

Informational Note No. ~~4~~²: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable fittings.

Informational Note No. 3: See 500.8(C)(5) for the ambient temperature range requirements.

~~Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.~~



Second Revision No. 7694-NFPA 70-2024 [Section No. 501.10(B)(1)]

[See "CMP 14 SR 7694" word document for revisions]

(1) General.

In Class I, Division 2 locations, all
Any of the wiring methods in

accordance with
501.10(A).

and the following wiring methods shall be permitted:

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :

- Rigid metal conduit (RMC) or intermediate metal conduit (IMC) with listed threaded or threadless fittings, including RMC or IMC conduit systems with supplemental corrosion protection coatings.

- Enclosed gasketed busways and enclosed gasketed wireways.

Type PLTC cable or Type PLTC-ER cable used for Class 2 and Class 3 circuits, including installation in cable tray systems. The cable shall be terminated with listed fittings. Type PLTC-ER cable shall

(1) or one or more of the wiring methods of Table 501.10(B)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied :

Table 501.10(B)(1) Wiring Methods for Use in Class I, Division 2 Locations		
Wiring Methods	Reference	Class I, Division 2 Requirements
Type MV Cable Type MC Cable	Article 315, Part III Article 330, Part II	(1) The cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

Type ITC cable or

(1) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.	
Type ITC Cable Type ITC-ER	

cable as permitted in 335.10 and terminated with listed fittings.

Cable	Article 335, Part II	(1) . (2) Type ITC-ER
-------	----------------------	--------------------------

cable

(1) cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present .
Type

MC, Type MV, Type TC, or

TC Cable Type TC-ER

cable, including installation in cable tray systems.

<u>Cable</u>	<u>Article 336, Part II</u>	(1) <u> </u> (2) <u>This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.</u> (3) <u>Type TC-ER</u>
--------------	-----------------------------	--

cable

(1) <u>Cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.</u>

All cable types shall be terminated with listed fittings:

(1)		
<u>Type P Cable</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P cable with or without metal braid armor, with an overall jacket.</u> (3) <u>The cable shall be terminated with fittings listed for the location when entering equipment required to be explosionproof or flameproof.</u>
<u>Intermediate Metal Conduit (IMC) (including IMC with supplemental corrosion protection coatings)</u>	<u>Article 342, Part II</u>	(1) <u>Where metal conduit will not</u>

provide the corrosion resistance needed for the installation environment, any of the following

(1) <u>provide the corrosion resistance required, PVC-coated IMC, factory elbows, and associated fittings, shall be permitted</u>
--

Listed reinforced thermosetting resin conduit (RTRC);

(1) <u> </u>	
---------------	--

(2) <u>The conduit shall be terminated with listed threaded or threadless fittings.</u>	<u>344, Part II</u>	(1) <u>Where metal conduit will not provide the corrosion resistance required, PVC-coated RMC, factory elbows, and associated fittings.</u>
<u>Rigid Metal Conduit (RMC)</u> (including RMC with supplemental corrosion protection coatings)		

~~all marked with the suffix -XWPVC-coated RMC~~

(1) <u>shall be permitted.</u>	<u>Article 352, Part II</u>	
(2) <u>The conduit shall be terminated with listed threaded or threadless fittings.</u>		
<u>Schedule 80 PVC Conduit</u>		
<u>Reinforced Thermosetting Resin Conduit Type XW (RTRC-XW)</u>	<u>Article 355, Part II</u>	(1) <u>Where metal conduit will not provide the corrosion resistance required, listed RTRC-XW, factory elbows, and associated fittings</u>

- ~~PVC-coated IMC, factory elbows, and associated fittings~~

- ~~In restricted industrial establishments, Schedule 80 PVC conduit, factory elbows, and associated fittings~~

~~Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC~~

(1) all marked with the suffix -XW, shall be permitted.	Article 368, Part II	
Busways		
Cablebus	Article 370, Part II	
Wireways	Article 376, Part II Article 378, Part II	(1) The wireway shall be enclosed and gasketed.
Type PLTC Cable or Type PLTC-ER Cable	722.100(A) (6)	(1) shall be permitted to be used in Class 2 or

		Class 3 circuits: (2) The cable shall be terminated with listed fittings: (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present
Optical Fiber Cable Type OFNP Type OFCP Type OFNR Type OFCR Type OFNG Type OFCG Type OFN Type OFC	7 22.162	(1) The cable shall be installed in cable trays or any other

~~raceway~~

- (1) ~~raceways, in accordance with 501.10(B) :~~

~~Optical fiber cables~~

- (1)
- (2) ~~The cable shall be sealed in accordance with 501.15 :~~

• Cablebus:

~~In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, and terminated with fittings listed for the location when entering explosionproof, flameproof, or pressurized equipment. The cable shall be installed in accordance with Article 337 , Part II:~~

~~Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :~~

~~Informational Note No. 2: See 500.8(B)(2)(b) for specific requirements for entry into enclosures required to be explosionproof.~~

~~Informational Note No.~~

-2

~~-3 - See ANSI/UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.~~
~~Informational Note No.~~

-3

~~-4 - See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.~~

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 501.10(B)(1) for usability. The table was organized by the reference Article. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging statement was revised to clarify that the table contains the wiring methods to be used in Class I, Division 2 locations.

Response Message: SR-7694-NFPA 70-2024

[Public Comment No. 175-NFPA 70-2024 \[Section No. 501.10\(B\)\(1\)\]](#)

[Public Comment No. 767-NFPA 70-2024 \[Section No. 501.10\(B\)\(1\)\]](#)

(1) General.

In Class I, Division 2 locations, all wiring methods in accordance with Table 501.10(A)(1) and the following wiring methods in Table 501.10(B)(1) only shall be permitted used, in accordance with the requirements of the reference section and with the respective wiring method requirements applied:

Any of the wiring methods in 501.10(A)(1) or one or more of the wiring methods of Table 501.10(B)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 501.10(B)(1) Wiring Methods for Use in Class I, Division 2 Locations		
Wiring Methods	Reference	Class I, Division 2 Requirements
Type MV Cable	Article 315, Part III	(1) The cable shall be terminated with listed fittings
Type MC Cable	Article 330, Part II	(2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.
Type ITC Cable Type ITC-ER Cable	Article 335, Part II	(1) The cable shall be terminated with fittings listed for the cable. (2) Type ITC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.
Type TC Cable Type TC-ER Cable	Article 336, Part II	(1) The cable shall be terminated with fittings listed for the cable. (2) Type TC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.
Type P Cable	Article 337, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type P cable with or without metal braid armor, with an overall jacket. (3) The cable shall be terminated with fittings listed for the location when entering equipment required to be explosionproof or flameproof. (4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.
IMC (including IMC with supplemental corrosion protection coatings)	Article 342, Part II	The conduit shall be terminated with listed threaded or threadless fittings.
RMC (including RMC with supplemental corrosion protection coatings)	Article 344, Part II	
Schedule 80 PVC Conduit	Article 352, Part II	In restricted industrial establishments, where metal conduit will not provide the corrosion resistance required, Schedule 80 Type PVC conduit, factory elbows, and associated fittings shall be permitted.
RTRC-XW Conduit	Article 355, Part II	Where metal conduit will not provide the corrosion resistance required, listed RTRC-XW, factory elbows, and associated fittings, all marked with the suffix -XW, shall be permitted.
Busways	Article 368, Part II	Busways shall be enclosed and gasketed.
Cablebus	Article 370, Part II	
Wireways	Article 376, Part II Article 378, Part II	Wireways shall be enclosed and gasketed.
Type PLTC Cable or Type PLTC-ER Cable	722.121	(1) This cable shall be used Class 2 or Class 3 circuits. (2) The cable shall be terminated with listed fittings. (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.
Optical Fiber Cable Type OFNP	722.162	(1) The cable shall be installed in cable trays or any other raceways, in accordance with 501.10(B).

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Type OFCP Type OFNR Type OFCR Type OFNG Type OFCG Type OFN Type OFC		(2) Sealing shall be in accordance with 501.15.
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Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]*.

[Informational Note No. 2: See 500.8\(B\)\(2\)\(b\) for specific requirements for entry into enclosures required to be explosionproof.](#)

- (1) Rigid metal conduit (RMC) or intermediate metal conduit (IMC) with listed threaded or threadless fittings, including RMC or IMC conduit systems with supplemental corrosion protection coatings.
- (2) Enclosed gasketed busways and enclosed gasketed wireways.
- (3) Type PLTC cable or Type PLTC-ER cable used for Class 2 and Class 3 circuits, including installation in cable tray systems. The cable shall be terminated with listed fittings. Type PLTC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present.
- (4) Type ITC cable or Type ITC-ER cable as permitted in 335.10 and terminated with listed fittings. Type ITC-ER cable shall include an equipment grounding conductor in addition to a drain wire.
- (5) Type MC, Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC-ER cable shall include an equipment grounding conductor in addition to a drain wire that might be present. All cable types shall be terminated with listed fittings.
- (6) Where metal conduit will not provide the corrosion resistance needed for the installation environment, any of the following shall be permitted:
 - a. Listed reinforced thermosetting resin conduit (RTRC), factory elbows, and associated fittings, all marked with the suffix -XW
 - b. PVC-coated RMC, factory elbows, and associated fittings
 - c. PVC-coated IMC, factory elbows, and associated fittings
 - d. In restricted industrial establishments, Schedule 80 PVC conduit, factory elbows, and associated fittings
- (7) Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in cable trays or any other raceway in accordance with 501.10(B). Optical fiber cables shall be sealed in accordance with 501.15.
- (8) Cablebus.
- (9) In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, and terminated with fittings listed for the location when entering explosionproof, flameproof, or pressurized equipment. The cable shall be installed in accordance with Article 337, Part II.

Informational Note No. 32: See ANSI/UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

Informational Note No. 43: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.



Second Revision No. 7705-NFPA 70-2024 [Section No. 501.10(B)(2)]

[See "CMP 14 SR 7705" word document for revisions]

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation

or

to allow for movement after installation, or during maintenance, any of the wiring methods in 501.10(B)(1) or one or more of the

following shall be permitted:

- (1) ~~Listed flexible metal fittings~~
- (2) ~~Flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)~~
- (3) ~~Interlocked armor Type MC cable with listed fittings~~
- (4) ~~Liquidtight flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)~~
- (5) ~~Liquidtight flexible nonmetallic conduit with listed fittings~~
- (6) ~~Flexible cord listed for extra-hard usage and terminated with listed fittings, with a conductor for use as an equipment grounding conductor~~
- (7) ~~For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed fittings~~
- (8) ~~In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, terminated with listed fittings and installed in accordance with Article 337, Part II~~

wiring methods of Table 501.10(B)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

<u>Table 501.10(B)(2) Wiring Methods With Flexible Connections for Use in Class I, Division 2 Locations</u>		
<u>Wiring Methods</u>	<u>Reference</u>	<u>Class I, Division 2 Requirements</u>
<u>Flexible Metal Fittings</u>		(1) <u>Flexible metal fittings shall be listed.</u>
<u>Type MC Cable</u>	<u>Article 330, Part II</u>	(1) <u>The listed Interlocked Armor Type MC cable shall be terminated with fittings listed for the cable</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P with or without metal braid armor, with an overall jacket.</u> (3) <u>The cable shall be terminated with listed fittings.</u>
<u>FMC</u>	<u>Article 348, Part II</u>	(1) <u>The c onduit shall be terminated with listed fittings.</u>
<u>LFMC</u>	<u>Article 350, Part II</u>	(2) <u>The conduit shall be bonded in accordance with 500.30.</u>
<u>LFNC</u>	<u>Article 356, Part II</u>	<u>The c onduit shall be terminated with listed fittings.</u>
<u>Flexible Cord</u>	<u>T able 400.4</u>	<u>The cord shall comply with the requirements of 501.140.</u>

Type EO Cable	Table 400.4	(1) The se wiring methods shall be permitted for e levator use.
Type ETP Cable		(2) The cable shall be terminated with listed fittings.
Type ETT Cable		

[Informational Note: See 500.8\(B\)\(2\)\(b\) for fitting requirements for entry into enclosures required to be explosion proof or flameproof.](#)

[_ \[HRA1\] Merge cells on right?](#)

Supplemental Information

File Name	Description	Approved
CMP_14_SR_7705.docx		
CMP_14_SR_7705_501.10_B_2_.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:10:43 EDT 2024

Committee Statement

Committee Statement: This revision replaces the list items with Table 501.10(B)(2), for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging statement was revised to clarify that the table contains the flexible wiring methods to be used in Class I, Division 2 locations.

Response Message: SR-7705-NFPA 70-2024

[Public Comment No. 177-NFPA 70-2024 \[Section No. 501.10\(B\)\(2\)\]](#)

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation, or to allow for movement after installation, or during maintenance, ~~one or more of the following shall be permitted: only the wiring methods of Table 501.10(B)(2) shall be permitted used, in accordance with the requirements of the reference section and with the respective wiring method requirements applied; any of the wiring methods in 501.10(B)(1) or one or more of the wiring methods of Table 501.10(B)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.~~

Table 501.10(B)(2) Wiring Methods With Flexible Connections for Use in Class I, Division 2 Locations		
Wiring Methods	Reference	Class I, Division 2 Requirements
Flexible Metal Fittings		Flexible metal fittings shall be listed.
Type MC Cable	Article 330, Part II	The listed Interlocked Armor Type MC cable shall be terminated with fittings listed for the cable.
Type P Cable	Article 337, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type P with or without metal braid armor, with an overall jacket. (3) The cable shall be terminated with listed fittings.
FMC	Article 348, Part II	(1) The conduit shall be terminated with listed fittings.
LFMC	Article 350, Part II	(2) The conduit shall be bonded in accordance with 500.30.
LFNC	Article 356, Part II	The conduit shall be terminated with listed fittings.
Flexible Cord	Table 400.4	The cord shall comply with the requirements of 501.140.
Type EO Cable Type ETP Cable Type ETT Cable	Table 400.4	(1) These wiring methods shall be permitted for elevator use. (2) The cable shall be terminated with listed fittings.

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Informational Note: See 500.8(B)(2)(b) for fitting requirements for entry into enclosures required to be explosionproof or flameproof.

- ~~(1) Listed flexible metal fittings~~
- ~~(2) Flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)~~
- ~~(3) Interlocked armor Type MC cable with listed fittings~~
- ~~(4) Liquidtight flexible metal conduit with listed fittings and bonded in accordance with 501.30(B)~~
- ~~(5) Liquidtight flexible nonmetallic conduit with listed fittings~~
- ~~(6) Flexible cord listed for extra-hard usage and terminated with listed fittings, with a conductor for use as an equipment grounding conductor~~
- ~~(7) For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed fittings~~
- ~~(8) In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, terminated with listed fittings and installed in accordance with Article 337, Part II~~



Second Revision No. 7707-NFPA 70-2024 [Section No. 501.15(A)(4)]

(4) Class I, Division 1 Boundary.

A conduit seal shall be required in each conduit run leaving a Division 1 location. The sealing fitting shall be permitted to be installed on either side of the boundary within 3.05 m (10 ft) of the boundary, and it shall be designed and installed to minimize the amount of gas or vapor within the portion of the conduit installed in the Division 1 location that can be communicated beyond the seal. The conduit run between the conduit seal and the point at which the conduit leaves the Division 1 location shall contain no union, coupling, box, or other fitting except for a listed explosionproof reducer installed at the conduit seal.

Where the seal is not located on the Division 2- 1 side of the boundary, the Division 1 wiring method shall extend ~~into the Division 2 area~~ to the seal.

Exception No. 1: Metal conduit that contains no unions, couplings, boxes, or fittings, that passes completely through a Division 1 location with no fittings installed within 300 mm (12 in.) of either side of the boundary, shall not require a conduit seal if the termination points of the unbroken conduit are located in unclassified locations.

Exception No. 2: For underground conduit installed in accordance with 300.7 where the boundary is below grade, the sealing fitting shall be permitted to be installed after the conduit emerges from below grade, but there shall be no union, coupling, box, or fitting, other than listed explosionproof reducers at the sealing fitting, in the conduit between the sealing fitting and the point at which the conduit emerges from below grade.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:22:35 EDT 2024

Committee Statement

Committee Statement: The language was revised to make it clear that if the wiring transitioned from a Division 1 location to an unclassified location, such as if the room is block classified, then the Division 1 wiring method must continue to the seal if the seal is not installed within the Division 1 area. The prior language only addressed the normal scenario where a Division 1 area abuts a Division 2 location.

Response Message: SR-7707-NFPA 70-2024

Public Comment No. 1058-NFPA 70-2024 [Section No. 501.15(A)(4)]



Second Revision No. 7712-NFPA 70-2024 [Section No. 501.30]

~~501.30~~ Grounding and Bonding:

~~Regardless of the voltage of the electrical system, wiring systems and equipment shall comply the specific bonding requirements of 500.30 and the applicable general requirements for grounding and bonding in Chapter 2 of this code.~~

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:26:09 EDT 2024

Committee Statement

Committee Statement: This revision removes redundant wording, which did not follow Style Manual, and correlates with the changes to 500.30.

Response Message: SR-7712-NFPA 70-2024

[Public Comment No. 628-NFPA 70-2024 \[Section No. 501.30\]](#)



Second Revision No. 7713-NFPA 70-2024 [Section No. 501.105(A)]

(A) Class I, Division 1.

Meters, instrument transformers, resistors, rectifiers, and thermionic tubes shall be identified for Class I, Division 1 locations or installed in enclosures identified for Class I, Division 1 locations. Enclosures for Class I, Division 1 locations include explosionproof enclosures and purged and pressurized enclosures.

Informational Note: See NFPA 496-2024, *Standard for Purged and Pressurized Enclosures for Electrical Equipment*, for ~~additional~~ information on purged and pressurized enclosures.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:29:13 EDT 2024

Committee Statement

Committee Statement: This revision removes the word “additional” as is not required in this informational note, in compliance with 2.1.10.3 of the NEC® Style Manual.

Response Message: SR-7713-NFPA 70-2024

[Public Comment No. 973-NFPA 70-2024 \[Section No. 501.105\(A\)\]](#)



Second Revision No. 7714-NFPA 70-2024 [Section No. 501.130(C)]

[See "CMP 14 SR 7714" word document for legible copy of revisions]

(C) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 501.130(C)(1) through 501.130(C)(4) :~~

~~(1)–~~

Modification of

existing

luminaires

to change the lamp type

~~,~~

~~such as for light-emitting-diode (LED) lamp types, shall be permitted~~

using retrofit kits listed for the location and

suitable

listed for field installation

in luminaires in accordance

with the

instructions provided.

~~(2)–~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies, luminaire marking labels, and assembly aids (where appropriate) to facilitate the replacement of the existing light source in complete luminaires. The retrofit installation shall be permitted to include modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)–~~

~~A luminaire that is modified so that it can no longer accept the original lamp shall be relabeled with a label provided with the listed retrofit kit and affixed to the luminaire. The label shall comply with the following:~~

- ~~(1) Be field applied with the listed retrofit kit and affixed to the luminaire. The label shall be applied to the luminaire where visible during relamping.~~
- ~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps.~~
- ~~(3) Identify the manufacturer's name and replacement lamp type/model to be used.~~

~~(4)–~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit. The label shall indicate in text or with a wiring diagram how the supply connections to the lamp holders are required to be made. The label shall be affixed to the luminaire in a location where it will be visible during relamping.~~

luminaire to be retrofitted, shall be permitted.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP_14_SR_7714.docx		
NEC_CMP-14_SR-7714_501.130_C_.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14
Submittal Date: Tue Oct 15 18:31:28 EDT 2024

Committee Statement

Committee Statement: The text of 501.130(C) has been revised to clarify the requirements for luminaire retrofit kits specific to hazardous locations and remove text that was redundant with Article 410.

In reference to PC-1981, the listing for retrofit kits specifies the requirements for relabeling of the luminaire with a label provided with the kit.

Response Message: SR-7714-NFPA 70-2024

[Public Comment No. 64-NFPA 70-2024 \[Section No. 501.130\(C\)\]](#)

[Public Comment No. 632-NFPA 70-2024 \[Section No. 501.130\(C\)\]](#)

[Public Comment No. 396-NFPA 70-2024 \[Section No. 501.130\(C\)\]](#)

[Public Comment No. 1981-NFPA 70-2024 \[Section No. 501.130\(C\)\]](#)

[Public Comment No. 976-NFPA 70-2024 \[Section No. 501.130\(C\)\(3\)\]](#)

(C) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 501.130(C)(1) through 501.130(C)(4).~~

~~(1)~~

~~Modification of existing luminaires, to change the lamp type, such as for light-emitting diode (LED) lamp types, shall be permitted using retrofit kits listed for the location and suitable listed for field installation in with the luminaires, to be retrofitted, shall be permitted in accordance with the instructions provided.~~

~~(2)~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies, luminaire marking labels, and assembly aids (where appropriate) to facilitate the replacement of the existing light source in complete luminaires. The retrofit installation shall be permitted to include modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)~~

~~A luminaire that is modified so that it can no longer accept the original lamp shall be relabeled with a label provided with the listed retrofit kit and affixed to the luminaire. The label shall comply with the following:~~

- ~~(1) Be field applied with the listed retrofit kit and affixed to the luminaire. The label shall be applied to the luminaire where visible during relamping.~~
- ~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps.~~
- ~~(3) Identify the manufacturer's name and replacement lamp type/model to be used.~~

~~(4)~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit. The label shall indicate in text or with a wiring diagram how the supply connections to the lamp holders are required to be made. The label shall be affixed to the luminaire in a location where it will be visible during relamping.~~



Second Revision No. 7715-NFPA 70-2024 [Section No. 501.150(B)(3)]

(3) Protectors.

Enclosures shall be provided for ~~lightning protective devices and for fuses. Such enclosures shall be permitted to be of the general-purpose type.~~ surge protectors in compliance with 501.35(B) and for fuses in compliance with 501.105(B)(5).

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:43:21 EDT 2024

Committee Statement

Committee Statement: This revision eliminates the redundant, confusing language in this section and points the user to the sections which cover the topic. Enclosures shall be provided for surge protective devices in compliance with 501.35(B) and for fuses in compliance with 501.105(B)(5). The topic is handled in the prior referenced sections.

Response Message: SR-7715-NFPA 70-2024

Public Comment No. 1538-NFPA 70-2024 [Section No. 501.150(B)(3)]



Second Revision No. 7717-NFPA 70-2024 [Section No. 502.3]

[See "CMP 14 SR 7717" word file for revisions.]

502.3 Reconditioned Equipment.

(A)

~~Permitted~~

Permitted to be Installed.

Reconditioned

Any changes to the explosion protection features of reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.

~~(1) Reconditioned Motors or Generators.~~

~~Reconditioning of a Class II, Division 1 dust ignitionproof motor or a Class II, Division 1 dust ignitionproof generator listed for use in hazardous (classified) locations shall be listed as reconditioned when installed (or reinstalled) in a hazardous (classified) location. Reconditioning of a Class II, Division 1 dust ignitionproof motor or a Class II, Division 1 dust ignitionproof generator identified for~~

assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1: See ANSI/EASA AR100, Recommended Practice for the Repair of Rotating Electrical Apparatus, for information on the rewinding and repair of motors.

Informational Note No. 2: See IEC 60079-19, Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation, for information on equipment repair, overhaul, and reclamation.

(1) Listed or Identified Equipment.

(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.

(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.

(2) Other Equipment.

Equipment that is permitted for use in hazardous (classified) locations shall be identified as reconditioned when installed in a

and is not required to be listed or identified for use in hazardous (classified)

~~location, in accordance with 500.8(A). Reconditioning of a motor or generator with dust ignitionproof construction features is considered to take place when a motor is removed from service for repairs, including replacement of a failed bearing. The dust ignitionproof features of any reconditioned, dust ignitionproof motor or generator are verified as a part of the reconditioning or refurbishing process.~~

~~Informational Note No. 1: See UL 674, *Electric Motors and Generators for Use in Hazardous (Classified) Locations*, for construction and test requirements for explosionproof motors and generators.~~

~~Informational Note No. 2: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.~~

~~(2)– Intrinsically Safe Equipment.~~

~~Replacement of printed circuit board assemblies or modules with like for like components provided by the original manufacturer shall be permitted.~~

~~(B)–~~

~~locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.~~

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

~~–~~

~~(~~

~~4~~

~~Reserved)~~

~~–Intrinsically Safe Equipment~~

~~–~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP_14_SR_7717.docx		
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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 18:58:12 EDT 2024

Committee Statement

Committee Statement: This revision clarifies the requirements for reconditioned equipment. The text related to motors, generators, and intrinsically safe equipment has been replaced with more generic text to address additional equipment based on listing/identification or other permission. Unnecessary text has been deleted to resolve conflicts with 110.20 and ensure compliance with the NEC Style Manual.

Response Message: SR-7717-NFPA 70-2024

Public Comment No. 624-NFPA 70-2024 [Section No. 502.3]

502.3 Reconditioned Equipment.

(A) Permitted to be Installed.

~~Any changes to the explosion protection features of any~~ reconditioned equipment shall be ~~verified~~ assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.

Informational Note No. 2: See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation*, for information on equipment repair, overhaul, and reclamation.

(1) Listed or Identified Equipment.

(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.

(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.

(2) Other Equipment.

Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.

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

~~**(A) Permitted to be Installed:**~~

~~Reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.~~

~~**(1) Reconditioned Motors or Generators.**~~

~~Reconditioning of a Class II, Division 1 dust ignitionproof motor or a Class II, Division 1 dust ignitionproof generator listed for use in hazardous (classified) locations shall be listed as reconditioned when installed (or reinstalled) in a hazardous (classified) location. Reconditioning of a Class II, Division 1 dust ignitionproof motor or a Class II, Division 1 dust ignitionproof generator identified for use in hazardous (classified) locations shall be identified as reconditioned when installed in a hazardous (classified) location, in accordance with 500.8(A). Reconditioning of a motor or generator with dust ignitionproof construction features is considered to take place when a motor is removed from service for repairs, including replacement of a failed bearing. The dust ignitionproof features of any reconditioned, dust ignitionproof motor or generator are verified as a part of the reconditioning or refurbishing process.~~

~~Informational Note No. 1: See UL 674, *Electric Motors and Generators for Use in Hazardous (Classified) Locations*, for construction and test requirements for explosionproof motors and generators.~~

~~Informational Note No. 2: See ANSI/EASA AR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.~~

~~**(2) Intrinsically Safe Equipment.**~~

~~Replacement of printed circuit board assemblies or modules with like for like components provided by the original manufacturer shall be permitted.~~

~~**(B) Not Permitted to be Installed:**~~

~~**(1) Intrinsically Safe Equipment.**~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~



Second Revision No. 7886-NFPA 70-2024 [Section No. 502.10(A)(1)]

[See "CMP 14 SR 7886" Word document for revisions]

(1) General.

In Class II, Division 1 locations, the following wiring methods shall be permitted:

- Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC), including conduit systems with supplemental corrosion protection coatings.
- Type MI cable with termination fittings listed for the location. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.

In restricted industrial establishments, Type MC-HL cable, listed for use in Class II, Division 1 locations,

One or more of the wiring methods of Table 502.10(A)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 502.10(A)(1) Wiring Methods for Use in Class II, Division 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class II, Division 1 Requirements</u>	-
<u>Type MC-HL Cable</u>	<u>Article 330, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type MC-HL cable with a gas/vaportight continuous corrugated metallic sheath</u>	
		(1) <u>and an overall jacket of suitable polymeric material</u>	
		<u>, a separate equipment grounding conductor(s) in accordance with 250.122, and provided with termination</u>	
		(1) <u>.</u>	
		(2) <u>The cable shall be terminated with fittings listed for the</u>	
		<u>location, shall be permitted.</u>	
		• <u>Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC shall be permitted to be installed in raceways in accordance with 502.10(A). Optical fiber cables shall be sealed in accordance with 502.15.</u>	
		<u>In restricted industrial establishments,</u>	
		(1) <u>cable and location.</u>	
		(2) <u>The cable shall contain a separate equipment grounding conductor.</u>	
		(3) <u>This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.</u>	-
		(4) <u>In a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat.</u>	
<u>Type MI Cable</u>	<u>Article 332, Part II</u>	(1) <u>The cable shall be terminated with fittings listed for the cable and location.</u> (2) <u>The cable shall be secured and supported in a manner</u>	-

to avoid tensile stress at the termination fittings.

Type ITC-HL Cable

Article
335,
Part II

- (1) This wiring method shall be permitted for use in restricted industrial establishments.
- (2) The cable shall be listed Type ITC-HL cable , with

a

- (1) gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material

,and

- (1) .
- (2) The cable shall be terminated with fittings listed for the

application, and installed in accordance with 335.10 .In restricted industrial establishments, for applications limited to 600 volts nominal or less, where the cable is not subject to physical damage and is terminated with fittings listed for the location, listed

- (1) cable and the application..

Type TC-ER-HL Cable

Article 336,
Part II

- (1) This wiring method shall be permitted for use in restricted industrial establishments.
- (2) This cable shall be listed Type TC-ER-HL cable.

When installed in

- (1)
- (2) The cable shall be terminated with fittings listed for the cableand location.
- (3) The cable shall not be subject to physical damage.
- (4) This wiring method shall be limited to 600 volts nominal or less.
- (5) In a ladder, ventilated trough, or ventilated channel cable

trays

- (1) tray..

cables

- (1) the cable shall be installed in a single layer

;

- (1) with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat

, Type TC-ER-HL cable shall be installed in accordance with 336

- (1) .

40.

(1)

~~Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for construction, testing, and marking of cables and cable fittings.~~

~~In restricted industrial establishments,~~

-

Type P
Cable

Article 337,
Part II

(1) This wiring method shall be permitted for use in restricted industrial establishments.

(2) The cable shall be listed Type P cable with a metal braid armor

~~, with~~

(1) and an overall jacket

~~, that is~~

(1) .

(2) The cable shall be terminated with fittings listed for the location and

(1) cable and location.

(2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with

~~337.10 . When installed in~~

(1) Article 392, Part II.

(2) In a ladder, ventilated trough, or ventilated channel cable

~~trays~~

(1) tray, .

~~cables~~

(1) the cable shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables

~~;~~

(1) unless otherwise protected against dust buildup resulting in increased heat.

IMC (including IMC with supplemental corrosion protection coatings)

Article 342,
Part II

The conduit connections shall be threaded.

-

RMC (including RMC with supplemental corrosion protection coatings)

Article 344,
Part II

-

Optical Fiber Cable Type OFNP

Type OFCP

Type OFNR

Type OFCR

Type OFNG

Type OFCG

Type OFN

Type OFC

722.162

(1) The cable shall be installed in raceways in accordance with 502.10(A).

(2) Sealing shall be in accordance with 502.15.

Informational Note No.

~~2~~

1: See ANSI/

UL 1309

UL 2225,

~~*Marine Shipboard Cable*~~

Cables and Cable-Fittings for Use in Hazardous (Classified) Locations, for

~~information on~~

construction, testing, and marking of

~~Type P cable~~

HL cables and all cable fittings.

Informational Note No.

~~3: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*~~

2: See UL 1309A, Outline of Investigation for Cable for Use in Mobile Installations, for information on construction, testing, and marking of Type P cable

~~fittings~~

~~.~~

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

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Committee Statement

Committee Statement: This revision replaces the list items with Table 502.10(A)(1), for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging statement was revised to clarify that the table contains the wiring methods to be used in Class II, Division 1 locations. The text related to TC-ER-HL cable indicating it can be installed in tray was removed because Type TC cable can be installed in tray in accordance with Part II of Article 336.

Response SR-7886-NFPA 70-2024
Message:

[Public Comment No. 179-NFPA 70-2024 \[Section No. 502.10\(A\)\(1\)\]](#)

(A) Class II, Division 1.

(1) General.

~~In Class II, Division 1 locations, the following wiring methods shall be permitted:~~

One or more of the wiring methods of Table 502.10(A)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 502.10(A)(1) Wiring Methods for Use in Class II, Division 1 Locations		
Wiring Methods	Reference	Class II, Division 1 Requirements
Type MC-HL Cable	Article 330, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type MC-HL cable with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material. (3) The cable shall be terminated with fittings listed for the cable and location. (4) The cable shall contain a separate equipment grounding conductor. (5) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II. (6) In a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat.
Type MI Cable	Article 332, Part II	(1) The cable shall be terminated with fittings listed for the cable and location. (2) The cable shall be secured and supported in a manner to avoid tensile stress at the termination fittings.
Type ITC-HL Cable	Article 335, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type ITC-HL cable, with gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material. (3) The cable shall be terminated with fittings listed for the cable and the application..
Type TC-ER-HL Cable	Article 336, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) This cable shall be listed Type TC-ER-HL cable. (3) The cable shall be terminated with fittings listed for the cable and location. (4) The cable shall not be subject to physical damage. (5) This wiring method shall be limited to 600 volts nominal or less. (6) In a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat.
Type P Cable	Article 337, Part II	(1) This wiring method shall be permitted for use in restricted industrial establishments. (2) The cable shall be listed Type P cable with a metal braid armor and an overall jacket. (3) The cable shall be terminated with fittings listed for the cable and location. (4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II. (5) In a ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer, with a space not

		less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat.
IMC (including IMC with supplemental corrosion protection coatings)	Article 342, Part II	The conduit connections shall be threaded.
RMC (including RMC with supplemental corrosion protection coatings)	Article 344, Part II	
Optical Fiber Cable Type OFNP Type OFCP Type OFNR Type OFCR Type OFNG Type OFCG Type OFN Type OFC	722.162	(1) The cable shall be installed in raceways in accordance with 502.10(A). (2) Sealing shall be in accordance with 502.15.

- (1) ~~Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC), including conduit systems with supplemental corrosion protection coatings.~~
- (2) ~~Type MI cable with termination fittings listed for the location. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.~~
- (3) ~~In restricted industrial establishments, Type MC-HL cable, listed for use in Class II, Division 1 locations, with a gas/vaportight continuous corrugated metallic sheath, an overall jacket of suitable polymeric material, a separate equipment grounding conductor(s) in accordance with 250.122, and provided with termination fittings listed for the location, shall be permitted.~~
- (4) ~~Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC shall be permitted to be installed in raceways in accordance with 502.10(A). Optical fiber cables shall be sealed in accordance with 502.15.~~
- (5) ~~In restricted industrial establishments, listed Type ITC-HL cable with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material, and terminated with fittings listed for the application, and installed in accordance with 335.10.~~
- (6) ~~In restricted industrial establishments, for applications limited to 600 volts nominal or less, where the cable is not subject to physical damage and is terminated with fittings listed for the location, listed Type TC-ER-HL cable. When installed in ladder, ventilated trough, or ventilated channel cable trays, cables shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat, Type TC-ER-HL cable shall be installed in accordance with 336.10.~~

Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for construction, testing, and marking of [-HL](#) cables and [all](#) cable fittings.

- (7) ~~In restricted industrial establishments, listed Type P cable with metal braid armor, with an overall jacket, that is terminated with fittings listed for the location and installed in accordance with 337.10. When installed in ladder, ventilated trough, or ventilated channel cable trays, cables shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables, unless otherwise protected against dust buildup resulting in increased heat.~~

Informational Note No. 2:

~~See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.~~

~~See ANSI/UL 1309, *Marine Shipboard Cable*, for information on construction, testing, and marking of Type P cable.~~

Informational Note No. 3: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.



Second Revision No. 7887-NFPA 70-2024 [Section No. 502.10(A)(2)]

[See "CMP 14 SR 7887" word file for revisions]

(2) Flexible Connections.

Where flexible connections are necessary,

If flexibility is necessary to minimize the transmission of vibration from equipment during operation, to allow for movement after installation, or during maintenance one or more of the following shall also be permitted:

- Dusttight flexible connectors.
- Liquidtight flexible metal conduit (LFMC) with listed fittings and bonded in accordance with 502.30(B).
- Liquidtight flexible nonmetallic conduit (LFNC) with listed fittings.

Interlocked armor Type MC cable having

wiring methods of Table 502.10(A)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 502.10(A)(2) Wiring Methods With Flexible Connections for Use in Class II, Division 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class II, Division 1 Requirements</u>
<u>Flexible Connectors</u>		(1) <u>Flexible connectors shall be dusttight.</u>
<u>Type MC Cable</u>	<u>Article 330, Part II</u>	<u>The cable shall be terminated with fittings listed for the cable and the location. The cable shall have interlocked armor with an overall jacket of suitable polymeric material</u>

~~and provided with termination fittings listed for Class II, Division 1 locations.~~

- ~~• Flexible cord listed for extra-hard usage and terminated with listed dusttight cord connectors. Where used, flexible cords shall comply with 502.140.~~
- ~~• For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed dusttight fittings.~~

~~In restricted industrial establishments, for applications limited to 600 volts nominal or less, and where the cable is not subject to physical damage and is terminated with fittings listed for the location, listed Type TC-ER-HL cable. Type TC-ER-HL cable shall be installed in accordance with 336.10.~~

~~2.~~

		(1) <u>This wiring method shall be listed and permitted for use in restricted industrial establishments.</u>
		(2) <u>The cable shall be listed Type TC-ER-HL cable.</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	(3) <u>The cable shall be terminated with fittings listed for the cable and location.</u>
		(4) <u>The cable shall not be subject to physical damage.</u>
		(5) <u>This wiring method shall be limited to 600 volts nominal or less.</u>
		(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	(2) <u>The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u>
		(3) <u>The cable shall be terminated with fittings listed for the cable and location.</u>

<u>LFMC</u>	<u>Article 350, Part II</u>	(1) <u>This wiring method shall be terminated with listed fittings.</u> (2) <u>The conduit shall be bonded in accordance with 500.30.</u>
<u>LFNC</u>	<u>Article 356, Part II</u>	(1) <u>This wiring method shall be terminated with listed fittings.</u>
<u>Flexible Cord</u>	<u>Table 400.4</u>	(1) <u>The cord shall comply with the requirements of 502.140.</u>
<u>Type EO Cable</u>		
<u>Type ETP Cable or</u>	<u>Table 400.4</u>	(1) <u>These wiring methods shall be permitted for elevator use.</u> (2) <u>The cable shall be terminated with listed dusttight fittings.</u>
<u>Type ETT Cable</u>		

Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for construction, testing, and marking of HL cables and all cable fittings.

~~In restricted industrial establishments, listed Type P cable with metal braid armor, with an overall jacket, terminated with fittings listed for the location, and installed in accordance with 337.10 :~~

~~Informational Note No. 2: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.~~

~~Informational Note No. 3: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.~~

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 502.10(A)(2) for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging language to the section was updated to mirror language from 501.10(A)(2) for usability and consistency.

Response Message: SR-7887-NFPA 70-2024

Public Comment No. 181-NFPA 70-2024 [Section No. 502.10(A)(2)]

(2) Flexible Connections.

~~Where flexible connections are necessary, one or more of the following shall also be permitted:~~

If flexibility is necessary to minimize the transmission of vibration from equipment during operation, to allow for movement after installation, or during maintenance one or more of the wiring methods of Table 502.10(A)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 502.10(A)(2) Wiring Methods With Flexible Connections for Use in Class II, Division 1 Locations		
Wiring Methods	Reference	Class II, Division 1 Requirements
<u>Flexible Connectors</u>		<u>(1) Flexible connectors shall be dusttight.</u>
<u>Type MC Cable</u>	<u>Article 330, Part II</u>	<u>The cable shall be terminated with fittings listed for the cable and the location. The cable shall have interlocked armor with an overall jacket of suitable polymeric material.</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	<u>(1) This wiring method shall be listed and permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type TC-ER-HL cable.</u> <u>(3) The cable shall be terminated with fittings listed for the cable and location.</u> <u>(4) The cable shall not be subject to physical damage.</u> <u>(5) This wiring method shall be limited to 600 volts nominal or less.</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	<u>(1) This wiring method shall be permitted for use in restricted industrial establishments.</u> <u>(2) The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> <u>(3) The cable shall be terminated with fittings listed for the cable and location.</u>
<u>LFMC</u>	<u>Article 350, Part II</u>	<u>(1) This wiring method shall be terminated with listed fittings.</u> <u>(2) The conduit shall be bonded in accordance with 500.30.</u>
<u>LFNC</u>	<u>Article 356, Part II</u>	<u>(1) This wiring method shall be terminated with listed fittings.</u>
<u>Flexible Cord</u>	<u>Table 400.4</u>	<u>(1) The cord shall comply with the requirements of 502.140.</u>
<u>Type EO Cable</u> <u>Type ETP Cable or</u> <u>Type ETT Cable</u>	<u>Table 400.4</u>	<u>(1) These wiring methods shall be permitted for elevator use.</u> <u>(2) The cable shall be terminated with listed dusttight fittings.</u>

- ~~(1) Dusttight flexible connectors.~~
- ~~(2) Liquidtight flexible metal conduit (LFMC) with listed fittings and bonded in accordance with 502.30(B).~~
- ~~(3) Liquidtight flexible nonmetallic conduit (LFNC) with listed fittings.~~
- ~~(4) Interlocked armor Type MC cable having an overall jacket of suitable polymeric material and provided with termination fittings listed for Class II, Division 1 locations.~~
- ~~(5) Flexible cord listed for extra hard usage and terminated with listed dusttight cord connectors. Where used, flexible cords shall comply with 502.140.~~
- ~~(6) For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed dusttight fittings.~~
- ~~(7) In restricted industrial establishments, for applications limited to 600 volts nominal or less, and where the cable is not subject to physical damage and is terminated with fittings listed for the location, listed Type TC-ER-HL cable. Type TC-ER-HL cable shall be installed in accordance with 336.10.~~

Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for construction, testing, and marking of -HL cables and all cable fittings.

- ~~(8) In restricted industrial establishments, listed Type P cable with metal braid armor, with an overall jacket, terminated with fittings listed for the location, and installed in accordance with 337.10.~~

Informational Note No. 2: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

Informational Note No. 3: See ANSI/UL 2225, *Cables and Cable Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.



Second Revision No. 7893-NFPA 70-2024 [Section No. 502.10(B)(1)]

See "CMP 14 SR 7893" word document for revisions]

(1) General.

In Class II, Division 2 locations, the following wiring methods shall be permitted:

All wiring methods permitted

Any of the wiring methods in 502.10(A).

~~Rigid metal conduit~~

(

~~RMG~~

1) or

~~intermediate metal conduit (IMC) with listed threaded or threadless fittings, including conduit systems with supplemental corrosion protection coatings.~~

- ~~Dusttight wireways or electrical metallic tubing (EMT) with listed compression-type connectors or listed compression-type couplings.~~

~~Type MC, Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems.~~
~~Type TC-ER~~

one or more of the wiring methods of Table 502.10(B)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 502.10(B)(1) Wiring Methods for Use in Class II, Division 2 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class II, Division 2 Requirements</u>
		(1) <u>The cable shall be terminated with listed fittings.</u>
<u>Type MV Cable</u>	<u>Article 315, Part III</u>	(2) <u>The cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.</u>

~~The cable shall be terminated with listed fittings. Type PLTC cable or Type PLTC-ER cable used in Class 2 or Class 3 circuits, including installation in cable tray systems.~~

(1)

- (2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.

Type ITC Cable

Type ITC-ER Cable

Article 335, Part II

- (1) The cable shall be terminated with listed fittings. _

- (2) Type

~~PLTC~~

- (1) ITC -ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

Type

~~ITC cable or Type ITC-ER cable as permitted in 335.10 and~~

TC Cable	Article 336, Part II	(1) The cable shall be terminated with listed fittings
Type TC-ER Cable		

(1) . Type

ITG

(1) TC -ER cable shall include an equipment grounding conductor in addition to a shield or drain wire

~~In restricted industrial establishments where wiring methods in 502.10(B)(1)(2)~~

(1) that might be present.

Type P Cable

Article
337, Part
II

- (1) This wiring method shall be permitted for use in restricted industrial establishments.
- (2) The cable shall be listed Type P with or without metal braid armor, with an overall jacket.
- (3) The cable shall be terminated with listed fittings .
- (4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.

IMC

(including IMC with supplemental corrosion protection coatings)

Article
342, Part
II

The conduit shall be terminated with listed threaded or threadless fittings.

RMC

(including RMC with supplemental corrosion protection coatings)

Article
344, Part
II

Schedule 80 PVC Conduit

Article
352, Part
II

In restricted industrial establishments, where metal conduit will not provide the corrosion resistance required

for the installation environment, either of the following: Listed reinforced thermosetting resin conduit (RTRC)

, Schedule 80 Type PVC conduit, factory elbows, and associated fittings shall be permitted.

RTRC-XW Conduit

Article
355, Part
II

Where metal conduit will not provide the corrosion resistance required, listed RTRC-XW , factory elbows, and associated fittings, all marked with the suffix -XW

- ~~Schedule 80 PVC conduit, factory elbows, and associated fittings~~

~~Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC, installed in cable trays or any other raceway in accordance with 502.10(B) : Optical fiber cables shall be sealed. In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, that is terminated with listed fittings and installed in accordance with 337.10 : Informational Note~~

~~, shall be permitted:~~

Type EMT	Article 358, Part II	This wiring method shall be installed using listed compression-type connectors or listed compression-type couplings.
Cablebus	Article 370, Part II	
Wireways	Article 376, Part II Article 378, Part II	(1) Wireways shall be dusttight.
Type PLTC Cable or Type PLTC-ER Cable	722.124	(1) This cable shall be used in Class 2 or Class 3 circuits. (2) The cable shall be terminated with listed fittings. (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.
Optical Fiber Cable Type OFNP		
Type OFCP		
Type OFNR		
Type OFCR	722.162	(1) The cable shall be installed in cable tray or any other raceway, in accordance with 502.10
Type OFNG		(2) Sealing shall be in accordance with 502.15 :
Type OFCG		
Type OFN		
Type OFC		

~~• Cablebus:~~

~~Informational Note No.1: See 502.10(A)(3) for fitting requirements for entry into enclosures required to be dust ignition proof.~~

~~Informational Note No. 2 : See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations* , for information on construction, testing, and marking of Type P cable.~~

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 502.10(B)(1) for usability. The language regarding fittings was clarified to guide the user to the factors for using the correct fittings for each wiring method. The charging language to the section was updated to mirror language from 501.10(B)(1) for usability and consistency

Response Message: SR-7893-NFPA 70-2024

[Public Comment No. 183-NFPA 70-2024 \[Section No. 502.10\(B\)\(1\)\]](#)



Second Revision No. 7729-NFPA 70-2024 [Section No. 502.120]

502.120 Control Transformers and Resistors.

(A) Class II, Division 1.

In Class II, Division 1 locations, control transformers, solenoids, impedance coils, resistors, and any ~~overcurrent devices or~~ OCPD or switching mechanisms associated with them shall be provided with enclosures identified for the location.

(B) Class II, Division 2.

In Class II, Division 2 locations, transformers and resistors shall comply with 502.120(B)(1) through 502.120(B)(3).

(1) Switching Mechanisms.

Switching mechanisms (including ~~overcurrent devices~~ OCPD) associated with control transformers, solenoids, impedance coils, and resistors shall be provided with enclosures that are dusttight or otherwise identified for the location.

(2) Coils and Windings.

Where not located in the same enclosure with switching mechanisms, control transformers, solenoids, and impedance coils shall be provided with enclosures that are dusttight or otherwise identified for the location.

(3) Resistors.

Resistors and resistance devices shall have dust-ignitionproof enclosures that are dusttight or otherwise identified for the location.

Submitter Information Verification

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Submittal Date: Tue Oct 15 21:09:03 EDT 2024

Committee Statement

Committee Statement: This revision changes “overcurrent devices” to OCPDs, two times to align terminology on overcurrent protection usage throughout the code. This is in reference to PC-1654.

Response Message: SR-7729-NFPA 70-2024



Second Revision No. 7724-NFPA 70-2024 [Section No. 502.130(C)]

(C) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 502.130(C)(1) through 502.130(C)(4) :~~

~~(1)–~~

Modification of

existing

luminaires

~~to change the lamp type, such as for light-emitting-diode (LED) lamp types, shall be permitted using~~

, using retrofit kits listed for the location and

suitable

listed for field installation

~~in luminaires in accordance with the instructions provided.~~

~~(2)–~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies, luminaire marking labels, and assembly aids (where appropriate) to facilitate the replacement of the existing light source in complete luminaires. The retrofit installation shall be permitted to include modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)–~~

~~A luminaire that is modified so that it can no longer accept the original lamp shall be relabeled with a label provided with the listed retrofit kit and affixed to the luminaire. The label shall comply with the following:~~

~~(1) Be field applied with the listed retrofit kit and affixed to the luminaire. The label shall be applied to the luminaire where visible during relamping.~~

~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps.~~

~~(3) Identify the manufacturer's name and replacement lamp type/model to be used.~~

~~(4)–~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit. The label shall indicate in text or with a wiring diagram how the supply connections to the lamp holders are required to be made. The label shall be affixed to the luminaire in a location where it will be visible during relamping.~~

with the luminaire to be retrofitted, shall be permitted.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 20:02:51 EDT 2024

Committee Statement

Committee Statement: The text of 502.130(C) has been revised to clarify the requirements for luminaire retrofit kits specific to hazardous locations and remove text that was redundant with Article 410.

Response Message: SR-7724-NFPA 70-2024

[Public Comment No. 398-NFPA 70-2024 \[Section No. 502.130\(C\)\]](#)

[Public Comment No. 568-NFPA 70-2024 \[Section No. 502.130\(C\)\]](#)

[Public Comment No. 633-NFPA 70-2024 \[Section No. 502.130\(C\)\]](#)

[Public Comment No. 977-NFPA 70-2024 \[Section No. 502.130\(C\)\(3\)\]](#)



Second Revision No. 7725-NFPA 70-2024 [New Section after 503.1]

503.3 Reconditioned Equipment .

(A) Permitted to be Installed.

Any changes to the explosion protection features of reconditioned equipment shall be assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1: See ANSI/EASAAR100, *Recommended Practice for the Repair of Rotating Electrical Apparatus*, for information on the rewinding and repair of motors.

Informational Note No. 2: See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation*, for information on equipment repair, overhaul, and reclamation.

(1) Listed or Identified Equipment.

(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.

(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.

(2) Other Equipment.

Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 20:18:07 EDT 2024

Committee Statement

Committee Statement: The text of 503.3 has been added to address reconditioned equipment in Class III locations. This text aligns Article 503 with the remainder of the hazardous location articles. This correlates with the changes to 501.3 and 502.3.

Response Message: SR-7725-NFPA 70-2024



Second Revision No. 7895-NFPA 70-2024 [Section No. 503.10(A)(1)]

[See "CMP 14 SR 7895" word document for revisions]

(1) General.

~~In Class III, Division 1 locations, the following wiring methods shall be permitted:~~

- ~~• Rigid metal conduit (RMC), PVC conduit, RTRC conduit, intermediate metal conduit (IMC), electrical metallic tubing (EMT), dusttight wireways, or Type MC or Type MI cable with listed termination fittings.~~

~~Type PLTC cable or Type PLTC-ER cable used in Class 2 and Class 3 circuits, including installation in cable tray systems.~~

One or more of the wiring methods of Table 503.10(A)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 503.10(A)(1) Wiring Methods for Use in Class III, Division 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class III, Division 1 Requirements</u>
<u>Type MV Cable</u>	<u>Article 315, Part III</u>	(1) <u>The cable shall be terminated with listed fittings.</u>

Type PLTC-ER

- (1)
- (2) The cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

~~Type ITC cable or Type ITC-ER cable as permitted in 335.10 and~~

- (1) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.
- (2) In ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against buildup resulting in increased heat.

Type MC Cable

Article
330,
Part II

- (1) The cable shall be terminated with listed fittings.
- (2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.
- (3) In ladder, ventilated trough, or ventilated channel cable tray, the cable shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables unless otherwise

protected against buildup resulting in increased heat.

Type MI Cable

Article
332,
Part II

The cable shall be terminated with listed fittings.

Type ITC Cable

Article
335,
Part II

(1) The cable shall be terminated with listed fittings. .

Type ITC-ER Cable

(2) Type ITC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present .

Type

MV, Type TC, or

TC Cable

Type TC-ER

cable, including installation in cable tray systems:

Cable

Article 336,
Part II

(1) The cable shall be terminated with listed fittings.

(2) Type TC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

The cable shall be terminated with listed fittings:

- Cablebus:

In restricted industrial establishments, listed Type P cable with metal braid armor, with an overall jacket, that is terminated with fittings listed for the location, and installed in accordance with Article 337 , Part II. If installed in

(1)

(1) This wiring method shall be permitted for use in restricted industrial establishments.

(2) The cable shall be listed Type P with a metal braid armor and an overall jacket.

Type P
Cable

Article 337,
Part II

(3) The cable shall be terminated with listed fittings.

(4) This wiring method shall be permitted in ladder, ventilated trough, or ventilated channel cable tray, in accordance with 392, Part II.

(5) In ladder, ventilated trough, or ventilated channel cable

trays

(1) tray. .

cables

(1) the cable shall be installed in a single layer, with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against

dust

- (1) buildup resulting in increased heat.

Intermediate Metal Conduit (IMC) Article 342, Part II

Rigid Metal Conduit (RMC) Article 344, Part II

PVC Conduit Article 352, Part II The conduit shall be terminated with listed fittings.

RTRC Conduit Article 355, Part II

Electrical Metallic Tubing (EMT) Article 358, Part II

Cablebus Article 370, Part II

Wireways Article 376, Part II Article 378, Part II Wireways shall be dusttight.

- Type PLTC or Type PLTC-ER Cable 722.121
- (1) The cable shall be permitted to be used in Class 2 or Class 3 circuits.
 - (2) The cable shall be terminated with listed fittings.
 - (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

Informational Note No. 1: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Thu Oct 17 12:44:03 EDT 2024

Committee Statement

Committee Statement: This revision replaces the list items with Table 503.10(A)(1) for usability. The charging language to the section was updated to mirror language from 501.10(A)(1)

for usability and consistency.

Response SR-7895-NFPA 70-2024
Message:

[Public Comment No. 773-NFPA 70-2024 \[Section No. 503.10\(A\)\(1\)\]](#)

[Public Comment No. 189-NFPA 70-2024 \[Section No. 503.10\(A\)\(1\)\]](#)



Second Revision No. 7902-NFPA 70-2024 [Section No. 503.10(A)(3)]

[See "CMP 14 SR 7902" word document for revisions]

(3) Flexible Connections.

~~Where flexible connections are necessary,
If flexibility is necessary to minimize the transmission of vibration from equipment during
operation, to allow for movement after installation, or during maintenance, one or more of the
following shall be permitted:~~

- ~~• Dusttight flexible connectors~~
- ~~• Liquidtight flexible metal conduit (LFMC) with listed fittings~~
- ~~• Liquidtight flexible nonmetallic conduit (LFNC) with listed fittings and bonded in accordance with 500.30(B)~~

~~Interlocked armor Type MC cable having
wiring methods of Table 503.10(A)(3) shall be used in accordance with the requirements of the
reference section and with the respective wiring method requirements applied.~~

Table 503.10(A)(3) Wiring Methods With Flexible Connections for Use in Class III, Division 1
Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Class III, Division 1 Requirements</u>
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<u>Flexible Connectors</u>		(1) <u>Flexible connectors shall be dusttight.</u>
--------------------------------	--	--

<u>Type MC Cable</u>	<u>Article 330, Part II</u>	(1) <u>The cable shall have interlocked armor with an overall jacket of suitable polymeric material</u>
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~~and installed~~

- (1) ~~•~~
- (2) The cable shall be terminated with listed

~~dusttight termination~~

- (1) ~~•~~ fittings

~~Flexible cord in accordance with 503~~

- (1) ~~•~~

~~140In restricted industrial establishments,~~

- (1)

- ~~• For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown
under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated
with listed dusttight fittings~~

<u>Type P Cable</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u>
		(2) <u>The cable shall be listed Type P cable with a metal braid armor</u>

~~, with~~

- (1) and an overall jacket

~~, that is~~

- (1) ~~•~~
- (2) The cable shall be terminated with fittings listed for

~~the location and installed in accordance with Article 337, Part II~~

(1) the location.

<u>LFMC</u>	<u>Article 350, Part II</u>	(1) <u>The conduit shall be terminated with listed fittings.</u> (2) <u>The conduit shall be bonded in accordance with 500.30(B).</u>
-------------	-----------------------------	--

<u>LFNC</u>	<u>Article 356, Part II</u>	(1) <u>The conduit shall be terminated with listed fittings.</u>
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<u>Flexible Cord</u>	<u>Table 400.4</u>	<u>The cord shall comply with the requirements of 503.140.</u>
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<u>Type EO Cable</u>		(1) <u>These wiring methods shall be permitted for elevator use.</u>
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<u>Type ETP Cable</u>	<u>Table 400.4</u>	
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<u>Type ETT Cable</u>		(2) <u>The cable shall be terminated with listed fitting.</u>
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(1)

Informational Note: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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Committee Statement

Committee Statement: This revision replaces the list items with Table 503.10(A)(3) for usability. The charging language to the section was updated to mirror language from 501.10(A)(2) for usability and consistency.

Response Message: SR-7902-NFPA 70-2024

Public Comment No. 190-NFPA 70-2024 [Section No. 503.10(A)(3)]



Second Revision No. 7726-NFPA 70-2024 [Section No. 503.130(E)]

(E) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 503.130(E)(1) through 503.130(E)(4) :~~

~~(1)–~~

Modification of

existing

luminaires

~~to change the lamp type, such as for light-emitting-diode (LED) lamp types, shall be permitted using~~

~~, using retrofit kits listed for the location and~~

~~suitable~~

~~listed for field installation~~

~~in luminaires in accordance with the instructions provided.~~

~~(2)–~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies, luminaire marking labels, and assembly aids (where appropriate) to facilitate the replacement of the existing light source in complete luminaires. The retrofit installation shall be permitted to include modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)–~~

~~A luminaire that is modified so that it can no longer accept the original lamp shall be relabeled with a label provided with the listed retrofit kit and affixed to the luminaire. The label shall comply with the following:~~

- ~~(1) Be field applied to the luminaire where visible during relamping~~
- ~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps~~
- ~~(3) Identify the manufacturer's name and replacement lamp type/model to be used~~

~~(4)–~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit. The label shall indicate in text or with a wiring diagram how the supply connections to the lamp holders are required to be made. The label shall be affixed to the luminaire in a location where it will be visible during relamping.~~

~~with the luminaire to be retrofitted, shall be permitted.~~

Supplemental Information

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Submitter Information Verification

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Committee Statement

Committee Statement: The text of 503.130(E) has been revised to clarify the requirements for luminaire retrofit kits specific to hazardous locations and remove text that was redundant with Article 410.

Response Message: SR-7726-NFPA 70-2024

[Public Comment No. 569-NFPA 70-2024 \[Section No. 503.130\(E\)\]](#)

[Public Comment No. 634-NFPA 70-2024 \[Section No. 503.130\(E\)\]](#)

[Public Comment No. 403-NFPA 70-2024 \[Section No. 503.130\(E\)\]](#)

[Public Comment No. 978-NFPA 70-2024 \[Section No. 503.130\(E\)\(3\)\]](#)



Second Revision No. 7727-NFPA 70-2024 [Section No. 504.10(A)]

(A) Control Drawing.

Intrinsically safe apparatus, associated apparatus, and other equipment shall be installed in accordance with the control drawing(s).

A simple apparatus, whether or not shown on the control drawing(s), shall be permitted to be installed provided the simple apparatus does not interconnect intrinsically safe circuits.

Informational Note No. 1: The control drawing identification is marked on the apparatus.

Informational Note No. 2: Associated apparatus with a marked $\cancel{U_m}$ $\underline{U_m}$ of less than 250 V may require additional overvoltage protection at the inputs to limit any possible fault voltages to less than the $\cancel{U_m}$ $\underline{U_m}$ marked on the product, for example, SELV (Safety Extra Low Voltage), PELV (Protected Extra Low Voltage), inherently limited Class 2 power source, or low voltage/limited current power source.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Tue Oct 15 20:37:22 EDT 2024

Committee Statement

Committee Statement: This revision provides examples of how to limit the magnitude of the fault voltage in the informational note.

Response Message: SR-7727-NFPA 70-2024

Public Comment No. 1523-NFPA 70-2024 [Section No. 504.10(A)]



Second Revision No. 7728-NFPA 70-2024 [Section No. 504.10(D)]

(D) Simple Apparatus.

(1) Class I, Division 1 and Class I, Zone 0 and 1 Locations

Simple apparatus shall be permitted to be installed in any hazardous (classified) location in which the maximum surface temperature of the simple apparatus does not exceed the ignition temperature of the flammable gases or vapors, flammable liquids, combustible dusts, or ignitable fibers/flyings present. The maximum surface temperature can be determined from the values of the output power from the associated apparatus or apparatus to which it is connected to obtain the temperature class. The temperature class can be determined by:

- (1) Reference to Table 504.10(D)(1)
- (2) Calculation using the following equation:

$$T = P_o R_{th} + T_{amb} \quad [504.10(D)(1)]$$

where:

T = surface temperature

P_o = output power marked on the associated apparatus or intrinsically safe apparatus

R_{th} = thermal resistance of the simple apparatus

T_{amb} = ambient temperature (normally 40°C) and reference Table 500.8(C)(4)

~~In addition, components with a surface area smaller than 10 cm² (excluding lead wires) may be classified as T5 if their surface temperature does not exceed 150°C~~

Informational Note: - T_{amb} - in the above equation is considered to be the ambient temperature in close proximity to the component taking into account other nearby sources of heating .

Table 504.10(D)

Assessment

(1) Assessment for T4 Classification According to Component Size and Temperature

<u>Requirement for T4</u>	
<u>Total Surface Area Excluding Lead Wires</u>	<u>Classification</u>
<20 mm ²	Surface temperature ≤275°C
≥20 mm ² ≤10 cm ²	Surface temperature ≤200°C
≥20 mm ²	Power not exceeding 1.3 W*

*Based on 40°C ambient temperature. Reduce to 1.2 W with an ambient temperature of 60°C or 1.0 W with 80°C ambient temperature.

(a) In addition, components with a surface area smaller than 10 cm² (excluding lead wires) shall be permitted to be classified as T5 if their surface temperature does not exceed 150°C.

(b) Terminal boxes and switches in intrinsically safe circuits shall have a temperature classification in accordance with one of the following:

- ___ (1) T6 at an ambient temperature not exceeding 40°C
- ___ (2) T5 at an ambient temperature not exceeding 55°C
- ___ (3) T4 at an ambient temperature not exceeding 80 °C.

Informational note: Listed terminal blocks have a maximum temperature rise of 30K at their rated current.

(2) Class II and III, Division 1 and 2, and Zone 20, 21 and 22 locations

Simple apparatus shall be permitted to be installed in any hazardous (classified) location in which the maximum surface temperature of the simple apparatus does not exceed the ignition temperature of the combustible dusts, or ignitable fibers/flyings present. The maximum surface temperature shall be determined from the values of the output power from the associated apparatus or apparatus to which it is connected to obtain the temperature class.

(a) For simple apparatus, complying with the following, a T4 or T135°C temperature classification shall apply:

- (1) Installed in a Class II, Division 1 or 2; Class III, Division 1 or 2; Zone 20, Zone 21, or Zone 22 location
- (2) The continuous short circuit current is less than 250 mA
- (3) The maximum dissipated power from the associated apparatus or apparatus to which it is connected to is less than the values in Table 504.10(D)(2)(b).

(b) Terminal boxes and switches in intrinsically safe circuits shall have a temperature classification in accordance with one of the following:

- (1) T6 or T85 °C at an ambient temperature not exceeding 40°C
- (2) T5 or T100 °C at an ambient temperature not exceeding 55°C
- (3) T4 or T135 °C at an ambient temperature not exceeding 80°C

Informational note: Listed terminal blocks have a maximum temperature rise of 30K at their rated current.

Table 504.10(D)(2)(b) Maximum permitted power dissipation within a component immersed in dust. _

<u>Maximum ambient temperature</u>	<u>°C</u>	<u>40</u>	<u>70</u>	<u>100</u>
<u>Permitted power</u>	<u>mW</u>	<u>750</u>	<u>650</u>	<u>550</u>

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Submittal Date: Tue Oct 15 20:48:05 EDT 2024

Committee Statement

Committee Statement: This revision provides guidance on how to determine the temperature class based on the ambient temperature. This revision also provides guidance for the use of simple apparatus in Class II and III, and Zones 20, 21, and 22. This information is needed to aid in the proper installation of simple apparatus.

Response Message: SR-7728-NFPA 70-2024

Public Comment No. 1543-NFPA 70-2024 [Section No. 504.10(D)]



Second Revision No. 7735-NFPA 70-2024 [Section No. 504.60]

504.60 Bonding.

(A) Intrinsically Safe Apparatus.

Intrinsically safe apparatus, if of metal, shall be bonded in the hazardous (classified) location in accordance with ~~501~~ 500 .30(B) , ~~502.30(B)~~ , ~~503.30(B)~~ , 505.30(A) , or 506.30(A) , as applicable.

(B) Metal Raceways.

Where metal raceways are used for intrinsically safe system wiring, bonding at all ends of the raceway, regardless of the location, shall be in accordance with ~~501~~ 500 .30(B) , ~~502.30(B)~~ , ~~503.30(B)~~ , 505.30(A) , or 506.30(A) , as applicable.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 11:01:02 EDT 2024

Committee Statement

Committee Statement: This revision correlates with the deletion of 501.30, 502.30, and 503.30 and the relocation of the bonding requirements to 500.30. This is correlating action on Section 501.30.

Response Message: SR-7735-NFPA 70-2024



Second Revision No. 7739-NFPA 70-2024 [Section No. 505.3]

[See "CMP 14 SR 7739" word document for revisions]

505.3 Reconditioned Equipment

(A) Permitted to be Installed.

Reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.

~~(1) Reconditioned Motors or Generators.~~

~~Reconditioning of a Zone 1 flameproof or increased safety motor or generator or explosionproof motor or generator listed for use in hazardous (classified) locations shall be listed as reconditioned when installed in hazardous (classified) locations. Reconditioning of a type "p" motor or generator identified for use in hazardous (classified) locations or Class I, Division 1 explosionproof motor or Class I, Division 1 explosionproof generator identified for use in hazardous (classified) location shall be identified as reconditioned when installed in a hazardous (classified) location, in accordance with 500.8(A). Reconditioning of a motor or generator with flameproof, explosionproof, or increased safety construction features is considered to take place when the motor or generator is removed from service for repairs, including replacement of a failed bearing. The flameproof, explosionproof, or increased safety features of any reconditioned motor or generator are verified~~

(A) Permitted to be Installed.

Any changes to the explosion protection features of reconditioned equipment shall be assessed as a part of the reconditioning

or refurbishing

process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1:

~~See UL 60079-1, *Explosive Atmospheres — Part 1: Equipment Protection by Flameproof Enclosures "d"*, for construction and test requirements for flameproof motors and generators.~~

~~Informational Note No. 2: See UL 60079-7, *Explosive Atmospheres — Part 7: Equipment Protection by Increased Safety "e"*, for construction and test requirements for increased safety motors and generators.~~

~~Informational Note No. 3: See~~

See ANSI/EASA AR100,

-

Recommended Practice for the Repair of Rotating Electrical Apparatus, for information on the rewinding and repair of motors.

Informational Note No.

4

2:

~~See~~

See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation*, for information on equipment repair, overhaul, and reclamation.

(

~~2) Intrinsicallly Safe Equipment.~~

~~Replacement of printed circuit board assemblies or modules with like for like components provided by the original manufacturer shall be permitted.~~

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

~~(1) Intrinsicallly Safe Equipment.~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~

~~1) Listed or Identified Equipment.~~

~~(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.~~

~~(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.~~

~~(2) Other Equipment.~~

~~Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.~~

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

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Committee Statement

Committee Statement: This revision clarifies the requirements for reconditioned equipment. The text related to motors, generators, and intrinsically safe equipment has been replaced with more generic text to address additional equipment based on listing/identification or other permission. Unnecessary text has been deleted to resolve conflicts with 110.20 and ensure compliance with the NEC Style Manual.

Response Message: SR-7739-NFPA 70-2024

Public Comment No. 625-NFPA 70-2024 [Section No. 505.3]



Second Revision No. 7741-NFPA 70-2024 [Section No. 505.4]

505.4 Documentation.

Areas designated as hazardous (classified) locations or as unclassified shall be documented on an area classification drawing and other associated documentation. This documentation shall be made available to the AHJ and those authorized to design, install, inspect, maintain, or operate electrical equipment at the location.

Informational Note No. 1: See ANSI/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*, ANSI/ISA 60079-10-1 (12.24.01), *Explosive Atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres*, and EI 15, *Model Code of Safe Practice, Part 15: Area Classification for Installations Handling Flammable Fluids*, for examples of area classification drawings.

Informational Note No. 2: See 505.8(I)(2), 505.8(I)(3), or 505.8(I)(4) for information on where gas detection equipment is used as a means of protection. The documentation typically includes the type of detection equipment, its listing, the installation location(s), the alarm and shutdown criteria, and the calibration frequency.

Informational Note No. 3: See 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*, ANSI/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*, ANSI/ISA 60079-10-1 (12.24.01), *Explosive Atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres*, and EI 15, *Model Code of Safe Practice, Part 15: Area Classification for Installations Handling Flammable Fluids*, for information on the classification of locations.

Informational Note No. 4: See NFPA 77-2024, *Recommended Practice on Static Electricity*, NFPA 780-2026, *Standard for the Installation of Lightning Protection Systems*, and API RP 2003, *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents*, for information on protection against static electricity and lightning hazards in hazardous (classified) locations.

Informational Note No. 5: See NFPA 30-2024, *Flammable and Combustible Liquids Code*, and ANSI/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*, for information on ventilation.

Informational Note No. 6: See ANSI/API RP 14FZ, *Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations*, for information on electrical systems for hazardous (classified) locations on offshore oil and gas producing platforms, drilling rigs, and workover rigs.

Informational Note No. 7: See UL 120101, *Definitions and Information Pertaining to Electrical Apparatus in Hazardous Locations*, and ANSI/UL 60079-0, *Explosive Atmospheres — Part 0: Equipment — General Requirements*, for further information on the general application of electrical equipment in hazardous (classified) locations.

Informational Note No. 8: See ANSI/UL 121203, *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*, for information on whether portable or transportable equipment having self-contained power supplies, such as battery-operated equipment, could potentially become an ignition source in hazardous (classified) locations.

Informational Note No. 9: See ANSI/UL 60079-28, *Explosive Atmospheres — Part 28: Protection of Equipment and Transmission Systems Using Optical Radiation*, for information concerning the installation of equipment utilizing optical emissions technology (such as laser equipment) that could potentially become an ignition source in hazardous (classified) locations.

Informational Note No. 10: See IEC/IEEE 60079-30-2, *Explosive Atmospheres — Part 30-2: Electrical Resistance Trace Heating — Application Guide for Design, Installation and Maintenance*, for information on electrical resistance trace heating for hazardous (classified) locations.

Informational Note No. 11: See IEEE 844.2/CSA C293.2, *IEEE/CSA Standard for Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric skin effect trace heating for hazardous (classified) locations.

Informational Note No. 12: See IEEE 844.4/CSA C293.4, *IEEE/CSA Standard for Impedance Heating of Pipelines and Equipment — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric impedance heating for hazardous (classified) locations.

Informational Note No. 13: See ANSI/UL RP 60079-46, *Recommended Practice for Explosive Atmospheres — Part 46: Equipment Assemblies*, for information on manufactured assemblies comprising multiple items of equipment that require additional assessment (such as a detailed inspection) by the assembly manufacturer that is not covered by the equipment certificates. ~~This additional assessment might include (but is not limited to) performance and documentation of a close or detailed inspection of the assembly by the manufacturer prior to commissioning by the user. See also 90.7 : _~~

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 11:36:37 EDT 2024

Committee Statement

Committee Statement: The text of 505.4 Informational Note 13 is revised to remove unnecessary text related to close or detailed inspections. The reference to 90.7 was deleted as it was redundant.

Response Message: SR-7741-NFPA 70-2024



Second Revision No. 7742-NFPA 70-2024 [Section No. 505.8]

505.8 Protection Techniques.

Acceptable protection techniques for electrical and electronic equipment in hazardous (classified) locations shall be as described in 505.8(A) through 505.8(R).

Informational Note No. 1: See ANSI/UL 120101, *Definitions and Information Pertaining to Electrical Equipment in Hazardous Locations*, and ANSI/UL 60079-0, *Explosive Atmospheres — Part 0: Equipment — General Requirements*, for additional information.

Informational Note No. 2: See Chapter 9, Table 13 for descriptions of subdivisions of protection techniques.

(A) Flameproof Enclosure “d”.

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations.

(B) Pressurized Enclosure “p”.

This protection technique shall be permitted for equipment in those Zone 1 or Zone 2 locations for which it is identified.

Informational Note: When the equipment inside an enclosure is protected by pressurization, the use of gas detection equipment does not eliminate the need for the purge cycle.

(C) Intrinsic Safety “i”.

This protection technique shall be permitted for apparatus and associated apparatus for Zone 0, Zone 1, or Zone 2 locations for which it is listed.

(D) Type of Protection “n”.

This protection technique shall be permitted for equipment in Zone 2 locations. Type of protection “n” is further subdivided into nA, nC, and nR.

(E) Liquid Immersion “o”.

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations.

(F) Increased Safety “e”.

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations.

(G) Encapsulation “m”.

This protection technique shall be permitted for equipment in Zone 0, Zone 1, or Zone 2 locations for which it is identified.

(H) Powder Filling “q”.

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations.

(I) Detection Systems for Flammable Gases.

A detection system for flammable gases shall be permitted as a means of protection in restricted industrial establishments.

(1) General.

In addition to the listing requirements in 505.2(A), any gas detection system used as a protection technique shall meet all of the requirements in 505.8(l)(1)(a) through 505.8(l)(1)(d).

(a) The gas detection system shall not use portable or transportable equipment or temporary wiring methods.

(b) The gas detection system shall only use point-type sensors. The system shall be permitted to be augmented with open-path (line-of-sight)-type sensors, but open-path-type sensors shall not be the basis for this protection technique.

(c) The type of detection equipment, its listing, the installation location(s), the alarm and shutdown criteria, and the calibration frequency shall be documented where gas detectors are used as a protection technique.

(d) The applications for the use of gas detection systems as a protection technique shall be limited to 505.8(l)(2), 505.8(l)(3), or 505.8(l)(4).

Informational Note No. 1: See ANSI/UL 121303, *Guide for Use of Detectors for Flammable Gases*, or ANSI/FM 121303, *Guide for Use of Detectors for Flammable Gases*, for additional information.

Informational Note No. 2: See ANSI/UL 60079-29-1, *Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases*, or ANSI/FM 60079-29-1, *Explosive Atmospheres — Part 29-1: Gas Detectors — Performance Requirements of Detectors for Flammable Gases*, for additional information.

Informational Note No. 3: See ANSI/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*, for additional information.

Informational Note No. 4: See ANSI/UL 60079-29-2, *Explosive Atmospheres — Part 29-2: Gas Detectors — Selection, Installation, Use and Maintenance of Detectors for Flammable Gases and Oxygen*, or ANSI/FM 60079-29-2, *Explosive Atmospheres — Part 29-2: Gas Detectors — Selection, Installation, Use and Maintenance of Detectors for Flammable Gases and Oxygen*, for additional information.

(2) Inadequate Ventilation.

A location, enclosed space, or building that is classified as a Zone 1 location due to inadequate ventilation and that is provided with a detection system for flammable gases shall be permitted to use electrical equipment, installation methods, and wiring practices suitable for Zone 2 installations. Sensing a gas concentration of not more than 40 percent of the lower flammable limit or a gas detector system malfunction shall activate an alarm (audible or visual, or both, as most appropriate for the area).

(3) Interior of a Building or Enclosed Space.

Any building or enclosed space that does not contain a source of flammable gas or vapors that is located in, or with an opening into, a Zone 2 hazardous (classified) location that is provided with a detection system for flammable gases shall be permitted to use electrical equipment, installation methods, and wiring practices suitable for unclassified installations under all of the following conditions:

- (1) An alarm (audible or visual, or both) shall be sounded at not more than 20 percent of the lower flammable limit.
- (2) Sensing a gas concentration of not more than 40 percent of the lower flammable limit or a gas detector system malfunction shall activate an alarm (audible or visual, or both, as most appropriate for the area) and initiate automatic disconnection of power from all electrical devices in the area that are not suitable for Zone 2.
- (3) The power disconnecting device(s) shall be suitable for Zone 1 if located inside the building or enclosed space. If the disconnecting device(s) is located outside the building or enclosed space, it shall be suitable for the location in which it is installed.

Redundant or duplicate equipment (such as sensors) shall be permitted to be installed to avoid disconnecting electrical power when equipment malfunctions are indicated.

When automatic shutdown could introduce additional or increased hazard, this technique shall not be permitted.

(4) Interior of a Control Panel.

Inside the interior of a control panel containing instrumentation or other equipment using or measuring flammable liquids, gases, or vapors and that is provided with a detection system for flammable gases equipment shall be allowed to use electrical equipment, installation methods, and wiring practices suitable for Zone 2 installations.

An alarm (audible or visual, or both) shall be sounded at not more than 40 percent of the lower flammable limit.

(J) Protection by Electrical Resistance Trace Heating “60079-30-1”.

This protection technique shall be permitted for electrical resistance trace heating equipment in Zone 1 or Zone 2 for which it is listed.

(K) Inherently Safe Optical Radiation “op is”.

This protection technique shall be permitted for equipment in Zone 0, Zone 1, or Zone 2 locations for which the equipment is identified.

(L) Protected Optical Radiation “op pr”.

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations for which the equipment is identified.

(M) Optical System With Interlock “op sh”.

This protection technique shall be permitted for equipment in Zone 0, Zone 1, or Zone 2 locations for which the equipment is identified.

(N) Protection by Skin Effect Trace Heating “IEEE 844.1”.

This protection technique shall be permitted for skin effect trace heating equipment in Zone 1 or Zone 2 locations for which it is listed.

(O) Protection by Impedance Heating “IEEE 844.3”.

This protection technique shall be permitted for impedance heating of pipelines, and equipment in Zone 2 locations for which it is listed.

(P) Pressurized Room "p".

This protection technique shall be permitted for equipment in Zone 1 or Zone 2 locations for which it is identified.

Informational Note: When the equipment inside a room is protected by pressurization, the use of gas detection equipment does not eliminate the need for the purge cycle.

(Q) Artificially Ventilated Room "v".

This protection technique shall be permitted in a Zone 2 location for which it is identified.

(R) Special Protection "s".

This protection technique shall be permitted for equipment in Zone 0, Zone 1, or Zone 2 locations for which it is listed.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 11:40:42 EDT 2024

Committee Statement

Committee Statement: The proposed informational note is not applicable to gas detection as a protection technique. This revision places the informational note in 505.8(B) and 505.8(P) as it applies to purged and pressurized protection technique.

Response Message: SR-7742-NFPA 70-2024

Public Comment No. 1518-NFPA 70-2024 [Section No. 505.8(I)(4)]



Second Revision No. 7770-NFPA 70-2024 [Sections 505.9(B), 505.9(C)]

[See "CMP 14 SR 7770" word document for revisions]

Sections 505.9(B), 505.9(C)

(B) Listing.

- (1) Equipment that is listed for a Zone 0 location shall be permitted in a Zone 1 or Zone 2 location of the same gas or vapor, provided that it is installed in accordance with the requirements for the marked type of protection. Equipment that is listed for a Zone 1 location shall be permitted in a Zone 2 location of the same gas or vapor, provided that it is installed in accordance with the requirements for the marked type of protection.
- (2) Equipment shall be permitted to be listed for a specific gas or vapor, specific mixtures of gases or vapors, or any specific combination of gases or vapors.

Informational Note: One common example is equipment marked for "IIB. + H2."

- (1) **[number as (3)]** If equipment is provided with a certificate, and an "X" suffix is indicated on the certificate number, a review shall be performed to confirm compliance with the "Specific Conditions of Use" indicated on the certificate and in the installation instructions.
- (1) **[number as (4)]** If a component is provided with a certificate, and a "U" suffix is indicated on the certificate number, the component is incomplete and shall not be installed.

Exception to 4: A component provided with a "U" suffix indicated on the certification number shall be permitted to be installed if compliance with the "Schedule of Limitations" or the "Conditions of Acceptability" indicated on the certificate and in the instructions is fulfilled prior to installation.

(C) Marking.

Equipment shall be marked in accordance with 505.9(C)(1) or 505.9(C)(2).

(1) Division Equipment.

Equipment identified for Class I, Division 1 or Class I, Division 2 shall, in addition to being marked in accordance with 500.8(C), be permitted to be marked with all of the following:

- (1) Class I, Zone 1 or Zone 1; Class I, Zone 2 or Zone 2 (as applicable)
- (2) Applicable gas classification group(s) in accordance with Table 505.9(C)(1)
- (3) Temperature classification in accordance with 505.9(D)

Table 505.9(C)(1) Material Groups

Material Group	Comment
IIC	See 505.6(A)
IIB	See 505.6(B)
IIA	See 505.6(C)

(2) Zone Equipment.

Equipment meeting one or more of the protection techniques described in 505.8 shall be marked with all of the following in the order shown:

(1) ~~Class I-shall be:~~

(2) It is an optional

~~marking. If~~

(1) Marking.

(2) The class I marking precedes the zone marking if it is included in the equipment marking

~~, the Class I marking shall precede the zone marking~~

(1) ~~.~~

(3) Zone in accordance with Chapter 9, Table 13.

(4) Symbol "AEx".

(5) Protection technique(s) in accordance with Chapter 9, Table 13.

(6) Applicable material group in accordance with Table 505.9(C)(1) or a specific gas or vapor.

(7) Temperature classification in accordance with 505.9(D).

(8) Equipment protection level (EPL).

Exception No. 1: Associated apparatus NOT suitable for installation in a hazardous (classified) location shall be required to be marked only with 505.9(C)(2)(3), (C)(2)(4), and (C)(2)(5), but BOTH the symbol AEx (3) and the symbol for the type of protection (4) shall be enclosed within the same square brackets, for example, [AEx ia Ga] IIC.

Exception No. 2: Simple apparatus as defined in Article 100 shall not be required to have a marked operating temperature or temperature class.

Exception No. 3: Fittings for the termination of cables shall not be required to have a marked operating temperature or temperature class.

Informational Note No. 1: See Figure Informational Note 505.9(C)(2), for an explanation of the marking that is required. An example of the required marking for intrinsically safe apparatus for installation in Zone 0 is "Class I, Zone 0, AEx ia IIC T6 Ga" or "Zone 0, AEx, ia, IIC T6 Gb."

Informational Note No. 2: An example of the required marking for intrinsically safe associated apparatus mounted in a flameproof enclosure for installation in Zone 1 is "Class I, Zone 1 AEx db[ia] IIC T4 Gb" or "Zone 1, AEx, db[ia Ga] IIC T4 Gb."

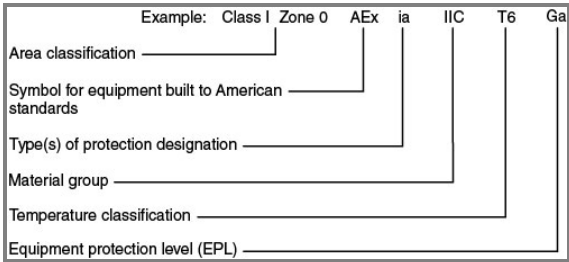
Informational Note No. 3: An example of the required marking for intrinsically safe associated apparatus NOT for installation in a hazardous (classified) location is "[AEx ia Ga] IIC."

Informational Note No. 4: EPLs are designated as G for gas, or D for dust, and are then followed by a letter (a, b, or c) to give the user a better understanding as to whether the equipment provides (a) a "very high," (b) a "high," or (c) an "enhanced" level of protection against ignition of an explosive atmosphere. For example, a Zone 1, AEx db IIC T4 Gb motor (which is suitable by protection concept for application in Zone 1) is marked with an EPL of "Gb" to indicate that it was provided with a high level of protection.

Informational Note No. 5: See ANSI/UL 60079-26, *Explosive Atmospheres — Part 26: Equipment with Equipment Protection Level (EPL) Ga*, for additional information. Equipment installed outside a Zone 0 location and electrically connected to equipment located inside a Zone 0 location might be marked Zone 0/1. The "/" indicates that equipment contains a separation element and can be installed at the boundary between a Zone 0 and a Zone 1 location.

Informational Note No. 6: See 505.9(B) for requirements where a certificate number includes a suffix "U" or "X".

Figure Informational Note 505.9(C)(2) Zone Equipment Marking.



Supplemental Information

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CMP_14_SR_7770_505.9_B_.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14
Submittal Date: Wed Oct 16 13:25:41 EDT 2024

Committee Statement

Committee Statement: The “U” or “X” conditions are addressed for certificates but the prescriptive requirements for the form of the certification number were not included due to lack of consistency with current certification practices. This revision provides specific guidance regarding equipment or components with certificates indicated with U or X that additional conditions must be met before the component or equipment can be installed. Informational Note 6 was provided to indicate where the requirements for certificates with a U or X are located. Editorial corrections were made to comply with the Style Manual.

Response Message: SR-7770-NFPA 70-2024

Public Comment No. 1500-NFPA 70-2024 [Section No. 505.9(C)(2)]



Second Revision No. 7790-NFPA 70-2024 [Section No. 505.9(H)]

[See "CMP 14 SR 7790" Word document for revisions]

(H) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 505.9(H)(1) through 505.9(H)(4) :~~

~~(1)–~~

~~Modification of existing luminaires to change the lamp type, such as for light-emitting-diode (LED) lamp types, shall be permitted~~

Modification of luminaires, using retrofit kits listed for the location and suitable

listed for field installation

in luminaires in accordance with the instructions provided.

~~(2)–~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies, luminaire marking labels, and assembly aids (where appropriate) to facilitate the replacement of the existing light source in complete luminaires. The retrofit installation shall be permitted to include modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)–~~

~~A luminaire that is modified so that it can no longer accept the original lamp shall be relabeled with a label provided with the listed retrofit kit and affixed to the luminaire. The label shall comply with the following:~~

- ~~(1) Be field applied with the listed retrofit kit and affixed to the luminaire. The label shall be applied to the luminaire where visible during relamping.~~
- ~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps.~~
- ~~(3) Identify the manufacturer's name and replacement lamp type/model to be used.~~

~~(4)–~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit. The label shall indicate in text or with a wiring diagram how the supply connections to the lamp holders are required to be made. The label shall be affixed to the luminaire in a location where it will be visible during relamping.~~

with the luminaire to be retrofitted, shall be permitted.

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 13:54:51 EDT 2024

Committee Statement

Committee Statement: The text of 505.9(H) has been revised to clarify the requirements for luminaire retrofit kits specific to hazardous locations and remove text that was redundant with Article 410.

Response Message: SR-7790-NFPA 70-2024

[Public Comment No. 635-NFPA 70-2024 \[Section No. 505.9\(H\)\]](#)

[Public Comment No. 406-NFPA 70-2024 \[Section No. 505.9\(H\)\]](#)

[Public Comment No. 979-NFPA 70-2024 \[Section No. 505.9\(H\)\(3\)\]](#)

[Public Comment No. 570-NFPA 70-2024 \[Section No. 505.9\(H\)\]](#)



Second Revision No. 7909-NFPA 70-2024 [Section No. 505.15(B)(1)]

[See "CMP 14 SR 7909" word document for revisions]

(1) General.

In Zone 1 locations, the following wiring methods shall be permitted:

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :

- All wiring methods permitted by 505.15(A) :

In restricted industrial establishments where the cable is not subject to physical damage, Type MC-HL cable listed for use in Zone 1 or Class I, Division 1 locations, The wiring methods of 504.20 shall be used for intrinsically safe circuits "ia" or "ib". For all other equipment, one or more of the wiring methods of Table 505.15(B)(1) shall be used, in accordance with the requirements of the reference section and with the respective wiring method requirements applied

Table 505.15(B)(1) Wiring Methods for Use in Zone 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 1 Requirements</u>
Type MC-HL Cable	Article 330, Part II	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type MC-HL cable, with a gas/vaportight continuous corrugated metallic sheath, an overall jacket of suitable polymeric material</u>
, and		
(1) .		
(2) <u>The cable shall be terminated with fittings listed for the cable and application.</u>		
(3) <u>The cable shall contain a separate equipment grounding conductor</u>		
(s) in accordance with 250.122 : Type MC-HL		
(1) .		
(2) <u>This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.</u>		
Type MI Cable	Article 332, Part II	(1) <u>The cable shall be terminated with fittings listed for</u>
the application and installed in accordance with Article 330 , Part II. In restricted industrial establishments where the cable is not subject to physical damage;		
(1) <u>Zone 1 or Class I, Division 1 locations.</u>		
(2) <u>The cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.</u>		
Type ITC-HL Cable	Article 335, Part II	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type ITC-HL cable</u>
listed for use in Zone 1 or Class I, Division 1 locations;		

- (1) with a gas/vaportight continuous corrugated metallic sheath , and an overall jacket of suitable polymeric material.

~~Type ITC-HL~~

(1)

- (2) The cable shall be terminated with fittings listed for the

~~application and installed in accordance with 335.10~~

~~• Type MI cable terminated with fittings listed for Zone 1 or Class I, Division 1 locations. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings.~~

~~• Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC), including RMC or IMC conduit systems with supplemental corrosion protection coatings.~~

~~Where~~

- (1) ~~cable and application.~~

- | | | |
|---------------------|----------------------------|---|
| Type TC-ER-HL Cable | Article
336, Part
II | (1) This wiring method shall be permitted for use in restricted industrial establishments. |
| | | (2) The cable shall be listed Type TC-ER-HL cable. |
| | | (3) The cable shall be terminated with fittings listed for the location. |
| | | (4) The cable shall not be subject to physical damage. |
| | | (5) The wiring method shall be limited to 600 volts nominal or less. |

- | | | |
|--------------|----------------------------|---|
| Type P Cable | Article
337, Part
II | (1) This wiring method shall be permitted for use in restricted industrial establishments. |
| | | (2) The cable shall be listed Type P cable with a metal braid armor and an overall jacket. |
| | | (3) The cable shall be terminated with fittings listed for the cable and location. |
| | | (4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II. |

IMC (including IMC with supplemental corrosion protection coatings)	Article 342, Part II
---	----------------------------

~~The conduit connections shall be threaded.~~

RMC (including RMC with supplemental corrosion protection coatings)	Article 344, Part II
---	----------------------------

PVC Conduit	Article 352, Part II
-------------	----------------------------

- (1) ~~The conduit shall be encased in a concrete envelope a minimum of~~

~~50 mm~~

- (1) ~~50 mm {~~

2-in

(1) 2 in -) thick and provided with not less than

600-mm

(1) 600-mm {

24-in

(1) 24 in -) of cover measured from the top of the conduit to grade

, PVC or RTRC conduit.

(1) :

(2) The concrete encasement shall be permitted to be omitted where it is in accordance with 514.8(C) or 515.8(A).

(3) RMC or IMC conduit shall be used for the last

600-mm

(1) 600-mm {

24-in

(1) 24 in -) of the underground run to emergence or to the point of connection to the aboveground raceway.

(2) An equipment grounding conductor shall be included to provide for electrical continuity of the raceway system and for grounding of

non-current

(1) non - current- carrying metal parts.

- Intrinsic safety type of protection "ib" using the wiring methods in accordance with 504.20 :

Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in raceways

RTRC-Conduit

Article 355,
Part II

Optical Fiber Cable

Type OFNP

Type OFCP

Type OFNR

Type OFCR

722.162

(1) The cable shall be installed in raceways, in accordance with 505.15

Type OFNG

Type OFCG

Type OFN

Type OFC

(B). Optical fiber cable shall be sealed in accordance

(1) :

(2) Sealing shall be in accordance with 505.16 :

In restricted industrial establishments for applications limited to 600 volts nominal or less where the cable is not subject to physical damage, Type TC-ER-HL shall be terminated with fittings

listed for the location and installed in accordance with 336.10 :

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :

Informational Note No. 2: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of HL cables and all cable fittings.

In restricted industrial establishments, listed Type P cable with metal braid armor and an overall jacket. Type P cable shall be terminated with fittings listed for the location and installed in accordance with Article 337 , Part II.

Informational Note No. 3: See UL 1309A, *Outline of Investigation for Cable for use in Mobile Installations* , for information on construction, testing, and marking of Type P cable.

Informational Note No. 4: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of cable fittings.

Supplemental Information

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Thu Oct 17 14:10:33 EDT 2024

Committee Statement

Committee Statement: This revision replaces the list items with Table 505.15(B)(1) for usability. The charging language to the section was updated to align with 501.10(A)(1) for usability and consistency. Language was included to allow Type MC-HL and Type P cable to be installed in cable trays to mirror language in Article 501 for correlation.

Response Message: SR-7909-NFPA 70-2024

Public Comment No. 202-NFPA 70-2024 [Section No. 505.15(B)(1)]



Second Revision No. 7915-NFPA 70-2024 [Section No. 505.15(B)(2)]

[See "CMP 14 SR 7915" for revisions]

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation

or

, to allow for movement after installation , or during maintenance, one or more of the following shall be permitted:

- Flexible fittings listed for the location.
- Flexible cord in accordance with 505.17(A) , terminated with cord connectors listed for the location.

In restricted industrial establishments, wiring methods of Table 505.15(B)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 505.15(B)(2) Wiring Methods With Flexible Connections for Use in Zone 1 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 1 Requirements</u>
<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type TC-ER-HL cable listed for use in Zone 1 or Class I, Division 1 locations for applications</u> (1) <u>.</u> (1) <u>The cable shall be terminated with fittings listed for the cable and location.</u> (1) <u>This wiring method shall be limited to 600 volts nominal or less where the cable is not subject to physical damage and is</u> (1) <u>.</u>
<u>Type P Cable</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P cable with a metal braid armor and an overall jacket.</u> (3) <u>The cable shall be terminated with fittings listed for the location. Type TC-ER-HL cable shall be installed in accordance with 336.10 :</u> (1) <u>cable and location.</u>

Flexible Cord Table 400.4 The cord shall comply with the requirements of 505.17.

Flexible Metal Fittings Flexible metal fittings shall be listed for the location.

Informational Note No. 1: See ANSI/UL 2225, Cables and Cable-Fittings for Use in Hazardous (Classified) Locations , for information on construction, testing, and marking of HL cables and all cable fittings.

In restricted industrial establishments listed Type P cable with metal braid armor and an overall jacket. Type P cable shall be terminated with fittings listed for the location and installed in accordance with Article 337 , Part II: Informational

Informational Note No. 2:

-See

See UL 1309A, Outline of Investigation for Cable for Use in Mobile Installations , for information on construction, testing, and marking of Type P cable.

Informational Note No. 3: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cable fittings.

Supplemental Information

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Committee: NEC-P14

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Committee Statement

Committee Statement: This revision replaces the list items with Table 505.15(B)(2) for usability. The charging language to the section was updated to align with the language from 501.10(A)(2) for usability and consistency.

Response Message: SR-7915-NFPA 70-2024

[Public Comment No. 205-NFPA 70-2024 \[Section No. 505.15\(B\)\(2\)\]](#)



Second Revision No. 7925-NFPA 70-2024 [Section No. 505.15(C)(1)]

[See "CMP 14 SR 7925" word document for revisions]

(1) General.

In Zone 2 locations, the following

The wiring methods

shall be permitted:

Informational Note No. 1: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]* :

- All wiring methods permitted by 505.15(B) :

Type MC, Type MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC-ER shall include a separate equipment grounding conductor in addition to a drain wire that might be present.

of 504.20 shall be used for intrinsically safe circuits "ia" or "ib". For all other equipment, any of the wiring methods in 505.15(B)(1) or one or more of the wiring methods of Table 505.15(C)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 505.15(C)(1) Wiring Methods for Use in Zone 2 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 2 Requirements</u>
-----------------------	------------------	----------------------------

<u>Type MV Cable</u>	<u>Article 315, Part III</u>	(1) <u>The cable shall be terminated with fittings listed</u>
----------------------	------------------------------	---

fittings

- | |
|---|
| (1) <u>for the location .</u> |
| (2) <u>Single conductor Type MV cables shall be shielded or</u> |

metallic

- | |
|---|
| (1) <u>metal -armored.</u> |
| (2) <u>This wiring method shall be permitted for use in a ladder, ventilated trough, or</u> <u>Type</u>
<u>ventilated channel cable tray when installed in accordance with Article 392, Part II.</u> |

ITC cable or

<u>MC Cable</u>	<u>Article 330, Part II</u>
-----------------	-----------------------------

<u>Type ITC Cable</u>

<u>Type ITC-ER</u>

cable as permitted in 335.10 and

<u>Cable</u>	<u>Article 335, Part II</u>	(1) <u>The cable shall be terminated with listed fittings</u>
--------------	-----------------------------	---

:-

- | |
|--|
| (1) |
| (2) <u>Type ITC-ER cable shall include</u> |

a separate insulated

(1) an equipment grounding conductor in addition to a shield or drain wire that might be present.

Type

~~PLTC cable or Type PLTC-ER cable used for Class 2 or Class 3 circuits, including installation in cable tray systems:~~

TC Cable Article 336, Part II (1) The cable shall be terminated with listed fittings.
Type TC-ER Cable (2) Type

~~PLTC~~

TC -ER cable shall include

~~a separate insulated~~

an equipment grounding conductor in addition to a shield or drain wire that might be present.

- ~~Enclosed gasketed busways or enclosed gasketed wireways:~~

Type P Cable Article 337, Part II (1) This wiring method shall be permitted for use in restricted industrial establishments.
(2) The cable shall be listed Type P cable with or without metal braid armor, and an overall jacket.
(3) The cable shall be terminated with fittings listed for the location when entering equipment required to be explosionproof or flameproof.
(4) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with Article 392, Part II.

Schedule 80 PVC Conduit Article 352, Part II (1) In restricted industrial establishments

~~and~~

(1) , where metal conduit

~~does~~

(1) will not provide the corrosion resistance

~~needed for the environment where it is installed, listed reinforced thermosetting resin conduit (RTRC)~~

(1) required, Schedule 80 Type PVC conduit, factory elbows, and associated fittings

~~, all marked with the suffix -XW, and Schedule 80 PVC conduit,~~

(1) shall be permitted.

(2) Where seals are required for boundary conditions as required in 505.16(C)(1)(b), the Zone 1 wiring method shall extend into the Zone 2 area to the seal, which shall be located on the Zone 2 side of the Zone 1/Zone 2 boundary.

RTRC-XW Conduit

Article
355,
Part II

- (1) Where metal conduit will not provide the corrosion resistance required, listed RTRC-XW, factory elbows, and associated fittings, all marked with the suffix -XW, shall be permitted.
- (2) Where seals are required for boundary conditions as

defined in

- (1) required in 505.16(C)(1)(b), the Zone 1 wiring method shall extend into the Zone 2 area to the seal, which shall be located on the Zone 2 side of the Zone 1/Zone 2 boundary.

Intrinsic safety type of protection

Busways

Article 368, Part
II

Busways shall be enclosed and gasketed.

Cablebus

Article 370, Part
II

Wireways

Article 376, Part
II Article 378,
Part II

Wireways shall be enclosed and gasketed.

Type PLTC Cable Type PLTC-
ER Cable

Article
722.100(A)(6)

- (1) This cable shall be used in Class 2 or Class 3 circuits.
- (2) The cable shall be terminated with listed fittings.
- (3) Type PLTC-ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

Optical Fiber Cable Type
OFNP

Type OFCP

Type OFNR

Type OFCR

Type OFNG

Type OFCG

Type OFN

Type OFC

- (1) The cable shall be installed in cable trays or any other raceways, in accordance with 505.15(C).
- (2) Sealing shall be in accordance with 505.16.

Intrinsically Safe Circuits "ic"
using any of the wiring methods

permitted for unclassified locations

Intrinsic

(1) The equipment shall be protected by intrinsic safety type of protection “ic”

systems

- (1) .
- (2) The equipment shall be installed in accordance with the control drawing(s).
- (3) Simple apparatus

,

(1) not shown on the control drawing

,

(1) shall be permitted in

an

(1) a circuit of intrinsic safety type of protection “ic”

circuit if

(1) ,provided that the simple apparatus does not interconnect the intrinsic safety type of protection “ic”

systems

(1) circuit to any other circuit.

Separate

- (1)
- (2) Separation of circuits of intrinsic safety type of protection “ic”

systems

(1) shall be

installed

(1) in accordance with one of the following:

In

a. Be in separate cables

In

b. Be in multiconductor cables where the conductors of each circuit are within a grounded metal shield

In

c. Be in multiconductor cables where the conductors

of each circuit

have insulation with a minimum thickness of 0.

25 mm

25 mm (0.

01 in

01 in .)

Informational Note No.

-2

1 : See Article 100 for the definition of

simple apparatus :

- Optical fiber cable of Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in cable trays or any other raceway in accordance with 505.15(C). Optical fiber cable shall be sealed in accordance with 505.16 :

- Cablebus:

In restricted industrial establishments, listed Type P cable with or without metal braid armor and an overall jacket. Type P cable shall be terminated with fittings listed for the location and installed in accordance with Part II of Article 337

restricted industrial establishment [as applied to hazardous (classified) locations] .

Informational Note No. 2: See Article 100 for the definition of *simple apparatus* .

Informational Note No. 3: See UL 1309A, *Outline of Investigation for Cable for Use in Mobile Installations* , for information on construction, testing, and marking of Type P cable.

Informational Note No. 4: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations* , for information on construction, testing, and marking of cable fittings.

Supplemental Information

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Committee: NEC-P14

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Committee Statement

Committee Statement: This revision replaces the list items with Table 505.15(C)(1) for usability. The charging language to the section was updated to align with the language from 501.10(B)(1) for usability and consistency.

Response Message: SR-7925-NFPA 70-2024

Public Comment No. 208-NFPA 70-2024 [Section No. 505.15(C)(1)]



Second Revision No. 7926-NFPA 70-2024 [Section No. 505.15(C)(2)]

[See "CMP 14 SR 7926" word document for revisions.]

(2) Flexible Connections.

Where

If flexibility is necessary to minimize the transmission of vibration from equipment during operation

or

, to allow for movement after installation , or during maintenance

;

any of the wiring methods in 505.15(B)(2) or one or more of the

following

wiring methods

shall be permitted:

- Listed flexible metal fittings
- Flexible metal conduit with listed fittings
- Interlocked armor Type MC cable with listed fittings
- Type P cable

Type TC-ER or

of Table 505.15(C)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 505.15(C)(2) Wiring Methods With Flexible Connections for Use in Zone 2 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 2 Requirements</u>	-
<u>Flexible Metal Fittings</u>		<u>Flexible metal fittings shall be listed.</u>	-
<u>Type MC Cable</u>	<u>Article 330, Part II</u>	<u>The listed Interlocked armor type MC cable shall be terminated with listed fittings.</u>	-
<u>Type ITC-ER Cable</u>	<u>Article 335, Part II</u>		-
<u>Type TC-ER Cable</u>			
<u>Type TC-ER-HL cable</u>			
		• <u>Type ITC-ER cable</u> • <u>Type PLTC-ER cable</u> • <u>Liquidtight flexible metal conduit with listed fittings</u> • <u>Liquidtight flexible nonmetallic conduit with listed fittings</u>	
<u>Flexible cord Cable</u>	<u>Article 336, Part II</u>		-
<u>Type P Cable</u>	<u>Article 337, Part II</u>		-
<u>FMC</u>	<u>Article 348, Part II</u>	(1) <u>The conduit shall be terminated with listed fittings.</u> (2) <u>The conduit shall be bonded in accordance with 505.</u>	

17, terminated with a listed cord connector that maintains the type of protection of the terminal compartment

- For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations" and terminated with listed fittings

If flexible conduit is used, it shall be grounded in accordance with 505.30 (A) and bonded in accordance with 505.30 (B).

(1) <u>30.</u>	-		
	<u>LFMC</u>	<u>Article 350, Part II</u>	-
<u>LFNC</u>	<u>Article 356, Part II</u>	<u>The conduit shall be terminated with listed fittings.</u>	-
<u>Flexible Cord</u>	<u>Table 400.4</u>	<u>The cord shall comply with the requirements of 505.17.</u>	-
<u>Type EO Cable</u>		(1) <u>The se wiring methods shall be permitted for</u>	
<u>Type ETP Cable</u>	<u>Table 400.4</u>	<u>elevator use.</u>	-
<u>Type ETT Cable</u>		(2) <u>The cable shall be terminated with listed fittings.</u>	
<u>Type PLTC-ER Cable</u>	<u>722.121</u>		-

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Submitter Information Verification

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Committee Statement

Committee Statement: This revision replaces the list items with Table 505.15(C)(2) for usability. The charging language to the section was updated to align with the language from 501.10(B)(2) for usability and consistency.

Response Message: SR-7926-NFPA 70-2024

Public Comment No. 214-NFPA 70-2024 [Section No. 505.15(C)(2)]



Second Revision No. 7929-NFPA 70-2024 [Section No. 505.17(A)]

(A) Flexible Cords, Zone 1 and Zone 2.

A flexible cord shall be permitted for connection between portable lighting equipment or other portable utilization equipment and the fixed portion of their supply circuit. Flexible cord shall also be permitted in restricted industrial establishments for any segment of the circuit where installation of one of the fixed wiring methods of 505.15(B) and 505.15(C) will not provide the flexibility needed to minimize the transmission of vibration from equipment during operation or to allow for movement after installation during maintenance operations. The flexible cord shall be protected against physical damage and be continuous for the entire length of the cord from equipment connection to equipment connection. Where flexible cords are used, the cords shall comply with the following:

- (1) Be of a type listed for extra-hard usage
- (2) Contain, in addition to the conductors of the circuit, an equipment grounding conductor complying with 400.23
- (3) Be connected to terminals or to supply conductors in an approved manner
- (4) Be supported by clamps or by other suitable means in such a manner that there will be no tension on the terminal connections
- (5) Where the flexible cord enters boxes, fittings, or enclosures that are required to be explosionproof or flameproof, be terminated with a listed cord connector that maintains the type of protection of the terminal compartment
- (6) Where entering an increased safety "e" enclosure, be terminated with a listed increased safety "e" cord connector

Informational Note No. 1: See 400.10 for permitted uses of flexible cords.

Informational Note No. 2: See Article 100 for the definition of *restricted industrial establishment [as applied to hazardous (classified) locations]*.

Electric submersible pumps with means for removal without entering the wet-pit shall be considered portable utilization equipment. The extension of the flexible cord within a suitable raceway between the wet-pit and the power source shall be permitted.

Electric mixers intended for travel into and out of open-type mixing tanks or vats shall be considered portable utilization equipment.

Informational Note No. 3: See 505.18 for flexible cords exposed to liquids having a deleterious effect on the conductor insulation.

Submitter Information Verification

Committee: NEC-P14

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Committee Statement

Committee Statement: This revision reinstates language that was inadvertently omitted and is needed to indicate the subject of the type of protection.

Response Message: SR-7929-NFPA 70-2024



Second Revision No. 7807-NFPA 70-2024 [Section No. 505.20(E)]

~~(E)– Manufacturer's Instructions:~~

~~Electrical equipment installed in hazardous (classified) locations shall be installed in accordance with the instructions (if any) provided by the manufacturer.~~

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 14:23:40 EDT 2024

Committee Statement

Committee Statement: The equipment must be installed in accordance with the manufacturer's instructions in accordance with 110.3(B) and therefore the redundant requirement in 505.20(E) is removed.

Response Message: SR-7807-NFPA 70-2024

[Public Comment No. 1872-NFPA 70-2024 \[Section No. 505.20\(E\)\]](#)



Second Revision No. 7811-NFPA 70-2024 [Section No. 505.30]

[See "CMP 14 SR 7811" Word document for revisions]

505.30 Bonding in Hazardous (Classified) Locations.

(A) Specific Bonding Means Permitted.

Regardless of the voltage of the electrical system,

wiring systems and equipment shall comply with 505.30(A) and 505.30(B) in addition to the

general bonding requirements.

Exception: Uninsulated exposed parts shall be in accordance with 505.19 :

(A) Specific Bonding Means:

(1)

The locknut-bushing and double-locknut types of contacts shall not be depended on for bonding purposes, but bonding jumpers with identified fittings or other approved means of bonding shall be used. These bonding means shall apply to all metal raceways, fittings, boxes, cable trays, and enclosures, and other parts of raceway systems between hazardous (classified) locations and the point of grounding for service equipment or point of grounding for a separately derived system. Metal struts, angles, or channels provided for support and mechanical or physical protection as permitted in 335.10 (5), 336.10(7) (c), or 794.135(B) shall be bonded in accordance with 250.102 :

(2)

Where the branch-circuit overcurrent protection is located on the load side of the disconnecting means, the specific bonding means shall be permitted to end at the nearest point where the grounded circuit conductor and the grounding electrode conductor are connected together on the line side of the building or structure disconnecting means as specified in 250.32(B) :

(B)

bonding of normally non-current-carrying metal parts of electrical equipment, raceways, metal-clad cable, and metal enclosures containing electrical equipment in any hazardous (classified) location shall be provided by one or more of the following bonding means whether or not equipment grounding conductors of the wire type are installed in the raceway or in a multiconductor cable assembly:

- (1) Connections made up wrenchtight using threaded couplings, threaded entries, or listed threaded hubs on enclosures
- (2) Threadless couplings and connectors if made up tight for metal raceways and metal-clad cables
- (3) Other listed devices, such as bonding-type locknuts, bushings, or bushings with bonding jumpers

(B) Specific Bonding Means Not Permitted.

The following bonding means shall not be permitted.

- (1) Locknuts-bushings and double-locknut types of connections
- (2) Bonding locknuts used around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts

(C) Flexible Metal Conduit and Liquidtight Flexible Metal Conduit.

Flexible metal conduit and liquidtight flexible metal conduit shall comply with 505.30(B C)(1) and 505.30(B C)(2) .

(1)

Flexible metal conduit and liquidtight flexible metal conduit shall include an equipment bonding jumper of the wire type in accordance with 250.102 122 .

(2)

In Zone 2 locations, the bonding jumper shall not be required where all of the following conditions are met:

- (1) Listed liquidtight flexible metal conduit 1.8 m (6 ft) or less in length, with fittings listed for grounding, is used.
- (2) Overcurrent protection in the circuit is limited to 10 amperes or less.
- (3) The load is part of a meter, instrument, or relay circuit.

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Submitter Information Verification

Committee: NEC-P14

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Committee Statement

Committee Statement: This revision places the requirements for bonding in hazardous (classified) locations in the correct location in the Code correlating with the requirements in 250.100. 250.92 is under the heading of Services which can confuse the user of the Code. The revision simplifies the language in the section, removing redundant references to language in Chapters 1 through 4, and reorganizing the requirements into a numbered list for usability. The term “branch circuit overcurrent protection” is removed. This is in reference to Global PC-1654. This revision correlates with changes to 500.30.

Response Message: SR-7811-NFPA 70-2024



Second Revision No. 7813-NFPA 70-2024 [Section No. 506.3]

[see "CMP 14 SR 7813" Word document for revisions]

506.3 Reconditioned Equipment.

(A).

~~Permitted~~

Permitted to be Installed.

Reconditioned equipment shall be permitted to be installed in hazardous (classified) locations if the reconditioning is conducted in accordance with the manufacturer's instructions or, if no instructions are provided, nationally recognized standards.

~~(1) Reconditioned Motors or Generators.~~

~~Reconditioning of a Zone 21 dust ignition-protected motor or generator or a dust ignitionproof motor or generator listed for use in hazardous (classified) locations shall be listed as reconditioned when installed in hazardous (classified) locations. Reconditioning of a type "p" motor or generator or dust ignitionproof motor or dust ignitionproof generator identified for use in hazardous (classified) locations shall be identified as reconditioned when installed in a hazardous (classified) location, in accordance with 500.8(A). Reconditioning of a motor or generator with dust ignition-protected construction features is considered to take place when the motor or generator is removed from service for repairs, including replacement of a failed bearing. The dust ignition-protected features of any reconditioned motor or generator are verified as a part of the reconditioning or refurbishing process.~~

Any changes to the explosion protection features of reconditioned equipment shall be assessed as a part of the reconditioning process. The installation of the following reconditioned equipment shall be permitted.

Informational Note No. 1:

~~See UL 60079-31-2020, *Explosive Atmospheres — Part 31: Equipment Dust Ignition Protection by Enclosure "t"*, for construction and test requirements for dust ignition-protected motors and generators. Informational Note No. 2: See~~

See ANSI/EASAAR100.

-

Recommended Practice for the Repair of Rotating Electrical Apparatus , for information on the rewinding and repair of motors.

Informational Note No.

3

2:

~~See~~

See IEC 60079-19, *Explosive Atmospheres — Part 19: Equipment Repair, Overhaul, and Reclamation* , for information on equipment repair, overhaul, and reclamation.

(

~~2) Intrinsically Safe Equipment.~~

~~Replacement of printed circuit board assemblies or modules with like for like components provided by the original manufacturer shall be permitted.~~

~~(B)– Not Permitted to be Installed:~~

~~(1)– Intrinsically Safe Equipment:~~

~~The installation of reconditioned intrinsically safe equipment shall not be permitted.~~

~~1) Listed or Identified Equipment:~~

~~(a) Equipment that is required to be listed for use in hazardous (classified) locations, after reconditioning, shall be listed as reconditioned.~~

~~(b) Equipment that is required to be identified for use in hazardous (classified) locations, after reconditioning, shall be identified as reconditioned.~~

~~(2) Other Equipment:~~

~~Equipment that is permitted for use in hazardous (classified) locations and is not required to be listed or identified for use in hazardous (classified) locations, after reconditioning, shall be permitted to be installed in hazardous (classified) locations. See 110.20.~~

~~(B) Not Permitted to be Installed (Reserved):~~

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Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 14:38:15 EDT 2024

Committee Statement

Committee Statement: This revision clarifies the requirements for reconditioned equipment. The text related to motors, generators, and intrinsically safe equipment has been replaced with more generic text to address additional equipment based on listing/identification or other permission. Unnecessary text has been deleted to resolve conflicts with 110.20 and ensure compliance with the NEC Style Manual.

Response Message: SR-7813-NFPA 70-2024

[Public Comment No. 626-NFPA 70-2024 \[Section No. 506.3\]](#)



Second Revision No. 7814-NFPA 70-2024 [Section No. 506.4]

506.4 Documentation.

Areas designated as hazardous (classified) or unclassified locations shall be documented on an area classification drawing and other associated documentation. This documentation shall be made available to the AHJ and to those authorized to design, install, inspect, maintain, or operate electrical equipment.

Informational Note No. 1: See ANSI/UL 60079-28, *Explosive Atmospheres — Part 28: Protection of equipment and transmission systems using optical radiation*, for information concerning the installation of equipment using optical emissions technology (such as laser equipment) that could potentially become an ignition source in hazardous (classified) locations.

Informational Note No. 2: See IEC/IEEE 60079-30-2, *Explosive atmospheres — Part 30-2: Electrical Resistance Trace Heating — Application Guide for Design, Installation and Maintenance*, for information on electrical resistance trace heating for hazardous (classified) locations.

Informational Note No. 3: See IEEE 844.2/CSA C293.2, *IEEE/CSA Standard for Skin Effect Trace Heating of Pipelines, Vessels, Equipment, and Structures — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric skin effect trace heating for hazardous (classified) locations.

Informational Note No. 4: See IEEE 844.4/CSA C293.4, *IEEE/CSA Standard for Impedance Heating of Pipelines and Equipment — Application Guide for Design, Installation, Testing, Commissioning, and Maintenance*, for information on electric impedance heating for hazardous (classified) locations.

Informational Note No. 5: See ANSI/UL RP 60079-46, *Recommended Practice for Explosive Atmospheres — Part 46: Equipment Assemblies*, for information on manufactured assemblies comprising multiple items of equipment that require additional assessment ~~by (such as a detailed inspection) by the assembly manufacturer that is not covered by the equipment certificates. - This additional assessment might include (but is not limited to) performance and documentation of a close or detailed inspection of the assembly by the manufacturer prior to commissioning by the user. See also 90.7 : _~~

Submitter Information Verification

Committee: NEC-P14

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Committee Statement

Committee Statement: The text of 506.4 Informational Note 5 has been revised to remove unnecessary text related to close or detailed inspections. The reference to 90.7 was deleted as it was redundant.

Response Message: SR-7814-NFPA 70-2024

[Public Comment No. 980-NFPA 70-2024 \[Section No. 506.4\]](#)



Second Revision No. 7815-NFPA 70-2024 [Sections 506.9(B), 506.9(C)]

Sections 506.9(B), 506.9(C)

(B) Listing.

- (1) Equipment that is listed for Zone 20 shall be permitted in a Zone 21 or Zone 22 location of the same combustible dust, combustible fiber/flying, or ignitable fiber/flying.
- (2) Equipment that is listed for Zone 21 shall be permitted in a Zone 22 location of the same combustible dust, combustible fiber/flyings, or ignitable fiber/flying.
- (3) If equipment is provided with a certificate, and an "X" suffix is indicated on the certificate number, a review shall be performed to confirm compliance with the "Specific Conditions of Use" indicated on the certificate and in the installation instructions.
- (4) If a component is provided with a certificate, and a "U" suffix is indicated on the certificate number, the component is incomplete and shall not be installed.

Exception to 4: A component provided with a "U" suffix indicated on the certification number shall be permitted to be installed if compliance with the "Schedule of Limitations" or the "Conditions of Acceptability" indicated on the certificate and in the instructions is fulfilled prior to installation.

(C) Marking.

(1) Division Equipment.

Equipment identified for Class II, Division 1, Class II, Division 2, Class III, Division 1, or Class III, Division 2 shall, in addition to being marked in accordance with 500.8(C), be permitted to be marked with all of the following:

- (1) Zone 20, 21, or 22 (as applicable)
- (2) Material group in accordance with 506.6
- (3) Maximum surface temperature in accordance with 506.9(D), marked as a temperature value in degrees C, preceded by "T" and followed by the symbol "°C"

(2) Zone Equipment.

Equipment meeting one or more of the protection techniques described in 506.8 shall be marked with the following in the order shown:

- (1) Zone in accordance with Chapter 9, Table 13
- (2) Symbol “AEx”
- (3) Protection technique(s) in accordance with Chapter 9, Table 13
- (4) Material group in accordance with 506.6
- (5) Maximum surface temperature in accordance with 506.9(D), marked as a temperature value in degrees Celsius, preceded by “T” and followed by the symbol “°C”
- (6) Ambient temperature marking in accordance with 506.9(D)
- (7) Equipment protection level (EPL)

~~Informational Note: EPLs are designated as G for gas, or D for dust, and are then followed by a letter (a, b, or c) to give the user a better understanding as to whether the equipment provides (a) a “very high,” (b) a “high,” or (c) an “enhanced” level of protection against ignition of an explosive atmosphere. For example, a Zone 21 AEx pb IIIB T165°C Db motor is marked with an EPL of “Db”.~~

~~Exception: Associated~~

~~*Exception: Associated apparatus NOT suitable for installation in a hazardous (classified) location shall be required to be marked only with 506.9(C)(2)(2) and 506.9(C)(2)(3), and where applicable (C)(2)(4), but BOTH the symbol AEx in 506.9(C)(2)(2) and the symbol for the type of protection in 506.9(C)(2)(3) shall be enclosed within the same square brackets; for example, [AEx ia] IIIC.*~~

Informational Note No 1: EPLs are designated as G for gas, or D for dust, and are then followed by a letter (a, b, or c) to give the user a better understanding as to whether the equipment provides (a) a “very high,” (b) a “high,” or (c) an “enhanced” level of protection against ignition of an explosive atmosphere. For example, a Zone 21 AEx pb IIIB T165°C Db motor is marked with an EPL of “Db”.

Informational Note No. 2: See 506.9(B) for requirements where a certificate number includes a suffix “U” or “X”.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NEC_CMP-14_SR-7815_506.9_B_.docx		

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 15:28:09 EDT 2024

Committee Statement

Committee Statement:	This revision adds language to 506.9(B) and (C) to mirror the language added in 505.9(B) and (C), for correlation.
Response Message:	SR-7815-NFPA 70-2024



Second Revision No. 7816-NFPA 70-2024 [Section No. 506.9(H)]

[See "CMP 14 SR 7816" Word document for revisions.]

(H) Luminaire Retrofit Kits.

~~Retrofitted luminaires shall comply with 506.9(H)(1) through 506.9(H)(4) .~~

~~(1)–~~

Modification of

existing

luminaires

to change the lamp type

~~,~~

~~such as for light-emitting-diode (LED) lamp types, shall be permitted~~

using retrofit kits listed for the location and

suitable

listed for field installation

in luminaires in accordance

with the

instructions provided.

~~(2)–~~

~~The retrofit kit shall consist of light sources, installation instructions, subassemblies,~~

luminaire

~~marking labels, and assembly aids (where appropriate)~~

to

~~facilitate the replacement of the existing light source in complete luminaires. The retrofit installation might require modifications to the luminaire in accordance with the installation instructions provided with the retrofit kit.~~

~~(3)–~~

~~The listed retrofit kit shall provide a label for a modified luminaire that can no longer accept the original lamp. The label shall comply with the following:~~

- ~~(1) Be field applied to the luminaire where visible during relamping~~
- ~~(2) Indicate that the luminaire has been modified and can no longer operate the originally intended lamps~~
- ~~(3) Identify the manufacturer's name and replacement lamp type/model to be used~~

~~(4)–~~

~~LED retrofit luminaire conversion kits using linear tubular LED lamp conversions shall be relabeled with a label provided with the listed retrofit kit that is to be affixed to the luminaire where visible during relamping that indicates in text or wiring diagram how the supply connections are made to the lamp holders~~

be retrofitted, shall be permitted .

Supplemental Information

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Committee Statement

Committee Statement: The text of 506.9(H) has been revised clarify the requirements for luminaire retrofit kits specific to hazardous locations and remove text that was redundant with Article 410.

Response Message: SR-7816-NFPA 70-2024

[Public Comment No. 410-NFPA 70-2024 \[Section No. 506.9\(H\)\]](#)

[Public Comment No. 571-NFPA 70-2024 \[Section No. 506.9\(H\)\]](#)

[Public Comment No. 641-NFPA 70-2024 \[Section No. 506.9\(H\)\]](#)



Second Revision No. 7948-NFPA 70-2024 [Section No. 506.15(A)]

[See "CMP 14 SR 7948" word document for revisions.]

(A) Zone 20.

In Zone 20 locations, the following wiring methods shall be permitted:

- Threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC);
- Type MI cable terminated with fittings listed for the location. Type MI cable shall be installed and supported in a manner to avoid tensile stress at the termination fittings;

Exception No. 1:- Type MI cable and fittings listed for Class II, Division 1 locations shall be permitted to be used.

Exception No. 2:- Equipment identified as intrinsically safe "ia" shall be permitted to be connected using the wiring methods identified in 504.20 :

In restricted industrial establishments, Type MC-HL cable listed for use in Zone 20 locations, with a continuous corrugated metallic sheath;

(1) General.

The wiring methods of 504.20 shall be used for intrinsically safe circuits "ia". For all other equipment, one or more of the wiring methods of Table 506.15(A)(1) shall be used, in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 506.15(A)(1) Wiring Methods for Use in Zone 20 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 20 Requirements</u>
<u>Type MC-HL Cable</u>	<u>Article 330, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u>
		(2) <u>The cable shall be listed Type MC-HL cable with a gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material</u>
; and		
(1) .		
(2) <u>The cable shall be terminated with fittings listed for the cable and application..</u>		
(3) <u>The cable shall contain a separate equipment grounding conductor</u>		
(s) in accordance with 250.122, and		
(1) .		
<u>Type MI Cable</u>	<u>Article 332, Part II</u>	(1) <u>The cable shall be terminated with fittings listed for the application.</u>
Type MC-HL		
(1) <u>cable and location.</u>		
(1) <u>The cable shall be</u>		
installed in accordance with Article 330, Part II.		
Exception: Type MC-HL cable and fittings listed for Class II, Division 1 locations shall be permitted to be used.		
In restricted industrial establishments, and where the cable is not subject to physical damage,		
(1) <u>secured and supported in a manner to avoid tensile stress at the termination fittings.</u>		
<u>Type ITC-HL Cable</u>	<u>Article 335, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u>
		(2) <u>The cable shall be listed Type ITC-HL cable</u>
listed for use in Zone 1 or Class I		

(1) .

~~Division 1 locations;~~

(1) with

~~a~~

(1) gas/vaportight continuous corrugated metallic sheath and an overall jacket of suitable polymeric material

~~, and~~

(1) .

(2) The cable shall not be subject to physical damage.

(3) The cable shall be terminated with fittings listed for the cable and application.

~~Type ITC-HL~~

(1) .

IMC

Article 342,
Part II

The conduit connections shall be threaded.

RMC

Article 344,
Part II

Optical Fiber Cable Type
OFNP

Type OFCP

Type OFNR

Type OFCR

722.162

(1) The cable shall be installed in raceways, in accordance with

Type OFNG

Type OFCG

Type OFN

Type OFC

~~335~~

(1) 506 .

~~40~~

(1) 15 .

~~Fittings and boxes~~

(1) Sealing shall be

~~identified for use in Zone 20 locations.~~

~~Exception:- Boxes and fittings listed for Class II, Division 1 locations shall be permitted to be used.~~

~~If flexible connections are necessary, liquidtight flexible metal conduit (LFMC) with listed fittings, liquidtight flexible nonmetallic conduit (LFNC) with listed fittings, or flexible cord listed for extra-hard usage and provided with listed fittings. Where flexible cords are used, they shall also comply with 506.17 and be terminated with a listed cord connector that maintains the type of protection of the terminal compartment.~~

(1) in accordance with 506.16 .

- ~~• Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in raceways in accordance with 506.15(A) . Optical fiber cables shall be sealed in accordance with 506.16 :~~

Informational Note: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of HL cables, all cable fittings, and cord connectors.

(2) Flexible Connections.

If flexibility is necessary to minimize the transmission of vibration from equipment during operation, to allow for movement after installation, or during maintenance, the wiring methods of 504.20 shall be used for intrinsically safe circuits "ia" or one or more of the wiring methods of Table 506.15(A)(2) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 506.15(A)(2) Wiring Methods with Flexible Connections for Use in Zone 20 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 20 Requirements</u>
<u>LFMC</u>	<u>Article 350, Part II</u>	<u>This wiring method shall be terminated with listed fittings.</u>
<u>LFNC</u>	<u>Article 356, Part II</u>	<u>This wiring method shall be terminated with listed fittings.</u>
<u>Type EO Cable</u>		
<u>Type ETP Cable</u>	<u>Table 400.4</u>	(1) <u>These wiring methods shall be permitted for elevator use.</u> (2) <u>The cable shall be terminated with listed fittings.</u>
<u>Type ETT Cable</u>		
		(1) <u>The cord shall comply with the requirements of 506.17</u>
<u>Flexible Cord</u>	<u>Table 400.4</u>	(2) <u>If flexible connections are subject to oil or other corrosive conditions, the insulation of the conductors shall be of a type listed for the condition or be protected by means of a suitable sheath.</u>

~~Exception No. 1: Liquidtight flexible conduit (LFMC or LFNC), flexible conduit fittings, and cord fittings listed for Class II, Division 1 locations shall be permitted.~~

~~Exception No. 2: For elevator use, an identified elevator cable of Type EO, Type ETP, or Type ETT, shown under the "use" column in Table 400.4 for "hazardous (classified) locations," and terminated with listed connectors that maintain the type of protection of the terminal compartment shall be permitted.~~

Informational Note No. 1: ~~See 506.30 for grounding requirements where flexible conduit is used.~~

Informational Note No. 2: ~~See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of cables, cable fittings, and cord connectors.~~

(3) Boxes and Fittings. Boxes and fittings shall be provided with threaded bosses for connection to conduit or cable terminations and shall be dusttight. Boxes and fittings in which taps, joints, or terminal connections are made shall be identified for Zone 20 or Listed for Class II, Division 1 locations.

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 506.15(A)(1), Table 506.15(A)(2), and 506.15(A)(3) for usability. The charging language to the section was updated to align with the language from 502.10(A)(2) for usability and consistency. The general wiring methods, flexible wiring methods, and boxes and fittings were moved into separate sections.

Response Message: SR-7948-NFPA 70-2024

Public Comment No. 221-NFPA 70-2024 [Section No. 506.15(A)]



Second Revision No. 7954-NFPA 70-2024 [Section No. 506.15(B)]

[See "CMP 14 SR 7954" word document for revisions]

(B) Zone 21.

~~In Zone 21 locations, the following wiring methods shall be permitted:~~All wiring methods permitted

(1) General.

The wiring methods of 504.20 shall be used for intrinsically safe circuits "ia" or "ib". For all other equipment, any of the wiring methods in 506.15(A)

;

- ~~Fittings and boxes that are dusttight, that are provided with threaded bosses for connection to conduit, and in which taps, joints, or terminal connections are not made and are not used in locations where metal dust is present.~~

~~In restricted industrial establishments, for applications limited to 600 volts nominal or less, where the cable is not subject to physical damage and is terminated with fittings listed for the location, listed~~

(1) or one or more of the wiring methods of Table 506.15(B)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 506.15(B)(1) Wiring Methods for Use in Zone 21 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 21 Requirements</u>
-----------------------	------------------	-----------------------------

<u>Type TC-ER-HL Cable</u>	<u>Article 336, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type TC-ER-HL cable.</u>
----------------------------	-----------------------------	--

~~When installed in~~

- ~~(1)~~
- (2) The cable shall be terminated with fittings listed for the cable and location.
- (3) This wiring method shall be limited to 600 volts nominal or less.
- (4) In a ladder, ventilated trough, or ventilated channel cable

~~trays~~

- (1) tray.

~~cables~~

- (1) the cable shall be installed in a single layer

;

- (1) with a space not less than the larger cable diameter between the two adjacent cables unless otherwise protected against dust buildup resulting in increased heat.

~~Type TC-ER-HL cable shall be installed in accordance with 336.10 .In restricted industrial establishments,~~

- ~~(1) -~~

<u>Type P Cable</u>	<u>Article 337, Part II</u>	(1) <u>This wiring method shall be permitted for use in restricted industrial establishments.</u> (2) <u>The cable shall be listed Type P cable with a metal braid armor</u>
---------------------	-----------------------------	---

~~, with~~

- (1) and an overall jacket

~~, that is~~

- (1) .

(2) The cable shall be terminated with fittings listed for the location and

(1) cable and location.

(2) This wiring method shall be permitted for use in a ladder, ventilated trough, or ventilated channel cable tray when installed in accordance with

~~337.10 .When installed in~~

(1) Article 392, Part II.

(2) In a ladder, ventilated trough, or ventilated channel cable trays

(1) tray ,

~~cables~~

(1) the cable shall be installed in a single layer

;

(1) with a space not less than the larger cable diameter between the two adjacent cables

;

(1) unless otherwise protected against dust buildup resulting in increased heat. -

Informational Note No. 1: See ANSI/UL 2225, *Cables and Cable-Fittings for Use in Hazardous (Classified) Locations*, for information on construction, testing, and marking of HL cables, all cable fittings, and cord connectors.

Informational Note No. 2: See ANSI/UL 1309A, *Marine Shipboard Cable*, for information on construction, testing, and marking of Type P cable.

Exception:

~~Equipment~~

Equipment identified as intrinsically safe "ib" shall be permitted to be connected using the wiring methods identified in 504.20 .

[Note to editor - items below should not be italicized]

(2) Flexible Connections.

Where flexible connections are necessary, 506.15(A)(2) shall apply.

(3) Boxes and Fittings.

Boxes and fittings shall be provided with threaded bosses for connection to conduit or cable terminations and shall be dusttight. Boxes and fittings in which taps, joints, or terminal connections are made or are used in metal dust locations shall be identified for Zone 21 locations.

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 506.15(B)(1), 506.15(B)(2) and 506.15(B)(3) for usability. The charging language to the section was updated to align with the language from 506.15(A) for usability and consistency. The general wiring methods, flexible wiring methods, and boxes and fittings were moved into separate sections.

Response Message: SR-7954-NFPA 70-2024

[Public Comment No. 224-NFPA 70-2024 \[Section No. 506.15\(B\)\]](#)



Second Revision No. 7962-NFPA 70-2024 [Section No. 506.15(C)]

[See "CMP 14 SR 7962" word document for revisions]

(C) Zone 22.

In Zone 22 locations, the following
The wiring methods

~~shall be permitted. All wiring methods permitted~~
of 504.20 shall be used for intrinsically safe circuits "ia" or "ib". For all other equipment, any of the wiring methods in 506.15(B)

~~.Rigid metal conduit~~
(

~~RMG~~
~~1) or~~

~~intermediate metal conduit (IMC) with listed threaded or threadless fittings.~~

- ~~• Electrical metallic tubing (EMT) or dusttight wireways.~~
- ~~• Type MC or Type MI cable with listed termination fittings.~~

~~Type PLTC cable or Type PLTC-ER cable used in Class 2 or Class 3 circuits, including installation in cable tray systems.~~

one or more of the wiring methods of Table 506.15(C)(1) shall be used in accordance with the requirements of the reference section and with the respective wiring method requirements applied.

Table 506.15(C)(1) Wiring Methods for Use in Zone 22 Locations

<u>Wiring Methods</u>	<u>Reference</u>	<u>Zone 22 Requirements</u>
<u>Type MV Cable</u>	<u>Article 315, Part III</u>	(1) <u>The cable shall be terminated with fittings listed for the cable and location.</u> (2) <u>This wiring method shall be permitted for use in cable tray systems.</u>
<u>Type MC Cable</u>	<u>Article 330, Part II</u>	<u>The cable shall be terminated with fittings listed for the cable and location.</u>
<u>Type MI Cable</u>	<u>Article 332, Part II</u>	
<u>Type ITC Cable</u>	<u>Article 335, Part II</u>	(1) <u>The cable shall be terminated with fittings listed</u>
<u>Type ITC-ER Cable</u>	<u>II</u>	<u>fittings</u> (1) <u>for the cable and location .</u> (2) <u>Type</u> <u>PLTC</u> (1) <u>ITC -ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.</u>
<u>Type</u>		
<u>ITC cable or Type ITC-ER cable as permitted in 335.10 and terminated with listed fittings.</u>		
<u>Type ITC</u>		
<u>TC Cable</u>	<u>Article 336, Part II</u>	(1) <u>The cable shall be terminated with fittings listed for the cable and location.</u>
<u>Type TC-ER Cable</u>		(2) <u>This wiring method shall be permitted for use in cable tray systems</u> (3) <u>Type TC -ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be</u>

present .

Type

~~MV, Type TC, or Type TC-ER cable, including installation in cable tray systems. Type TC~~

- (1) This wiring method shall be permitted for use in restricted industrial establishments.

P Cable Article 337, Part II (2) The cable shall be listed Type P cable with or without a metal braid armor and with an overall jacket.
(3) The cable shall be terminated with fittings listed for the cable and location

IMC Article 342, Part II The conduit shall be terminated with listed threaded or threadless fittings.
RMC Article 344, Part II

EMT Article 358, Part II

Cablebus Article 370, Part II

Wireways Article 376, Part II Wireways shall be dusttight.
Article 378, Part II

Type PLTC Cable (1) This cable shall be used in Class 2 or Class 3 circuits.
722.121 (2) The cable shall be terminated with listed fittings.
Type PLTC-ER Cable (3) Type PLTC -ER cable shall include an equipment grounding conductor in addition to a shield or drain wire that might be present.

Optical Fiber Cable

Type OFNP

Type OFCP

Type OFNR

Type OFCR 722.162 (1) The cable shall be

Type OFNG

Type OFCG

Type OFN

Type OFC

~~terminated with listed fittings. Intrinsic safety type of protection installed in raceways, in accordance with 506.15.~~

(2) Sealing shall be in accordance with 506.16.

Intrinsically Safe Circuits "ic" using any of the wiring methods permitted for unclassified locations

~~. Intrinsic~~

- (1) The equipment shall be protected by intrinsic safety type of protection "ic"

~~systems~~

(1) ~~.~~

- (2) The equipment shall be installed in accordance with the control drawing(s).

(3) Simple apparatus

;

(1) not shown on the control drawing

;

(1) shall be permitted in a circuit of intrinsic safety type of protection “ic” provided that the simple apparatus does not interconnect the intrinsic safety type of protection “ic” circuit to any other circuit.

(2) Separation of circuits of intrinsic safety type of protection “ic” shall be in accordance with one of the following:

a. Be in separate cables

b. Be in multiconductor cables where the conductors of each circuit are within a grounded metal shield

c. Be in multiconductor cables where the conductors have insulation with a minimum thickness of 0.

25 mm

25 mm (0.

04 in

01 in .)

Informational Note No. 1 : See Article 100 for the definition of *simple apparatus*

;

- ~~Boxes and fittings shall be dusttight.~~
- ~~Optical fiber cable Type OFNP, Type OFCP, Type OFNR, Type OFCR, Type OFNG, Type OFCG, Type OFN, or Type OFC installed in cable trays or any raceway in accordance with 506.15(C). Optical fiber cables shall be sealed in accordance with 506.16 :~~
- ~~Cablebus.~~
- ~~In restricted industrial establishments, listed Type P cable with or without metal braid armor, with an overall jacket, that is terminated with listed fittings and installed in accordance with 337.10 :~~

Informational Note: See UL 1309A:2020, *Outline of Investigation for Cable for Use in Mobile Installations*, for information on construction, testing, and marking of Type P cable.

(2) Flexible Connections. Where flexible connections are necessary, 506.15(A)(2) shall apply.

(3) Boxes and Fittings . Boxes and fittings shall be dusttight.

Supplemental Information

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Committee Statement

Committee Statement: This revision replaces the list items with Table 506.15(C)(1), 506.15(C)(2) and 506.15(C)(3) for usability. The charging language to the section was updated to align with the language from 505.15(C) for usability and consistency. The general wiring methods, flexible wiring methods, and boxes and fittings were moved into separate sections. The revision of the list to a table resolves the NEC Style Manual parallel construction problem. The table was organized in order of article referenced.

Response Message: SR-7962-NFPA 70-2024

[Public Comment No. 225-NFPA 70-2024 \[Section No. 506.15\(C\)\]](#)

[Public Comment No. 630-NFPA 70-2024 \[Section No. 506.15\]](#)



Second Revision No. 7821-NFPA 70-2024 [Section No. 506.19]

506.19 Uninsulated Exposed Parts.

There shall be no uninsulated exposed parts, such as electrical conductors, buses, terminals, or components, that operate at more than 30 volts (15 volts in wet locations). These parts shall ~~additionally~~ be protected by type of protection “ia”, “ib”, or “ic” that is suitable for the location.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:08:16 EDT 2024

Committee Statement

Committee Statement: The task group agrees to remove the word “additionally”. This section as written complies with the requirements of the 2023 edition of the National Electrical Code Style Manual

Response Message: SR-7821-NFPA 70-2024

[Public Comment No. 981-NFPA 70-2024 \[Section No. 506.19\]](#)



Second Revision No. 7823-NFPA 70-2024 [Section No. 506.20(E)]

~~(E)– Manufacturer's Instructions:~~

~~Electrical equipment installed in hazardous (classified) locations shall be installed in accordance with the manufacturer's instructions, if provided.~~

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:09:25 EDT 2024

Committee Statement

Committee Statement: Equipment must be installed in accordance with the manufacturer's instructions in accordance with 110.3(B) therefore this revision removes the redundant requirement in 506.20(E).

Response Message: SR-7823-NFPA 70-2024

[Public Comment No. 1874-NFPA 70-2024 \[Section No. 506.20\(E\)\]](#)



Second Revision No. 7825-NFPA 70-2024 [Section No. 506.30]

[See "CMP 14 SR 7825" Word Document for revisions]

506.30 Bonding in Hazardous (Classified) Locations.

(A) Specific Bonding Means.

Regardless of the voltage of the electrical system,

wiring systems and equipment shall comply with 506.30(A) and 506.30(B) in addition to the

general bonding requirements.

Exception: Uninsulated exposed parts shall be in accordance with 506.19 :

(A) Specific Bonding Means:

(1)

The locknut-bushing and double-locknut types of contacts shall not be depended on for bonding purposes, but bonding jumpers with identified fittings or other approved means of bonding shall be used. These bonding means shall apply to all metal raceways, fittings, boxes, cable trays, and enclosures, and other parts of raceway systems between hazardous (classified) locations and the point of grounding for service equipment or point of grounding for a separately derived system. Metal struts, angles, or channels provided for support and mechanical or physical protection as permitted in 335.10 (5), 336.10(7) (c), or 794.135(B) shall be bonded in accordance with 250.102 :

(2)

Where the branch-circuit overcurrent protection is located on the load side of the disconnecting means, the specific bonding means shall be permitted to end at the nearest point where the grounded circuit conductor and the grounding electrode conductor are connected together on the line side of the building or structure disconnecting means as specified in 250.32(B) :

(B)

bonding of normally non-current-carrying metal parts of electrical equipment, raceways, metal-clad cable, and metal enclosures containing electrical equipment in any hazardous (classified) location shall be provided by one or more of the following bonding means whether or not equipment grounding conductors of the wire type are installed in the raceway or in a multiconductor cable assembly:

- (1) Connections made up wrenchtight using threaded couplings, threaded entries, or listed threaded hubs on enclosures
- (2) Threadless couplings and connectors if made up tight for metal raceways and metal-clad cables
- (3) Other listed devices, such as bonding-type locknuts, bushings, or bushings with bonding jumpers

(B) Specific Bonding Means Not Permitted.

The following bonding means shall not be permitted.

- (1) Locknuts-bushings and double-locknut types of connections
- (2) Bonding locknuts used around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts

(C) Liquidtight Flexible Metal Conduit.

Liquidtight flexible metal conduit shall comply with 506.30(B C)(2)(1) and 506.30(B C)(2)(2) .

(1)

Liquidtight flexible metal conduit shall include an equipment bonding jumper of the wire type in accordance with 250.402 122 .

(2)

In Zone 22 locations, the bonding jumper shall not be required where all of the following conditions are met:

- (1) Listed liquidtight flexible metal conduit 1.8 m (6 ft) or less in length, with fittings listed for grounding, is used.
- (2) Overcurrent protection in the circuit is limited to 10 amperes or less.
- (3) The load is part of a meter, instrument, or relay circuit.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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NEC_CMP-14_SR-7825_506.30.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:12:23 EDT 2024

Committee Statement

Committee Statement: This revision places the requirements for bonding in hazardous (classified) locations in the correct location in the Code correlating with the requirements in 250.100. 250.92 is under the heading of Services which can confuse the user of the Code. The revision simplifies the language in the section, removing redundant references to language in Chapters 1 through 4, and reorganizing the requirements into a numbered list for usability. The term “branch circuit overcurrent protection” is removed. This is in reference to Global PC-1654. This revision correlates with changes to 500.30.

Response Message: SR-7825-NFPA 70-2024



Second Revision No. 7833-NFPA 70-2024 [New Section after 511.1]

511.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in a hazardous (classified) location shall be in accordance with 501.3 or 505.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:30:37 EDT 2024

Committee Statement

Committee Statement: The text of 511.3 has been added to address reconditioned equipment in hazardous (classified) locations in commercial garages. This text aligns Article 511 with the remainder of the hazardous location articles.

Response Message: SR-7833-NFPA 70-2024



Second Revision No. 7834-NFPA 70-2024 [Section No. 511.6(B)(1)]

[see "CMP 14 SR 7834" Word document for revisions]

(1) Fuel-Dispensing Units.

Where

Fuel-dispensing units shall comply with the following:

(1) If fuel-dispensing

units (other than liquid petroleum gas, which is prohibited) are

(1) units are located within buildings, 514

.1 shall apply. Where

(1) shall apply.

(2) Liquified petroleum gas (LPG) dispensers shall not be permitted within buildings.

(3) If mechanical ventilation is provided in the dispensing area, the control shall be interlocked so that the dispenser cannot operate without ventilation, in accordance with 500.5(B)(2) .

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP_14_SR_7834.docx		
NEC_CMP-14_SR-7834_511.6_B_1_.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:33:22 EDT 2024

Committee Statement

Committee Statement: This revision clarifies that dispensing of LPG is not permitted within buildings and to comply with the NEC Style Manual. The reference to Article 514 is necessary to provide the correct context in accordance with the NEC Style Manual.

Response Message: SR-7834-NFPA 70-2024

Public Comment No. 631-NFPA 70-2024 [Section No. 511.4]

Public Comment No. 308-NFPA 70-2024 [Section No. 511.6(B)(1)]



Second Revision No. 7836-NFPA 70-2024 [Section No. 512.1]

512.1 Scope.

This article covers cannabis oil preparatory equipment, extraction equipment, booths, post-processing equipment, and systems using flammable materials (flammable gas, flammable liquid-produced vapor, combustible liquid-produced vapor) in facilities.

~~Cannabis extraction shall not be located in any building containing assembly, educational, day care, health care, ambulatory health care, residential board and care, residential, or detention and correction facilities. [1: 38.6.1.1.3]~~

Informational Note No. 1: See NFPA 1-2024, *Fire Code*, for extracted text that is followed by a reference in brackets. Only editorial changes were made to the extracted text to make it consistent with this code.

Informational Note No. 2: See ANSI/UL 1389, *Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations*, for information on cannabis oil equipment and systems for hazardous (classified) locations.

Informational Note No. 3: See NFPA 1-2024, *Fire Code*, NFPA 55-2026, *Compressed Gases and Cryogenic Fluids Code*, NFPA 58-2024, *Liquefied Petroleum Gas Code*, and ICC IFC, *International Fire Code*, together with the manufacturer's installation instructions, for information on the installation of cannabis oil equipment and systems.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:41:51 EDT 2024

Committee Statement

Committee Statement: This revision removes requirements from the Scope statement. Requirements in the Scope statement are not permitted by the NEC Style Manual. The informational note remains due to the relocation of the extracted text to 512.6.

Response Message: SR-7836-NFPA 70-2024

[Public Comment No. 774-NFPA 70-2024 \[Section No. 512.1\]](#)



Second Revision No. 7838-NFPA 70-2024 [New Section after 512.2(B)]

512.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in hazardous (classified) locations shall be in accordance with 501.3 or 505.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:47:49 EDT 2024

Committee Statement

Committee Statement: The text of 512.3 has been added to address reconditioned equipment in cannabis oil processing facilities. This text aligns Article 512 with the remainder of the hazardous location articles.

Response Message: SR-7838-NFPA 70-2024



Second Revision No. 7839-NFPA 70-2024 [New Section after 512.5(B)(2)]

512.6 Prohibited Locations.

Cannabis extraction shall not be located in any building containing assembly, educational, day care, health care, ambulatory health care, residential board and care, residential, or detention and correction facilities. [1: 8.6.1.1.3]

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:50:29 EDT 2024

Committee Statement

Committee Statement: This revision relocates a requirement from the Scope statement, which is not permitted by the NEC Style Manual. Cannabis extraction was not changed to cannabis extraction facilities, because cannabis extraction includes the process and equipment. Changes to the extracted text should be directed to the responsible technical committee on NFPA 1.

Response Message: SR-7839-NFPA 70-2024

Public Comment No. 775-NFPA 70-2024 [Part I.]



Second Revision No. 7840-NFPA 70-2024 [Section No. 512.20]

[See "CMP 14 SR 7840" Word Document for revisions]

512.20 Equipment and Systems.

~~Installation of cannabis oil equipment and systems-~~ Equipment listed in accordance with 512.2 shall be installed in a distinct room or area.- Cannabis equipment shall be installed in accordance with 512.20(A) through 512.20(F) :

~~(A)- Equipment within Cannabis Oil Booths:~~

~~Equipment within cannabis oil booths shall be listed for the location:~~

-

512.21 Gas Detection Systems..

Where cannabis oil booths are provided with a gas detection system in accordance with 500.7(K) or 505.8(I), equipment listed for Class I, Division 2 or Zone 2 locations, as applicable, shall be permitted.

~~(B)- Cannabis Oil Preparatory Equipment:~~

~~Cannabis oil preparatory equipment shall be listed for the location:~~

~~Informational Note:- See Article 100 for the definition of *cannabis oil preparatory equipment* :~~

~~(C)- Cannabis Oil Extraction Equipment:~~

~~Cannabis oil extraction equipment shall be listed for the location:~~

~~Informational Note:- See Article 100 for the definition of *cannabis oil extraction equipment* :~~

~~(D)- Cannabis Oil Booths:~~

~~Cannabis oil booths shall be listed for the location:~~

~~Informational Note:- See Article 100 for the definition of *cannabis oil booths* :~~

~~(E)- Cannabis Oil Post-Processing Equipment:~~

~~Cannabis oil post-processing equipment shall be listed for the location:~~

~~Informational Note:- See Article 100 for the definition of *cannabis oil post-processing equipment* :~~

~~(F)- Cannabis Oil Systems:~~

~~Cannabis oil systems shall be listed for the location:~~

~~Informational Note No. 1:- See Article 100 for the definition of *cannabis oil systems* :~~

~~Informational Note No. 2:- See NFPA 70B-2023, *Standard for Electrical Equipment Maintenance*, for information related to general electrical equipment maintenance and developing an effective electrical preventive maintenance (EPM) program:~~

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
CMP_14_SR_7840.docx		
CMP_14_SR_7840_512.20.docx	For prod use	

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 16:53:06 EDT 2024

Committee Statement

Committee Statement: The listing requirements were moved to 512.2 in the first draft. This revision simplifies the text by removing redundant requirements and points the user back to 512.2 for the listing requirements. The gas detection requirements were better handled in their own section so that was pushed to 512.21. The informational note to Article 100 is covered in 512.2, so it was deleted in these sections. The informational note to refer the user to NFPA 70B was deleted because it's duplicative of the note in 110.17.

Response Message: SR-7840-NFPA 70-2024

[Public Comment No. 629-NFPA 70-2024 \[Section No. 512.20\]](#)



Second Revision No. 7844-NFPA 70-2024 [Section No. 512.32]

512.32 ~~Listing~~ Marking Requirements.

Cannabis oil preparatory equipment, extraction equipment, booths, and post-processing equipment shall be marked to show the hazardous (classified) location for which it is permitted to be installed.

(A) Division Equipment.

Equipment for Class I, Division 1 or Class I, Division 2 shall be marked in accordance with 500.8(C).

(B) Zone Equipment.

Equipment for Zone 1 or Zone 2 shall be marked in accordance with ~~500~~ 505 .8 9 (C)(2).

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 17:01:22 EDT 2024

Committee Statement

Committee Statement: This revision changes the title to “Marking Requirements” to which the requirement is referring. The listing requirements are stated in 512.2. The cross reference in (B) is corrected.

Response Message: SR-7844-NFPA 70-2024

Public Comment No. 982-NFPA 70-2024 [Section No. 512.32]



Second Revision No. 8069-NFPA 70-2024 [New Section after 513.1]

513.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in hazardous (classified) locations shall be in accordance with 501.3 or 505.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Fri Oct 18 19:06:33 EDT 2024

Committee Statement

Committee Statement: The text of 513.3 has been added to address reconditioned equipment in aircraft hangars. This text aligns Article 513 with the remainder of the hazardous location articles.

Response Message: SR-8069-NFPA 70-2024



Second Revision No. 7846-NFPA 70-2024 [Section No. 513.1]

513.1 Scope.

This article ~~shall apply~~ applies to buildings or structures in any part of which aircraft containing Class I (flammable) liquids or Class II (combustible) liquids whose temperatures are above their flash points are housed or stored and in which aircraft might undergo service, repairs, or alterations. It ~~shall~~ does not apply to locations used exclusively for defueled aircraft or aircraft that have never contained fuel ~~or defueled aircraft~~.

Informational Note No. 1: See NFPA 409-2022, *Standard on Aircraft Hangars*, for definitions of *aircraft hangar* and *defueled aircraft*.

Informational Note No. 2: See NFPA 30-2024, *Flammable and Combustible Liquids Code*, for information on fuel classification.

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 17:04:49 EDT 2024

Committee Statement

Committee Statement: This revision removes the 'shall' statements in the Scope. The NEC Style Manual does not permit requirements in the Scope Statement. The text was editorially revised to be clearer.

Response Message: SR-7846-NFPA 70-2024



Second Revision No. 7850-NFPA 70-2024 [New Section after 514.1]

514.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in hazardous (classified) locations shall be in accordance with 501.3 or 505.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 17:13:48 EDT 2024

Committee Statement

Committee Statement: The text of 514.3 has been added to address reconditioned equipment in motor fuel dispensing facilities. This text aligns Article 514 with the remainder of the hazardous location articles.

Response Message: SR-7850-NFPA 70-2024



Second Revision No. 7851-NFPA 70-2024 [New Section after 515.1]

515.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in hazardous (classified) locations shall be in accordance with 501.3 or 505.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 17:15:22 EDT 2024

Committee Statement

Committee Statement: The text of 515.3 has been added to address reconditioned equipment in bulk storage plants. This text aligns Article 515 with the remainder of the hazardous location articles.

Response Message: SR-7851-NFPA 70-2024



Second Revision No. 7852-NFPA 70-2024 [New Section after 516.1]

516.3 Reconditioned Equipment.

(A) Permitted to be Installed.

The installation of reconditioned equipment in hazardous (classified) locations shall be in accordance with 501.3, 502.3, 505.3 or 506.3 as applicable.

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

Submitter Information Verification

Committee: NEC-P14

Submittal Date: Wed Oct 16 17:18:13 EDT 2024

Committee Statement

Committee Statement: The text of 516.3 has been added to address reconditioned equipment in used spray application, dipping coating, and printing processes. This text aligns Article 516 with the remainder of the hazardous location articles.

Response Message: SR-7852-NFPA 70-2024



Second Revision No. 7854-NFPA 70-2024 [Section No. 516.7(D)(5)]

[See "CMP 14 SR 7854" for revisions]

(5) Limited Finishing Workstations.

(a) For limited finishing workstations, the area inside the 915 mm (3 ft) space horizontally and vertically beyond the volume enclosed by the outside surface of the curtains or partitions shall be classified as Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22, as shown in Figure 516.7(D)(5).

(b) A limited finishing workstation shall be designed and constructed to have all of the following:

(3) A dedicated make-up air supply and air supply plenum [**33: 14.3.2.1**]

(4) Curtains or partitions that are noncombustible or limited combustible [**33: 14.3.2.2**]

(5) A dedicated mechanical exhaust and filtration system [**33: 14.3.2.3**]

(6) An approved automatic extinguishing system [**33: 14.3.2.4**]

Informational Note: See NFPA 101-2024, *Life Safety Code*, for information on how to determine whether a material is noncombustible or limited combustible.

(g) The amount of material sprayed in a limited finishing workstation shall not exceed 3.8 L (1 gal) in any 8-hour period. [**33:14.3.3**]

(h) Curtains or partitions shall be fully closed during any spray operations. [**33:14.3.5**]

(i) The equipment within the limited finishing workstation shall be interlocked such that the spray application equipment cannot be operated unless the exhaust ventilation system is operating and functioning properly and spray application is automatically stopped if the exhaust ventilation system fails. [**33:14.3.6.2**]

(j) Any limited finishing workstation used for spray application operations shall not be used for any operation that is capable of producing sparks or particles of hot metal or for operations that involve open flames or electrical utilization equipment capable of producing sparks or particles of hot metal. [**33:14.3.7**]

(k) Where industrial air heaters are used to elevate the air temperature for drying, curing, or fusing operations, a high limit switch shall be provided to automatically shut off the drying apparatus if the air temperature in the limited finishing workstation exceeds the maximum discharge-air temperature allowed by the standard that the heater is listed to or ~~93°C~~ 105°C (~~200°F~~ 222°F), whichever is less. [**33:14.3.8.1**]

(l) A means shall be provided to show that the limited finishing workstation is in the drying or curing mode of operation and that the limited finishing workstation is to be unoccupied. [**33:14.3.8.2**]

(m) Any containers of flammable or combustible liquids shall be removed from the limited finishing workstation before the drying apparatus is energized. [**33:14.3.8.3**]

(n) Portable spot-drying, curing, or fusion apparatus shall be permitted to be used in a limited finishing workstation, provided that it is not located within the hazardous (classified) location established by NFPA 33-2024, *Standard for Spray Application Using Flammable or Combustible Materials*, Section 14.3.5 when spray application operations are being conducted. [**33:14.3.9**]

(o) Recirculation of exhaust air shall be permitted when the provisions of 516.7(D)(4)(3) are both met. [**33:14.3.10**]

Figure 516.7(D)(4) Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22 Locations Adjacent to an Enclosed Spray Booth or Spray Room. [**33:Figure 6.5.4]**

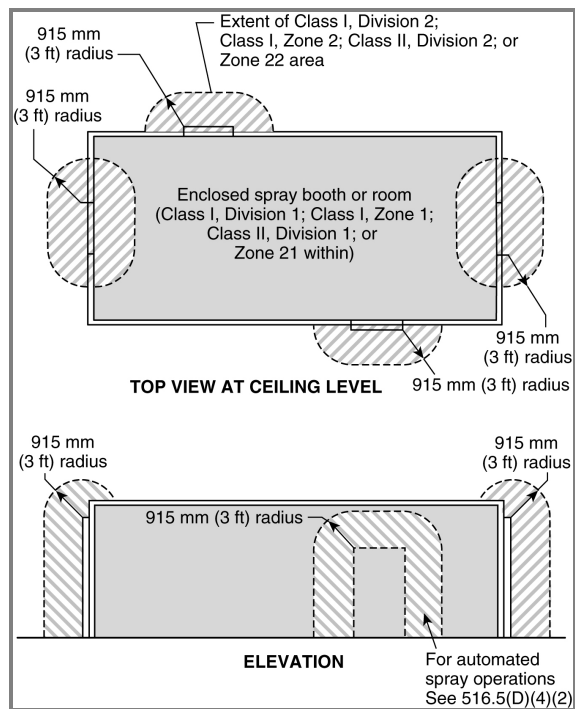
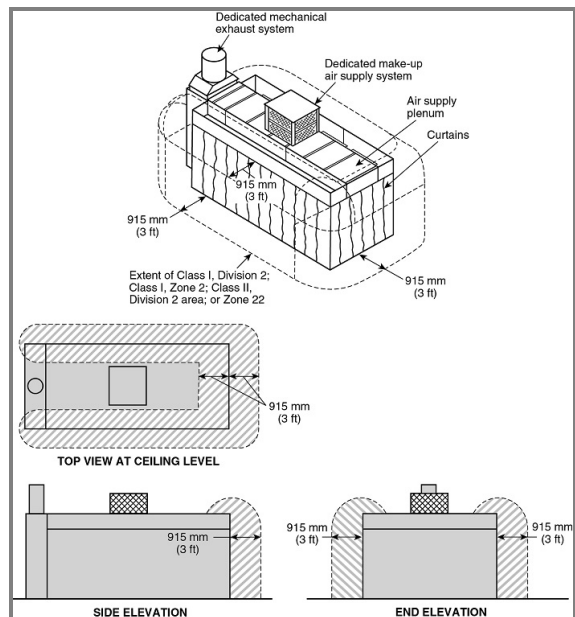


Figure 516.7(D)(5) Class I, Division 2; Class I, Zone 2; Class II, Division 2; or Zone 22 Locations Adjacent to a Limited Finishing Workstation. [33:Figure 14.3.6.1]



Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
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Submitter Information Verification

Committee: NEC-P14
Submittal Date: Wed Oct 16 17:22:03 EDT 2024

Committee Statement

**Committee
Statement:**
**Response
Message:**

The text is updated to correct the temperatures in the extracted text in accordance with the Extract Policy.

SR-7854-NFPA 70-2024

[Public Comment No. 572-NFPA 70-2024 \[Section No. 516.7\(D\)\(5\)\]](#)