

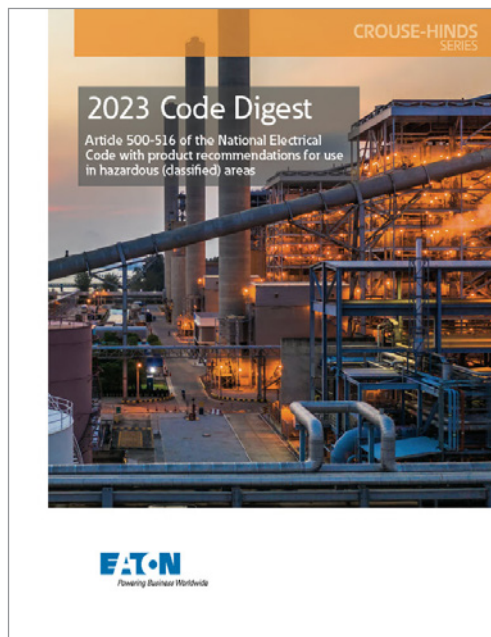
2023 NEC Changes For Hazardous Locations

2023 NEC changes - general overview

Article 100 definitions have a common section now. Part I, II, III for General, Over 1000 Volts, Nominal and Hazardous Locations respectively, from NEC 2020 have been removed.

The definitions of "Fibers/Flyings, Combustible" and "Fibers/Flyings, Ignitable" have been added to Article 100.

The term "restricted industrial establishment" used throughout Chapter 5, is defined in Article 100 as "Establishment with restricted public access, where the conditions of maintenance and supervision ensure that only qualified persons service the installation."



2023 NEC changes by article

- **500.1 Scope** – Categorized into "(A) Covered" and "(B) Not Covered" for IEC and Class/Division classification systems respectively, removing reference to articles 500 through 504 under scope. Requirements for IEC Zones are covered in Articles 505 and 506.
- **500.4 Documentation** – Revised to cover unclassified areas adjoining classified locations, typically Division 2 locations on an area classification drawing and other associated documentation. This documentation must be available to the authority having jurisdiction (AHJ) and those authorized to design, install, inspect, maintain, or operate electrical equipment at the location.
- **500.5 Classifications of Locations** – Informational Note No. 1 and 2 in 500.5 (B) (1) are combined, converting examples into Class I Division 1 location classifications.
- **500.5(D) Class III Locations** – The definition for Class III locations is now revised to "a location where combustible fibers/flyings or ignitable fibers/flyings are in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures." in line with Class II definitions.
- **500.6 Materials** - Exceptions No. 1 and 2 permitting Group C and D in 500.6 (A)(2) have been moved to 500.8 (B)(1). 500.6 (C) and (D) – New articles added for Class III Combustible Fibers/Flyings and Ignitable Fibers/Flyings that provide information and distinguishes between combustible fibers/flyings and ignitable fibers/flyings based on NFPA 499.
- **500.7 Protection Techniques** – Suitability of the protection techniques for specific hazardous locations is shown in Chapter 9 with a new Table 13. This table replaces old tables 505.9(C)(2)(4) and 506.9(C)(2)(3) covering different protection techniques for the IEC and Class/Division classification systems.
- **New protection techniques added under 500.7 for division system** – Protection by Electrical Resistance Trace Heating, Protection by Impedance Heating, Enclosed-Break, and Sealed.
- **500.8(D)(3) Class III Temperature** – Ignition temperature of 165°C is added for Combustible and Ignitable Fibers/Flyings consistent with Class II temperature.
- **500.8(E)(3) Unused Openings** – Usage of listed blanking elements included along with listed close-up plugs for the location. The thread engagement must comply with the requirements in 500.8 (E)(1) or (E)(2).



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2023 NEC Changes

- **501.10 Class I, Div. 1 Wiring Methods** – The exception to 501.10(A)(1)(1) is converted into text and now included as 501.10(A)(1)(2). Type P cable installation requirements in 501.10(A)(1)(8) are revised to permit Type P cable with metal braid armor and an overall jacket if terminated with fittings listed for Class I Division 1 location.
- **501.130(B)(4)(a) NEC change for portable lighting compliance** – Portable lighting equipment shall comply with NEC Section 501.130(B)(1) instead of NEC Section 501.130(A)(1). Previously, Division 2 portable lighting had to comply with the Class I Division 1 standards and had an exception for Class I, Division 2. Now all of the portable equipment complies with Class I, Division 2.
- **501.141 Flexible Cables, Class I, Division 2** – A new Section 501.141 has been added to provide requirements for flexible cables in Class I, Division 2 locations permitting usage of Type P cable. The termination of cables requires cable connectors listed for Class I, Division 2 locations.
- **501.145 Receptacles and Attachment Plugs, Class I Locations** – Receptacles and attachment plugs shall be listed for the location, except as permitted by 501.105(B)(6).
- **502.10 Wiring Methods** – In Class II, Division 1 locations, conduit systems with supplemental corrosion protection coatings are permitted along with threaded rigid metal conduit (RMC) or threaded intermediate metal conduit (IMC).
- **502.10(B) Class II, Division 2** – Wiring methods installed in Class II, Division 2 locations shall be in accordance with 502.10(B) (1) through (B)(4).
- **502.15 Sealing, Class II, Divisions 1 and 2** – The informational note electrical sealing putty to this section in previous version is removed and converted into 502.15(5).
- **502.30 Grounding and Bonding** – Exception under “Bonding” for specific bonding means is removed. New article 502.30(1) requires Metal struts, angles, or channels provided for support and mechanical or physical protection as permitted, to be bonded in accordance with 250.102.
- **503.10(A)(1)(6) Addition of Type P cable in Class III, Division 1** – Type P cable with metal braid armor. Also added under 503.10(A)(3)(7).
- **504.30 Separation of Intrinsically Safe Conductors** – Section 504.30(A) rewritten to convert exceptions and informational notes in text without technical changes.
- **Article 505 for Zone 0, 1, and 2 Locations** – Correspondence to Article 500 has been removed and the changes are in line with Article 500. Revised scope does not cover the requirements for Class/Division requirements or Zones 20, 21 or 22.
- **505.8 Protection Techniques** – Three new protection techniques have been added to this section namely Impedance heating for Zone 2, Pressurized room “p” for zone 1 or 2 and Special protection “s” for Zones 0, 1 and 2 locations.
- **505.16 Sealing and Drainage** – Section 505.16(B)(3) title changed to include pressurized rooms along with pressurized enclosures. An informational note No. 3 has been added to reference IEC 60079-13 standard.
- **505.16(C)(1) Conduit seals for Zone 2** – Exception No. 1 through 4 are converted into text.
- **505.16(C)(2) Cable seals for Zone 2** – New requirements and exceptions added under 505.16 (C)(2)(b) Restricted Breathing Enclosures “nR”. Cables entering restricted breathing enclosures required to be restricted breathing shall be sealed at the point of entrance into the enclosure.
- **505.20(C), Equipment Requirements, Zone 2** – Two new exceptions are added to article 505.20(C). Exception No. 5 for space heaters to reduce condensation during shutdown periods. Exception No. 6 for A sliding contact shaft bonding device.
- **Article 506 Zone 20, 21, and 22 Locations** – Article does not cover any of the class/division and Zones 0, 1 or 2 requirements.
- **506.6 Material Groups** – Article updated with definition of material groups with reference to NFPA 499: Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas. Earlier references to Class II and III removed.
- **506.30 Grounding and Bonding** – Article replaced 506.25, section updated with separate grounding and bonding sections. Bonding section is further updated in consistent with article 502.
- **511 Commercial Garages, Repair and Storage** – Article has been revised to facilitate the usage with either of the Class/Division or Zone classification system.
- **511.2 Other Articles**. New article added – Occupancies shall comply with Table 511.2, as applicable except as modified by this article.
- **511.7 Wiring and Equipment Installed Above Hazardous (Classified) Locations** – Title updated to remove the previous reference to Class I replacing it with Hazardous (Classified) Locations.
- **511.7(A) Fixed Wiring Above Hazardous (Classified) Locations** – Several conduits and cables included based on the installation requirements.
- **511.8 Underground Wiring Below Hazardous Locations** – Title updated to remove the previous reference to Class I replacing it with Hazardous (Classified) Locations. Exception is removed and included as text for metallic and polymeric conduits.
- **512 Cannabis Oil Equipment and Cannabis Oil Systems** – This is a new article that 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 commercial and industrial facilities. Detailed diagrams provided for understanding hazardous areas involved.
- **514 Motor Fuel Dispensing Facilities** – Articles 514.4, 514.7, 515.4 and 515.7 have changes in line with changes in article 511.
- **516 Spray Application, Dipping, Coating, and Printing Processes Using Flammable or Combustible Materials**.
- **516.7(A) Wiring & Equipment Not Within Hazardous Locations** – Several conduits and cables included based on the installation requirements similar to 511.7 (A).

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