

Steel Conduit

TECH TALKS

2017 NEC® CHANGES

Technical information about steel
conduit and electrical metallic tubing



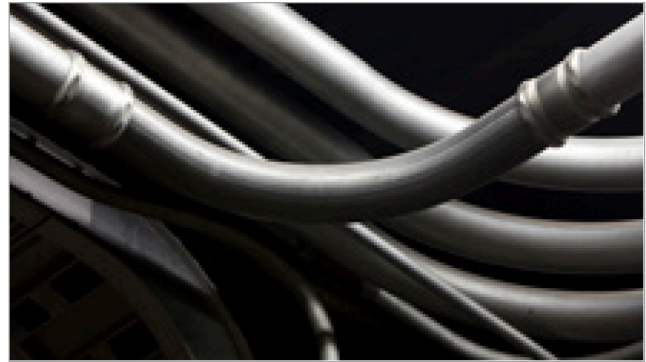
2017 NEC CHANGES

Many factors go into determining the type of wiring method for your project — factors such as ease of use, cost and flexibility — but perhaps the most important factor is what methods are allowed by the electrical code. The National Electrical Code® (NEC®), or NFPA 70, is on a three-year revision cycle, and the last cycle has just been completed, resulting in the release of the 2017 National Electrical Code. Below are some of the changes made in the 2017 NEC that could have an impact on the uses of steel conduit.

CHAPTER 3

The first change comes in NEC Chapter 3: Wiring Methods and Materials, appearing in Section 300.5 (Underground Installations), subdivision 300.5(D)(4) (Enclosure or Raceway Damage).

- **2014 NEC Language:** "Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in rigid metal conduit, intermediate metal conduit, RTRC-XW, Schedule 80 PVC conduit, or equivalent."
- **2017 NEC Language:** "Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in **electrical metallic tubing**, rigid metal conduit, intermediate metal conduit, RTRC-XW, Schedule 80 PVC conduit, or equivalent."
- **Analysis of Change:** Adding EMT as an acceptable wiring method to protect against physical damage in underground installations is a logical change. Article 358 (EMT) already allowed for its use in these situations. Under Section 358.10 (Uses Permitted), EMT is allowed to be installed in exposed or concealed locations, in concrete, in direct contact with earth, or in areas of severe corrosive influence, wet locations, damp locations, and cinder fill.



DISSIMILAR METALS

The next change pertains to dissimilar metals and impacts the following sections: EMT 358.14, IMC 342.14 and RMC 344.14.

- **2014 NEC Language:** "Where practicable, dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action. Aluminum fittings and enclosures shall be permitted to be used with steel conduit and steel fittings and enclosures shall be permitted to be used with aluminum conduit where not subject to severe corrosive influences."
- **2017 NEC Language:** "Where practicable, dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action. Aluminum fittings and enclosures shall be permitted to be used with **galvanized** steel conduit and **galvanized** steel fittings and enclosures shall be permitted to be used with aluminum conduit where not subject to severe corrosive influences. **Stainless steel conduit shall only be used with stainless steel fittings and approved accessories, outlet boxes, and enclosures.**"
- **Analysis of Change:** The purpose of this change is to make it clear that a chemical reaction can result from the use of a combination of stainless steel conduit / fittings with galvanized steel conduit / fittings.

CHAPTER 5

Chapter 5 (Hazardous Locations) includes changes in several different sections. The first change involving steel conduit comes in 501.10(B)(1)(1).

- **2014 NEC Language:** "All wiring methods allowed in Class 1 Division 1 — which stated threaded rigid metal conduit or threaded steel intermediate metal conduit."
- **2017 NEC Language:** "Rigid metal conduit (RMC) and intermediate metal conduit (IMC) with listed threadless fittings."
- **Analysis of Change:** Adding listed threadless fittings allows the use of a compression-type fitting, giving the installer more options when planning an installation in these type of areas (since Class 1 Division 2 locations are areas where volatile flammable gases, flammable liquid-produced vapors or combustible liquid-produced vapors are handled, processed and used. Precedence was set for threadless fittings by the allowance of such fittings for use with cables in these areas. Therefore, using threadless fittings with RMC and IMC would provide the appropriate level of protection.



CHAPTER 5 - NEW

The next change in chapter 5 is a new section added to the NEC: Section 511.8 (Underground Wiring in Commercial Garages, Repair, and Storage).

- **2017 NEC Language:** "Underground wiring shall be installed in threaded rigid metal conduit or intermediate metal conduit."
- **Analysis of Change:** This is a new section of the code requiring the use of steel conduit in order to protect wiring for these establishments.

ARTICLE 680

Article 680 (Swimming Pools, Fountains, and Similar Installations) added another new section: Section 680.14 (Corrosive Environments). The change impacting steel conduit installations appears in 680.14(B) (Wiring Methods).

- **2017 NEC Language:** "Wiring methods in the areas described in 680.14(A) shall be listed and identified for such use in such areas. Rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride conduit, and reinforced thermosetting resin conduit shall be considered to be resistant to the corrosive environment specified in 680.14(A)."
- **Analysis of Change:** If you use steel RMC or IMC for installations in these areas, there is no need for special third-party certifications stating that it is approved for such areas. It's one less piece of paperwork for an electrician or contractor to worry about.

CONTACT STEEL TUBE INSTITUTE

As you can see, steel conduit / tubing is the least-restricted wiring method in the NEC. If you have further questions on these or other changes to the 2017 NEC, please contact us. We would be happy to help you!

