

ARTICLE

344 Rigid Metal Conduit (RMC)

Part I. General

344.1 Scope. This article covers the use, installation, and construction specifications for rigid metal conduit (RMC) and associated fittings.

344.6 Listing Requirements. RMC, factory elbows and couplings, and associated fittings shall be listed.

Part II. Installation

344.10 Uses Permitted.

(A) Atmospheric Conditions and Occupancies.

(1) Galvanized Steel, Stainless Steel, and Red Brass RMC. Galvanized steel, stainless steel, and red brass RMC shall be permitted under all atmospheric conditions and occupancies.

Δ (2) Aluminum RMC. Aluminum RMC shall be permitted to be installed where approved for the environment.

(3) Ferrous Raceways and Fittings. Ferrous raceways and fittings protected from corrosion solely by enamel shall be permitted only indoors and in occupancies not subject to severe corrosive influences.

(B) Corrosive Environments.

(1) Galvanized Steel, Stainless Steel, and Red Brass RMC, Elbows, Couplings, and Fittings. Galvanized steel, stainless steel, and red brass RMC, elbows, couplings, and fittings shall be permitted to be installed in concrete, in direct contact with the earth, in direct burial applications, or in areas subject to severe corrosive influences where protected by corrosion protection approved for the condition.

(2) Supplementary Protection of Aluminum RMC. Aluminum RMC shall be provided with approved supplementary corrosion protection where encased in concrete or in direct contact with the earth, or in direct burial applications where identified for the application.

Other documents, such as the Steel Tube Institute's 2015 *Guidelines for Installing Steel Conduit/Tubing*, and ANSI/NECA 101-2013, *Standard for Installing Steel Conduits (Rigid, IMC, EMT)*, should be consulted for approval guidance of corrosion-resistant materials or for requirements prior to the installation of nonferrous metal (aluminum) conduit in concrete, since chloride additives in the concrete mix can cause corrosion.

(C) Cinder Fill. Galvanized steel, stainless steel, and red brass RMC shall be permitted to be installed in or under cinder fill where subject to permanent moisture where protected on all sides by a layer of noncinder concrete not less than 50 mm (2 in.)

thick; where the conduit is not less than 450 mm (18 in.) under the fill; or where protected by corrosion protection approved for the condition.

Although cinder fill is not commonly used in modern construction, it is still encountered at older building sites. Cinders used as fill may contain sulfur and, when combined with moisture, form sulfuric acid, which can corrode metal raceways.

(D) Wet Locations. All supports, bolts, straps, screws, and so forth, shall be of corrosion-resistant materials or protected against corrosion by corrosion-resistant materials.

Informational Note: See 300.6 for protection against corrosion.

(E) Severe Physical Damage. RMC shall be permitted to be installed where subject to severe physical damage.

344.14 Dissimilar Metals. Where practicable, dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action. Stainless steel and aluminum fittings and enclosures shall be permitted to be used with galvanized steel RMC, and galvanized steel fittings and enclosures shall be permitted to be used with aluminum RMC where not subject to severe corrosive influences. Stainless steel rigid conduit shall only be used with the following:

- (1) Stainless steel fittings
- (2) Stainless steel boxes and enclosures
- (3) Steel (galvanized, painted, powder or PVC coated, and so forth) boxes and enclosures when not subject to severe corrosive influences
- (4) Stainless steel, nonmetallic, or approved accessories

Aluminum rigid conduit can be used with steel fittings and enclosures, as can aluminum fittings and enclosures with steel rigid conduit. Tests show that the galvanic corrosion at steel and aluminum interfaces is minor compared to the natural corrosion on the combination of steel and steel or of aluminum and aluminum.

344.20 Size.

(A) Minimum. RMC smaller than metric designator 16 (trade size ½) shall not be used.

Exception: Metric designator 12 (trade size ⅜) shall be permitted for enclosing the leads of motors as permitted in 430.245(B).

(B) Maximum. RMC larger than metric designator 155 (trade size 6) shall not be used.

Informational Note: See 300.1(C) for the metric designators and trade sizes. These are for identification purposes only and do not relate to actual dimensions.

344.22 Number of Conductors. The number of conductors shall not exceed that permitted by the percentage fill specified in Table 1, Chapter 9.