

NATIONAL ELECTRICAL CODE, NEC (2008)

(Copyright 2007 NFPA)

Article 355 - Reinforced Thermosetting Resin Conduit Type (RTRC)

I. General

355.1 Scope.

This article covers the use, installation, and construction specification for reinforced thermosetting resin conduit (RTRC) and associated fittings.

FPN: Refer to Article 352 for Rigid Polyvinyl Chloride Conduit: Type PVC, and Article 353 for High Density Polyethylene Conduit: Type HDPE.

355.2 Definition.

Reinforced Thermosetting Resin Conduit (RTRC). A rigid nonmetallic conduit (RNC) of circular cross section, with integral or associated couplings, connectors, and fittings for the installation of electrical conductors and cables.

355.6 Listing Requirements.

RTRC, factory elbows, and associated fittings shall be listed.

II. Installation

355.10 Uses Permitted.

The use of RTRC shall be permitted in accordance with 355.10 (A) through (H).

- (A) **Concealed.** RTRC shall be permitted in walls, floors, and ceilings.
- (B) **Corrosive Influences.** RTRC shall be permitted in locations subject to severe corrosive influences as covered in 300.6 and where subject to chemicals for which the materials are specifically approved.
- (C) **Cinders.** RTRC shall be permitted in cinder fill.
- (D) **Wet Locations.** RTRC shall be permitted in portions of dairies, laundries, canneries, or other wet locations and in locations where walls are frequently washed, the entire conduit system, including boxes and fittings used therewith, shall be installed and equipped so as to prevent water from entering the conduit. All supports, bolts, straps, screws, and so forth, shall be of corrosion-resistant materials or be protected against corrosion by approved corrosion-resistant materials.
- (E) **Dry and Damp Locations.** RTRC shall be permitted for use in dry and damp locations not prohibited by 355.12.
- (F) **Exposed.** RTRC shall be permitted for exposed work where not subject to physical damage if identified for such use.
- (G) **Underground Installations.** For underground installations, see 300.5 and 300.50.
- (H) **Support of Conduit Bodies.** RTRC shall be permitted to support nonmetallic conduit bodies not larger than the largest trade size of an entering raceway. These conduit bodies shall not support luminaires or other equipment and shall not contain devices other than splicing devices as permitted by 110.14(B) and 314.16(C)(2).

355.12 Uses Not Permitted.

RTRC shall not be used under the following conditions.

- (A) **Hazardous (Classified) Locations.**
 1. In any hazardous (classified) location, except as permitted by other articles in this *Code*
 2. In class I, Division 2 locations, except as permitted in 501.10(B)(3)

- (B) **Support of Luminaries.** For the support of luminaries or other equipment not described in 355.10(H).
- (C) **Physical Damage.** Where subject to physical damage unless identified for such use.*
- (D) **Ambient Temperatures.** Where subject to ambient temperatures in excess of 50°C (122°F) unless listed otherwise.**
- (E) **Insulation Temperature Limitations.** For conductors or cables operating at temperature higher than the RTRC listed operating temperature rating.

Exception: Conductors of cables rated at a temperature higher than the RTRC listed temperature rating shall be permitted to be installed in RTRC, provided they are not operated at a temperature higher than the RTRC listed temperature rating.

- (F) **Theaters and Similar Locations.** In theaters and similar locations, except as provided in Articles 518.4 and 520.5.

(* *Champion Haz Duct[®] is identified for such use, i.e. can be used where Physical Damage is of concern.*

(** *Champion Haz Duct[®] is listed for 110°C (230°F).*

Article / 501.10

(B) Class I, Division 2

- (1) **General.** In Class I, Division 2 locations, the following wiring methods shall be permitted. (*excerpt below*)
- (7) In industrial establishments with restricted public access where the conditions of maintenance and supervision ensure that only qualified persons service the installation and where metallic conduit does not provide sufficient corrosion resistance, reinforced thermosetting resin conduit (RTRC), factory elbows, and associated fittings, all marked with the suffix -XW, and Schedule 80 PVC conduit, factory elbows, and associated fittings shall be permitted. Where seals are required for boundary conditions as defined in 501.15(A)(4), the Division 1 wiring method shall extend into the Division 2 area to the seal, which shall be located on the Division 2 side of the Division 1-Division 2 boundary.

Article / 505.15

(C) Class I, Zone 2

- (1) **General.** In Class I, Zone 2 locations, the wiring methods in (C)(1)(a) through (C)(1)(h) shall be permitted. (*excerpt below*)
- (g) In industrial establishments with restricted public access where the conditions of maintenance and supervision ensure that only qualified persons service the installation and where metallic conduit does not provide sufficient corrosion resistance, reinforced thermosetting resin conduit (RTRC), factory elbows, and associated fittings, all marked with the suffix -XW, and Schedule 80 PVC conduit, factory elbows, and associated fittings shall be permitted. Where seals are required for boundary conditions as defined 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.