



Wiring for Class 1, Division 2 Locations

National Fire Protection Association (NFPA) 70, the National Electric Code (NEC) is updated every three years, and the recently released 2011 NEC contains many important changes designed to enhance electrical safety. One important update that affects wire and cable users can be found in Article 501.10(B) - Wiring for Class I, Division 2 locations, which are defined as potentially having flammable gases or vapors present if there is a system failure. Class I, Division 1 locations have potentially explosive gases present during normal operations. The NEC defines the allowed cable types for Class 1, Division 1 and Division 2 in 501.10(B), which is illustrated in Table 1. Conduit must be used for all other cable types.

Table 1:
Cable Types Allowed for Class I Locations*

Division 1	Division 2
Type MI Cable	All Division 1 methods
Type MC-HL Cable	Type PLTC and PLTC-ER
Type ITC-HL Cable	Type ITC and ITC-ER
	Type MC, MV or TC

* Extra-hard usage Flexible Cord is also allowed for certain applications

Fittings for Class 1, Division 2

In previous editions of the NEC, Article 501 didn't specifically state listed fittings needed to be used in Class I, Division 2 locations. "Listed" means that the fitting is tested to a standard by a Nationally Recognized Testing Laboratory (NRTL) such as Underwriters Laboratories (UL) or the Canadian Standards Association (CSA). Because Article 501 didn't specifically state listed fittings were required, improper fittings were being used, and the code was updated to specifically require the properly listed fittings.

A common problem the update addresses is that fittings that pass the Flexible Cord Listing requirements but not the Tray Cable Listing requirements are being used with Type TC tray cables. NRTLs list tray cable fittings and flexible cord fittings to the UL514B - Conduit, Tubing, and Cable Fittings standard, which requires different pulls test for the fittings used with flexible cord and the fittings used with tray cables. The tray cable pull test is more stringent than the flexible cord test (50 pounds-force (lbf) for five minutes versus 35 lbf for one minute). When fittings are used that don't pass both tests, there is an increased risk of the cable pulling out or water ingress that could cause an expensive failure. Several listed products are available that pass both tests, and Anixter recommends using these products in hazardous environments.

Another common issue that the listing requirement addresses is the use of nonsealed fittings. Tray cable glands must pass a UL 2225 500PSI sealing test for use in Class I, Division 2 nonexplosive locations. Requiring the use of properly listed fittings should remove any ambiguity and increase installation safety.

Table 2: Tray Fitting Requirements

Tray Fitting Requirements	2008	2011
Sealed fitting	Y	Y
Listing by a NRTL	N	Y
Suitable for tray cable	Implied	Required



If you have questions about the updated article or which fittings to use, contact your local Anixter representative or call 1.800.ANIXTER.

About Anixter: anixter.com/aboutus
Legal Statement: anixter.com/legalstatement
 12T0001X00 © 2013 Anixter Inc. · 09/13

1.800.ANIXTER | anixter.com

