ARTICLE

300

GENERAL REQUIREMENTS FOR WIRING METHODS AND MATERIALS

Introduction to Article 300—General Requirements for Wiring Methods and Materials

Article 300 contains the general requirements for all wiring methods included in the *NEC*. However, it does not apply to twisted-pair cable and coaxial cable (which are covered in Chapters 7 and 8) unless Article 300 is specifically referenced.

This article is primarily concerned with how to install, route, splice, protect, and secure conductors and raceways. How well you understand and apply the requirements of Article 300 will usually be evident in the finished work. Many of its requirements will affect the appearance, longevity, and even the safety of the installation. Imagine your surprise if you are shoveling some soil onto a plant in the garden and your shovel hits an electrical service cable! After studying and learning the rules in this article, you will immediately realize that the burial depth requirements of 300.5 were possibly overlooked or ignored. Even worse, they might not even have been known at the time of installation.

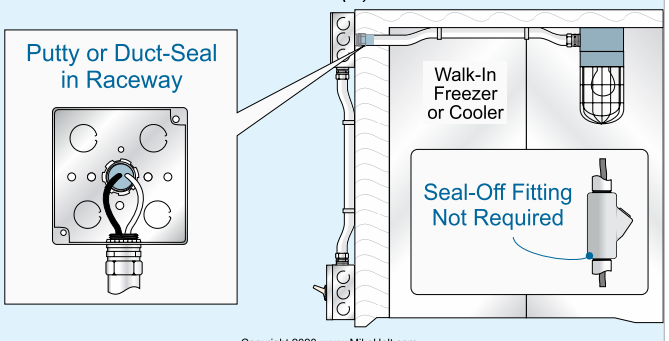
A good understanding of this article will start you on the path to correctly and safely installing the wiring methods included in Chapter 3. Be sure to carefully consider the accompanying illustrations and refer to the definitions in Article 100 as needed.

300.7 Raceways Exposed to Different Temperatures

Scan this QR code for a video of Mike explaining this topic; it's a sample from the videos that accompany this textbook.
www.MikeHolt.com/20UN1videos

(A) Sealing. If a raceway is subjected to different temperatures, and where condensation is known to be a problem, the raceway must be filled with a material approved by the authority having jurisdiction that will prevent the circulation of warm air to a colder section of the raceway. Sealants must be identified for use with cable insulation, conductor insulation, a bare conductor, a shield, or other components. ▸Figure 300–42

Raceways Exposed to Different Temperatures, Sealing *300.7(A)*



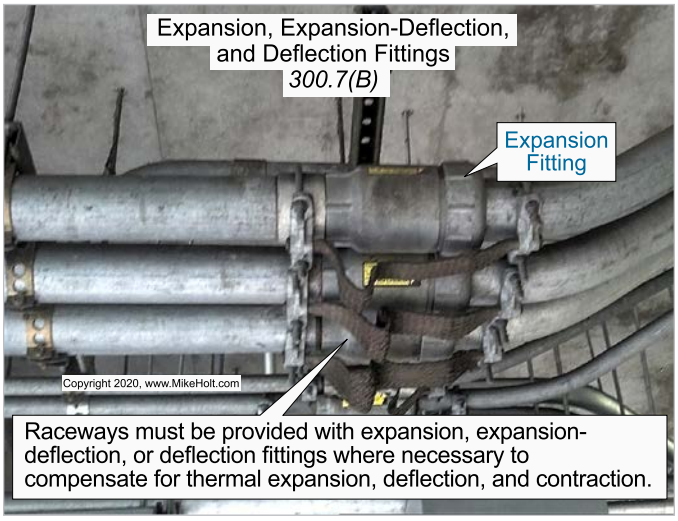
Raceways must be sealed to prevent the circulation of warm air to a colder section of the raceway or sleeve. Sealants must be identified for use with cable insulation, conductor insulation, a bare conductor, a shield, or other components.

▸Figure 300–42

Author's Comment:

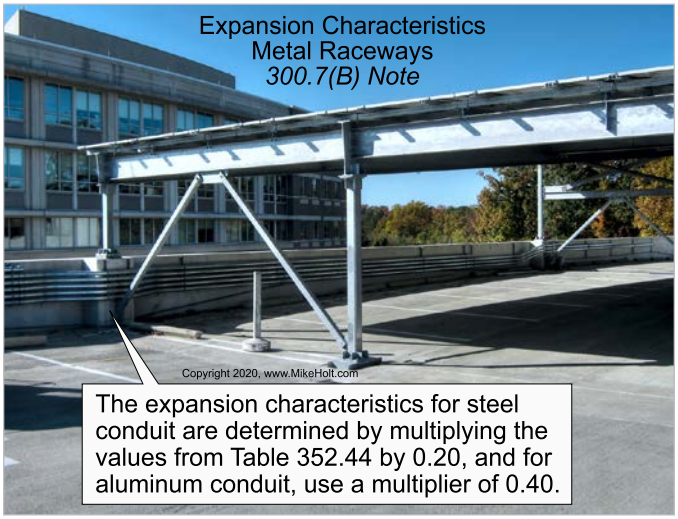
- One common product used for this is electrical duct seal and it is so identified. There are other identified products such as Polywater's FST Duct Sealant. Typical expanding foams used to seal buildings are not identified for this application.

(B) Expansion, Expansion-Deflection, and Deflection Fittings. Raceways must be provided with expansion, expansion-deflection, or deflection fittings where necessary to compensate for thermal expansion, deflection, and contraction. ▸Figure 300–43



▸Figure 300–43

Note: Table 352.44 provides the expansion characteristics for PVC conduit. The expansion characteristics for steel conduit are determined by multiplying the values from Table 352.44 by 0.20, and those for aluminum raceways are determined by multiplying the values from Table 352.44 by 0.40. Table 355.44 provides the expansion characteristics for reinforced thermosetting resin conduit (RTRC). ▸Figure 300–44



▸Figure 300–44