

# 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.

### 300.22 Wiring in Ducts and Plenum Spaces



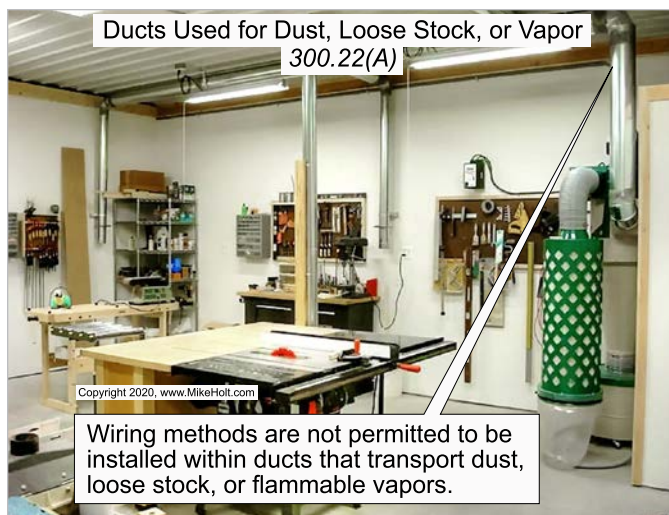
Scan this QR code for a video of Mike explaining this topic; it's a sample from the videos that accompany this textbook.  
[www.MikeHolt.com/20UN1videos](http://www.MikeHolt.com/20UN1videos)

This section applies to the installation and uses of electrical wiring and equipment in ducts used for dust, loose stock, or vapor removal; ducts specifically fabricated for environmental air; and plenum spaces used for environmental air.

**(A) Ducts Used for Dust, Loose Stock, or Vapor.** Wiring methods are not permitted to be installed in ducts that transport dust, loose stock, or flammable vapors. ▶Figure 300–90

**(B) Ducts Fabricated for Environmental Air.** Equipment is only permitted within a duct fabricated to transport environmental air if the equipment is necessary for the direct action upon, or sensing of, the contained air. ▶Figure 300–91

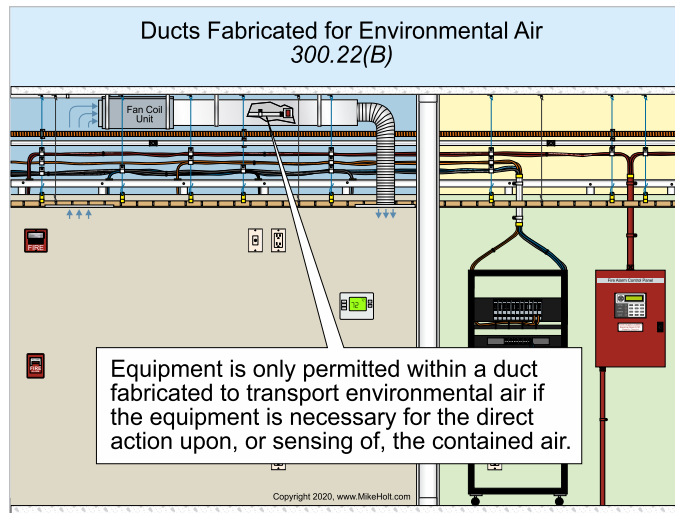
Type MC Cable without an overall nonmetallic covering and metal raceways can be installed in ducts fabricated to transport environmental air. Flexible metal conduit in lengths not exceeding 4 ft can be used to connect physically adjustable equipment and devices within the fabricated duct.



▶Figure 300–90

**(C) Plenum Spaces for Environmental Air.** This section applies only to the space above a suspended ceiling or below a raised floor used for environmental air. It does not apply to habitable rooms or areas of buildings, the prime purpose of which is not air handling.

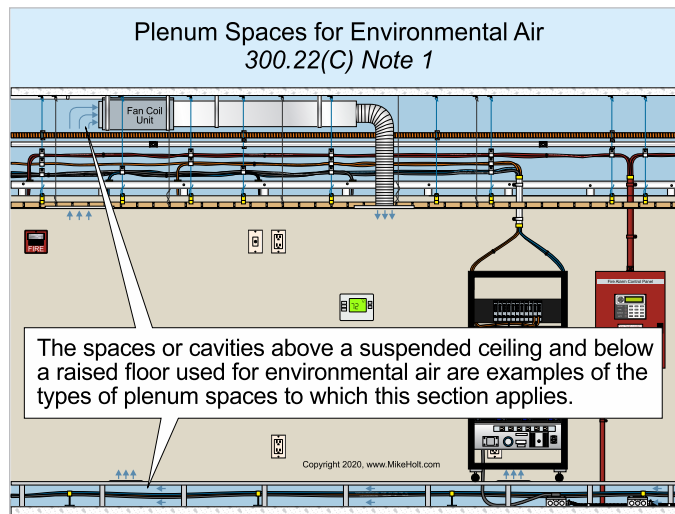
**Note 1:** The spaces or cavities above a suspended ceiling and below a raised floor used for environmental air are examples of the type of plenum space to which this section applies. ▶Figure 300–92



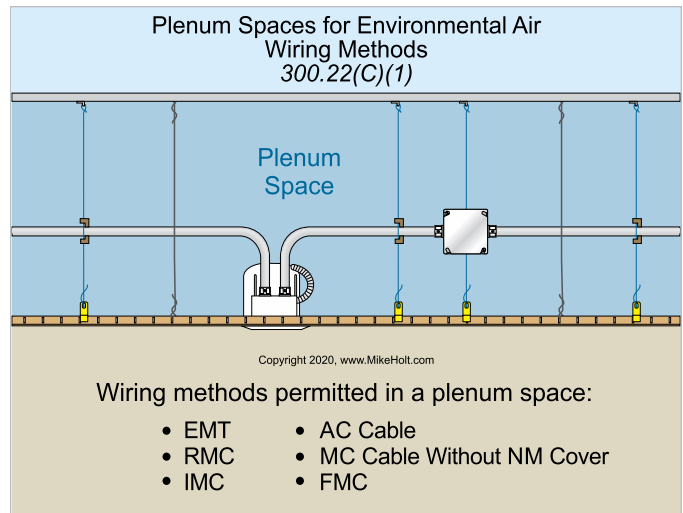
►Figure 300-91

**(1) Wiring Methods.** Metal raceways, Type AC cable, and Type MC cable without a nonmetallic cover, electrical metallic tubing, intermediate metal conduit, rigid metal conduit, flexible metal conduit, or (where accessible) surface metal raceways or metal wireways with metal covers. ►Figure 300-93

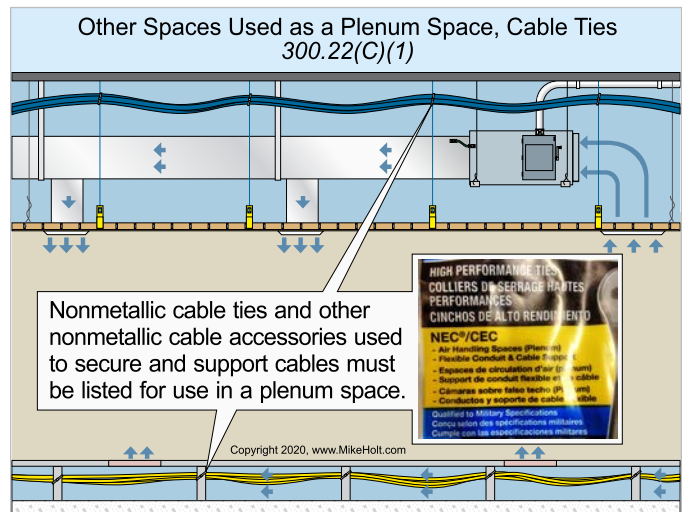
Cable ties for securing and supporting must be listed for use in a plenum space ►Figure 300-94



►Figure 300-92



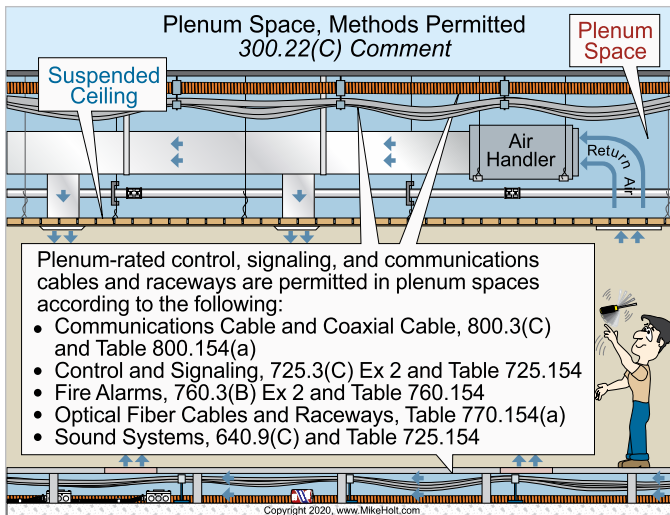
►Figure 300-93



►Figure 300-94

#### Author's Comment:

- Plenum-rated control, signaling, and communications cables and raceways are permitted in plenum spaces according to the following: ►Figure 300-95
  - Communications Cable and Coaxial Cable, 800.3(C) and Table 800.154(a)
  - Control and Signaling, 725.3(C) Ex 2 and Table 725.154
  - Fire Alarms, 760.3(B) Ex 2 and Table 760.154
  - Optical Fiber Cables and Raceways, Table 770.154(a)
  - Sound Systems, 640.9(C) and Table 725.154



►Figure 300-95

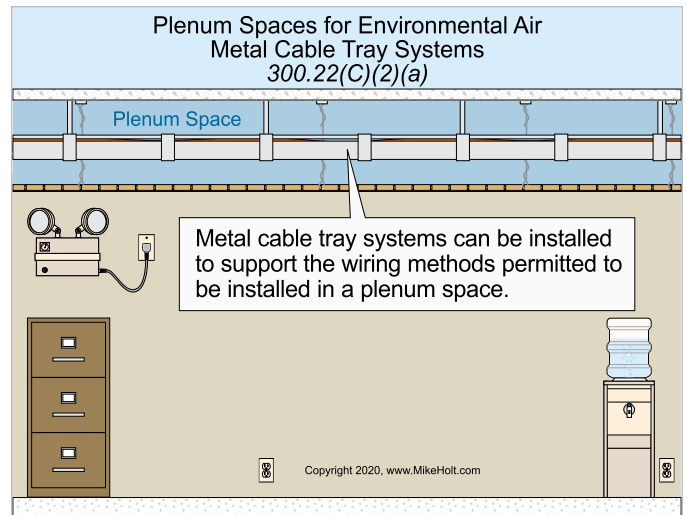
## (2) Cable Tray Systems.

**(a) Metal Cable Tray Systems.** Metal cable tray systems can be installed to support the wiring methods and equipment permitted to be installed in a plenum space. ►Figure 300-96

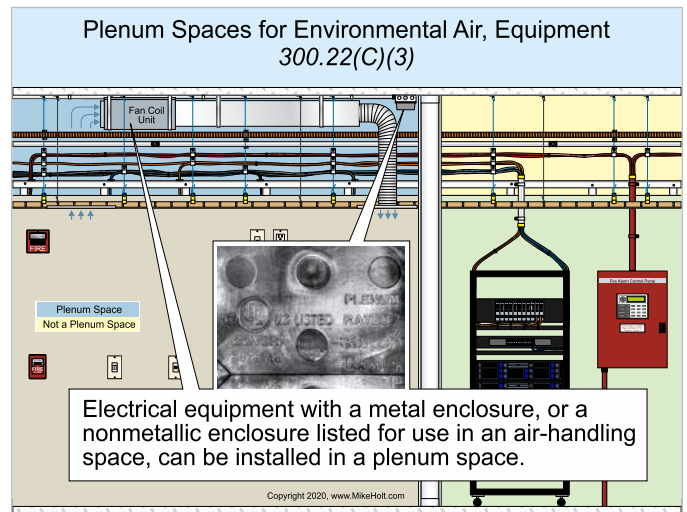
**(3) Equipment.** Electrical equipment with a metal enclosure or a nonmetallic enclosure listed for use in an air-handling space can be installed in a plenum space. ►Figure 300-97

### Author's Comment:

- Examples of electrical equipment permitted in plenum spaces are air handlers, junction boxes, and dry-type transformers; however, transformers are not permitted to be rated over 50 kVA when located in hollow spaces [450.13(B)].



►Figure 300-96



►Figure 300-97