ARTICLE
722

CABLES FOR POWER-LIMITED CIRCUITS

Introduction to Article 722—Cables for Power-Limited Circuits

This article contains the cabling requirements that are common to Class 2 power-limited circuits [Article 725] and power-limited fire alarm circuits [Article 760]. Power limited circuits are not considered a fire or electric shock hazard which allows some additional flexibility in the wiring methods and installation practices. Many of these rules are outside of the scope of this material, however, some of the topics we cover include the following:

- Scope
- Other articles
- Electrical equipment behind access panels
- Securing and support
- Abandoned cable
- Installation of power-limited cables
- Listing requirements

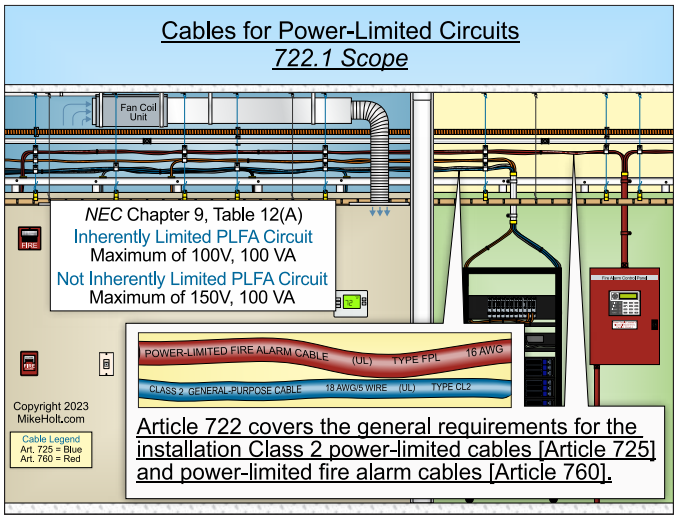
Part I. General

722.1 Scope

This article covers the general requirements for the installation Class 2 power-limited cables [Article 725] and power-limited fire alarm cables [Article 760]. ▸Figure 722–1

According to Article 100, a "Class 2 Power-Limited Circuit" is the portion of the wiring system between the load side of a power-limited power source or transformer and the connected Class 2 power-limited equipment. ▸Figure 722–2

According to Article 100, a "Power-Limited Fire Alarm Circuit" is defined as a fire alarm circuit powered by a power-limited source. ▸Figure 722–3



▸Figure 722–1

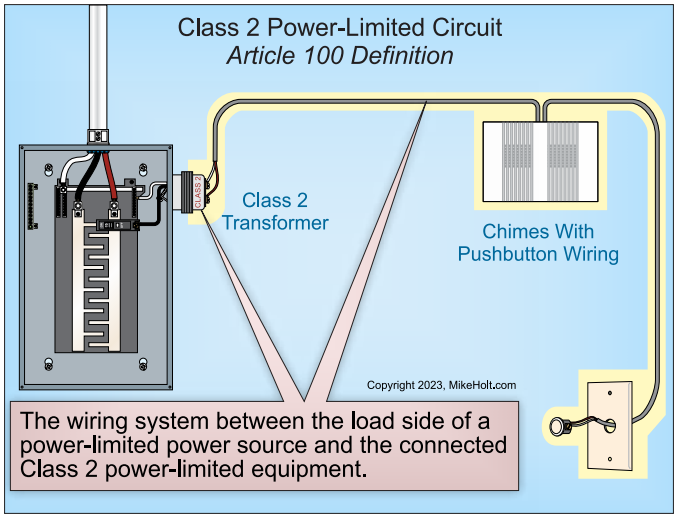


Figure 722–2

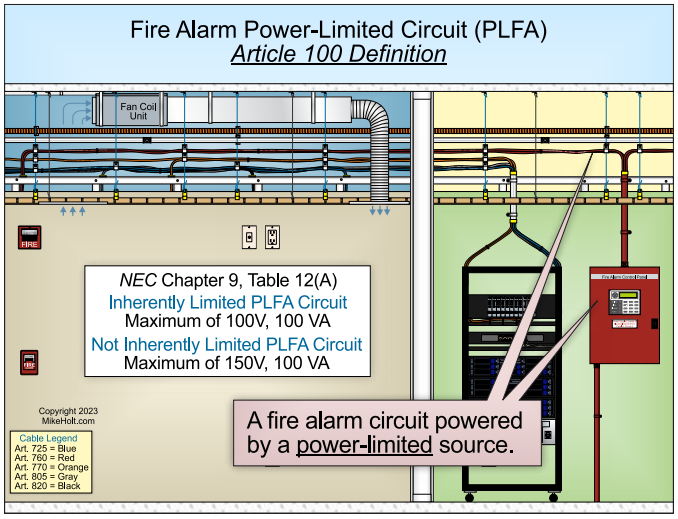


Figure 722–3

Author's Comment:

- Class 2 power-limited circuits are rendered safe by limiting the power source to 100 VA for circuits operating at 30V or less, and the current to 5 mA for circuits over 30V [725.60(A) and Chapter 9, Table 11(A)].
- Class 2 power-limited circuits typically include wiring for low-energy, low-voltage loads such as thermostats, programmable controllers, burglar alarms, and security systems. This type of circuit also includes twisted-pair or coaxial cable that interconnects computers for local area networks (LANs), power over ethernet applications (POEs), and programmable controller I/O circuits [725.60(A)(3) and 725.60(A)(4)].

722.3 Other Articles

In addition to the requirements of Article 722, circuits and equipment must comply with the articles or sections listed in 722.3(A) through (O). Only those sections contained in Article 300 specifically referenced below apply to cables for power-limited circuits. Figure 722–4

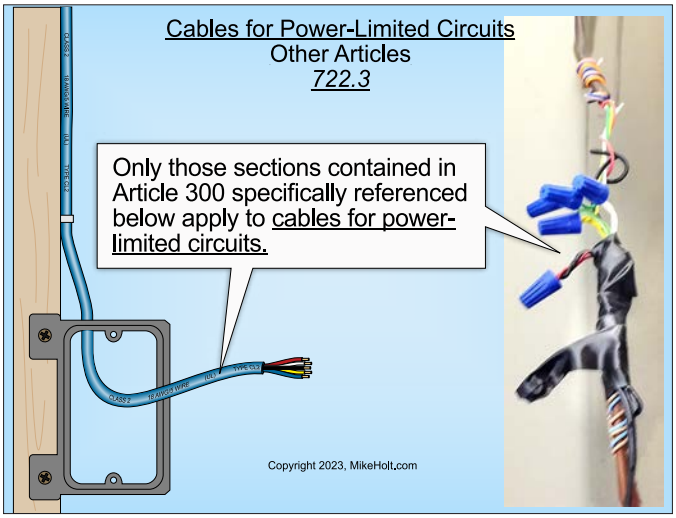


Figure 722–4

(A) Number and Size of Cables in a Raceway. The number and size of power-limited cables within a raceway are limited in accordance with 300.17. Figure 722–5

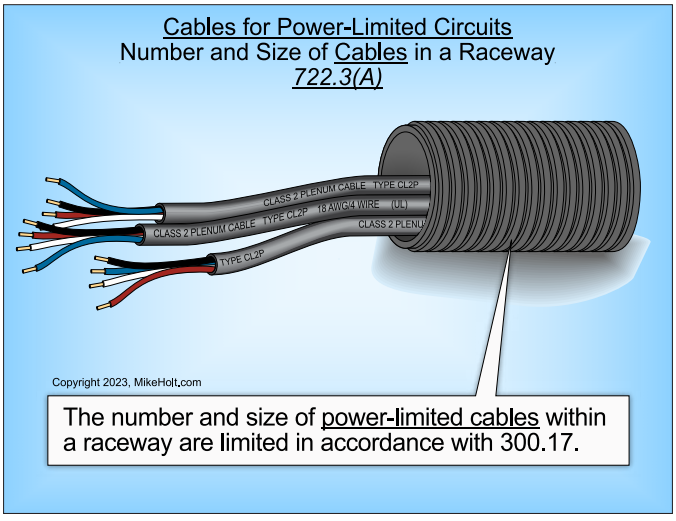


Figure 722–5

(B) Spread of Fire or Products of Combustion. Installation of power-limited circuits must comply with 300.21. Figure 722–6

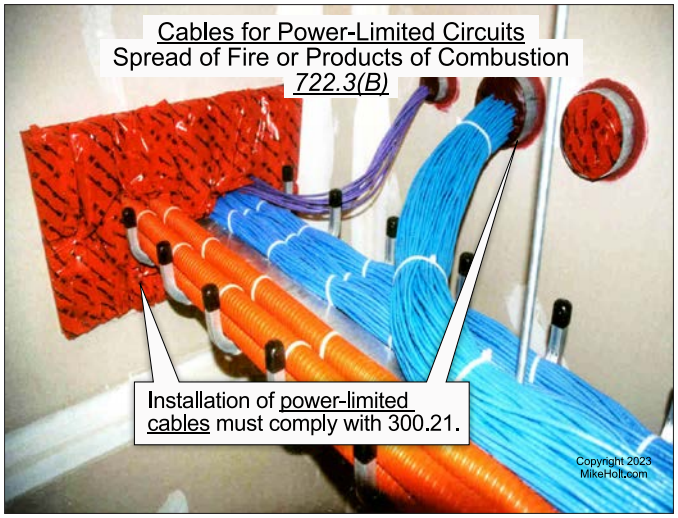


Figure 722–6

Author's Comment:

- Electrical circuits and equipment must be installed in such a way that the spread of fire or products of combustion will not be substantially increased. Openings into or through fire-resistive walls, floors, and ceilings for electrical equipment must be firestopped using methods approved by the authority having jurisdiction to maintain the fire-resistance rating of the fire-resistive assembly [300.21]. Figure 722–7

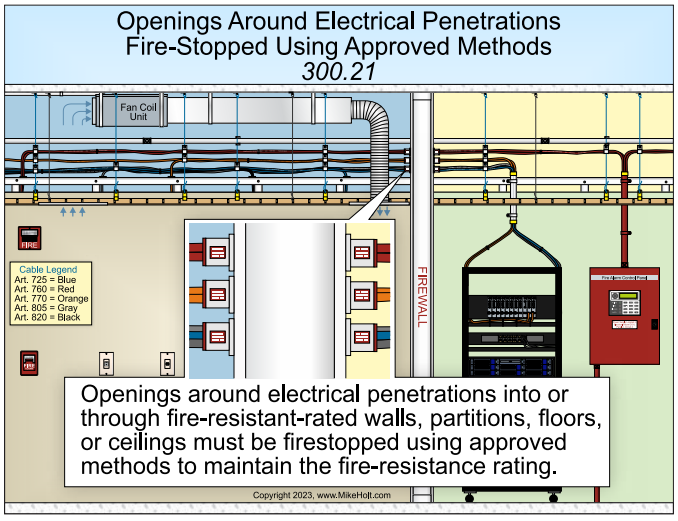


Figure 722–7

- Boxes installed in fire-resistive assemblies must be listed for the purpose. If steel boxes are used, they must be secured to the framing member, so cut-in type boxes are not permitted. "Putty pads" are typically installed on the exterior of the box, but many manufacturers have listed inserts for box interiors. Firestopping materials are listed for the specific types of wiring methods and the construction of the assembly they penetrate. Figure 722–8

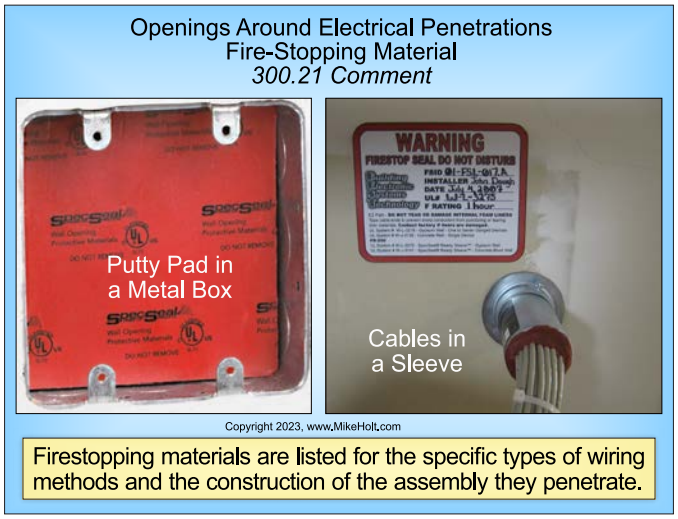


Figure 722–8

- Outlet boxes must have a horizontal separation of not less than 24 in. when installed on opposites sides in a fire-resistive assembly, unless an outlet box is listed for closer spacing or protected by fire-resistant "putty pads" in accordance with manufacturer's instructions. Building codes also have restrictions on penetrations on opposite sides of a fire-resistive wall. Figure 722–9 and Figure 722–10

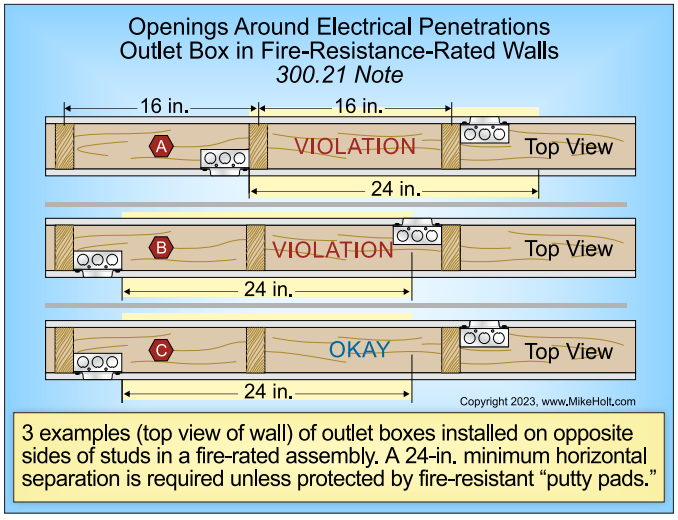


Figure 722–9