

have sufficient ampacity to carry the total load connected to the equipment rack and shall be protected by overcurrent devices.

### 640.23 Conduit or Tubing.

**(A) Number of Conductors.** The number of conductors permitted in a single conduit or tubing shall not exceed the percentage fill specified in Table 1, Chapter 9.

**(B) Nonmetallic Conduit or Tubing and Insulating Bushings.** The use of nonmetallic conduit or tubing and insulating bushings shall be permitted where a technical power system is employed and shall comply with applicable articles.

**640.24 Wireways, Gutters, and Auxiliary Gutters.** The use of metallic and nonmetallic wireways, gutters, and auxiliary gutters shall be permitted for use with audio signal conductors and shall comply with applicable articles with respect to permitted locations, construction, and fill.

**640.25 Loudspeaker Installation in Fire Resistance-Rated Partitions, Walls, and Ceilings.** Loudspeakers installed in a fire resistance-rated partition, wall, or ceiling shall be listed and labeled, or identified as speaker assemblies for fire resistance, or installed in an enclosure or recess that maintains the fire resistance rating.

Informational Note: Fire-rated construction is the fire-resistive classification used in building codes.

The enclosure must maintain the fire resistance rating of the wall or ceiling in which a flush-mounted loudspeaker is installed. Listed enclosures are available for this purpose. Site-built enclosures may be installed with the approval of the AHJ and have been used as a method to maintain the fire resistance rating of the wall or ceiling.

## Part III. Portable and Temporary Audio System Installations

While the equipment used for portable and temporary audio systems might not differ fundamentally from that used in permanent installations, the enclosures that serve as portable equipment racks must provide both transit protection and mechanical protection while the equipment is in use. Such enclosures can be constructed of metal, wood, plastic, or reinforced plastic construction. Nonmetallic construction enclosures frequently do not comply with EIA/ECA 310-D, *Cabinets, Racks, Panels, and Associated Equipment*.

**640.41 Multipole Branch-Circuit Cable Connectors.** Multipole branch-circuit cable connectors, male and female, for power-supply cords and cables shall be so constructed that tension on the cord or cable is not transmitted to the connections. The female half shall be attached to the load end of the power supply cord or cable. The connector shall be rated in amperes and designed so that differently rated devices cannot be

connected together. Alternating-current multipole connectors shall be polarized and comply with 406.7(A) and (B) and 406.10. Alternating-current or direct-current multipole connectors utilized for connection between loudspeakers and amplifiers, or between loudspeakers, shall not be compatible with nonlocking 15- or 20-ampere rated connectors intended for branch-circuit power or with connectors rated 250 volts or greater and of either the locking or nonlocking type. Signal cabling not intended for such loudspeaker and amplifier interconnection shall not be permitted to be compatible with multipole branch-circuit cable connectors of any accepted configuration.

Informational Note: See 400.14 for pull at terminals.

### 640.42 Use of Flexible Cords and Cables.

**(A) Between Equipment and Branch-Circuit Power.** Power supply cords for audio equipment shall be listed and shall be permitted to be used where the interchange, maintenance, or repair of such equipment is facilitated through the use of a power-supply cord.

**(B) Between Loudspeakers and Amplifiers, or Between Loudspeakers.** Installation of flexible cords and cables used to connect loudspeakers to each other or to an amplifier shall comply with Part I of Article 400 and Parts I, II, and III of Article 725, respectively. Cords and cables listed for portable use, either hard or extra-hard usage as defined by Article 400, shall also be permitted. Other listed cable types and assemblies, including optional hybrid communications, signal, and hybrid optical fiber cables, shall be permitted.

**(C) Between Equipment and/or Between Equipment Racks.** Installation of flexible cords and cables used for the distribution of audio signals between equipment shall comply with Parts I and II of Article 400 and Parts I, II, and III of Article 725, respectively. Cords and cables listed for portable use, either hard or extra-hard service as defined by Article 400, shall also be permitted. Other listed cable types and assemblies, including optional hybrid communications, signal, and hybrid optical fiber cables, shall be permitted.

**Δ (D) Between Equipment, Equipment Racks, and Power Supplies Other Than Branch-Circuit Power.** Wiring between the following power supplies, other than branch-circuit power supplies, shall be installed, connected, or wired in accordance with this *Code* for the voltage and power required:

- (1) Storage batteries
- (2) Transformers
- (3) Transformer rectifiers
- (4) Other ac or dc power supplies

**(E) Between Equipment Racks and Branch-Circuit Power.** The supply to a portable equipment rack shall be by means of listed extra-hard usage cords or cables, as defined in Table 400.4. For outdoor portable or temporary use, the cords or cables shall be further listed as being suitable for wet locations and sunlight