

(2) **In Factory- or Field-Assembled Control Centers.** Control circuits and power circuits shall be permitted to be installed in factory- or field-assembled control centers.

(3) **In a Manhole.** Control circuits and power circuits shall be permitted to be installed as underground conductors in a manhole in accordance with one of the following:

- (1) The power or control circuit conductors are in a metal-enclosed cable or Type UF cable
- (2) The conductors are permanently separated from the power conductors by a continuous fixed nonconductor, such as flexible tubing, in addition to the insulation on the wire
- (3) The conductors are permanently and effectively separated from the power conductors and securely fastened to racks, insulators, or other approved supports
- (4) In cable trays, where the control circuit conductors and power conductors not functionally associated with them are separated by a solid fixed barrier of a material compatible with the cable tray, or where the power or control circuit conductors are in a metal-enclosed cable

522.25 Ungrounded Control Circuits. Separately derived ac circuits and systems 50 volts or greater and 2-wire dc circuits and systems 60 volts or greater shall be permitted to be ungrounded, provided that all the following conditions are met:

- (1) Continuity of control power is required for orderly shutdown.
- (2) Ground detectors are installed on the control system.

522.28 Control Circuits in Wet Locations. Where wet contact is likely to occur, ungrounded 2-wire direct-current control circuits shall be limited to 30 volts maximum for continuous dc or 12.4 volts peak for direct current that is interrupted at a rate of 10 to 200 Hz.

ARTICLE 525

Carnivals, Circuses, Fairs, and Similar Events

Δ Part I. General

525.1 Scope. This article covers the installation of portable wiring and equipment for carnivals, circuses, fairs, and similar functions, including wiring in or on all structures.

Article 525 addresses the installation of portable wiring and equipment for temporary attractions, such as carnivals, circuses, and fairs. Article 525 is intended to apply to all wiring in or on portable structures, whereas Articles 518, 520, and 522 apply to permanent structures.

525.3 Other Articles.

(A) **Portable Wiring and Equipment.** Wherever the requirements of other articles of this *Code* and Article 525 differ, the requirements of Article 525 shall apply to the portable wiring and equipment.

(B) **Attractions Utilizing Pools, Fountains, and Similar Installations with Contained Volumes of Water.** This equipment shall be installed to comply with the applicable requirements of Parts I, II, III, and V of Article 680.

525.5 Overhead Conductor Clearances.

(A) **Vertical Clearances.** Conductors shall have a vertical clearance to ground in accordance with 225.18. These clearances shall apply only to wiring installed outside of tents and concessions.

(B) Clearance to Portable Structures.

(1) **600 Volts (or Less).** Portable structures shall be maintained not less than 4.5 m (15 ft) in any direction from overhead conductors operating at 600 volts or less, except for the conductors supplying the portable structure. Portable structures included in 525.3(B) shall comply with Table 680.9(A).

(2) **Over 600 Volts.** Portable structures shall not be located under or within a space that is located 4.5 m (15 ft) horizontally and extending vertically to grade of conductors operating in excess of 600 volts.

Portable structures, which include rides, attractions, and vendor booths, are not permitted in the area that extends 15 feet horizontally from the overhead conductors and down to grade level. Exhibit 525.1 depicts the restricted area.

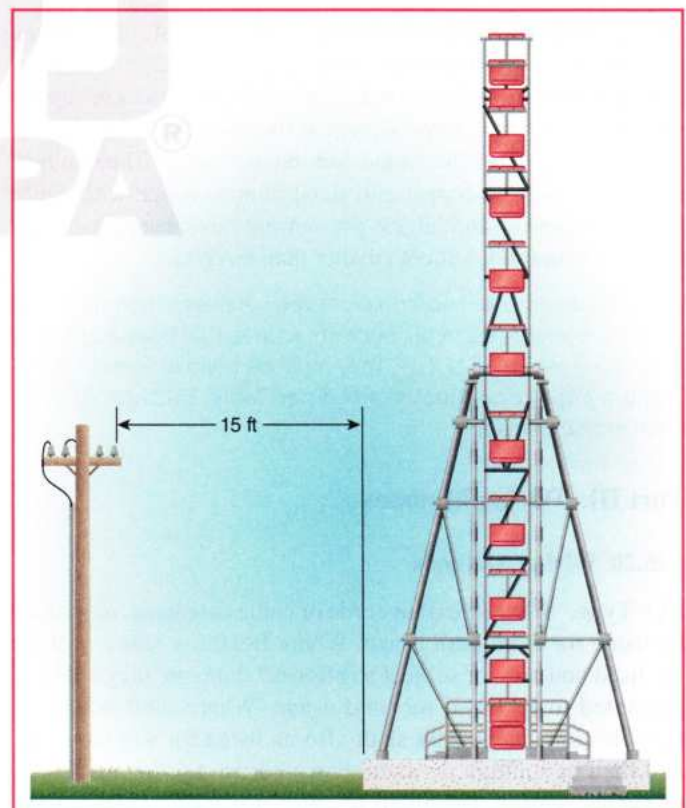


EXHIBIT 525.1 The separation distance required around overhead conductors.