

EXHIBIT 388.1 An example of a surface nonmetallic raceway, resembling base molding, that supplies a receptacle outlet on the top and CATV and communications on the bottom. (Courtesy of Legrand®).

- (1) The use of surface nonmetallic raceways shall be permitted in dry locations.
- (2) Extension through walls and floors shall be permitted. Surface nonmetallic raceway shall be permitted to pass transversely through dry walls, dry partitions, and dry floors if the length passing through is unbroken. Access to the conductors shall be maintained on both sides of the wall, partition, or floor.

388.12 Uses Not Permitted. Surface nonmetallic raceways shall not be used in the following:

- (1) Where concealed, except as permitted in 388.10(2)
- (2) Where subject to severe physical damage
- (3) Where the voltage is 300 volts or more between conductors, unless listed for higher voltage
- (4) In hoistways
- (5) In any hazardous (classified) location, except as permitted by other articles in this *Code*
- (6) Where subject to ambient temperatures exceeding those for which the nonmetallic raceway is listed
- (7) For conductors whose insulation temperature limitations would exceed those for which the nonmetallic raceway is listed

388.21 Size of Conductors. No conductor larger than that for which the raceway is designed shall be installed in surface nonmetallic raceway.

388.22 Number of Conductors or Cables. The number of conductors or cables installed in surface nonmetallic raceway shall not be greater than the number for which the raceway is designed. Cables shall be permitted to be installed where such use is not prohibited by the respective cable articles.

388.30 Securing and Supporting. Surface nonmetallic raceways and associated fittings shall be supported in accordance with the manufacturer's installation instructions.

388.56 Splices and Taps. Splices and taps shall be permitted in surface nonmetallic raceways having a cover capable of being opened in place that is accessible after installation. The conductors, including splices and taps, shall not fill the raceway to more than 75 percent of its area at that point. Splices and taps in surface nonmetallic raceways without covers capable of being opened in place shall be made only in boxes. All splices and taps shall be made by approved methods.

Δ **388.60 Grounding.** Where equipment grounding is required, a separate grounding conductor shall be installed in the raceway.

388.70 Combination Raceways. When combination surface nonmetallic raceways are used both for signaling and for lighting and power circuits, the different systems shall be run in separate compartments identified by stamping, imprinting, or color coding of the interior finish.

Part III. Construction Specifications

388.100 Construction. Surface nonmetallic raceways shall be of such construction as will distinguish them from other raceways. Surface nonmetallic raceways and their elbows, couplings, and similar fittings shall be designed so that the sections can be mechanically coupled together and installed without subjecting the wires to abrasion.

Surface nonmetallic raceways and fittings are made of suitable nonmetallic material that is resistant to moisture and chemical atmospheres. It shall also be flame retardant, resistant to impact and crushing, resistant to distortion from heat under conditions likely to be encountered in service, and resistant to low-temperature effects.

388.120 Marking. Surface nonmetallic raceways that have limited smoke-producing characteristics shall be permitted to be so identified. Each length of surface nonmetallic raceway shall be clearly and durably identified as required in the first sentence of 110.21(A).

ARTICLE

390

Underfloor Raceways

Part I. General

390.1 Scope. This article covers the use and installation requirements for underfloor raceways.

An underfloor raceway is a practical means of bringing light, power, and signal and communications systems to desks, work

benches, or tables that are not located adjacent to wall space. This wiring method offers flexibility in layout when used with movable partitions and is commonly used in large retail stores and office buildings to supply power at any desired location.

Underfloor raceways are permitted beneath the surface of concrete, wood, or other flooring material. The wiring method between raceway junction boxes and cabinets or outlet boxes may be any appropriate Chapter 3 wiring method.

Article 390 for the 2020 edition was reorganized into two parts and renumbered to align with parallel numbering of similar articles in Chapter 3.

Part II. Installation

390.10 Uses Permitted. The installation of underfloor raceways shall be permitted beneath the surface of concrete or other flooring material or in office occupancies where laid flush with the concrete floor and covered with linoleum or equivalent floor covering.

390.12 Uses Not Permitted. Underfloor raceways shall not be installed (1) where subject to corrosive vapors or (2) in any hazardous (classified) locations, except as permitted by 504.20 and in Class I, Division 2 locations as permitted in 501.10(B)(3). Unless made of a material approved for the condition or unless corrosion protection approved for the condition is provided, metal underfloor raceways, junction boxes, and fittings shall not be installed in concrete or in areas subject to severe corrosive influences.

390.15 Covering. Raceway coverings shall comply with 390.15(A) through (D).

As Exhibit 390.1 illustrates, flat-top underfloor raceways over 4 inches wide and spaced less than 1 inch apart must be covered with at least 1½ inches of concrete.

Approved trench-type underfloor raceways may be installed flush with the floor surface, provided they have covers that

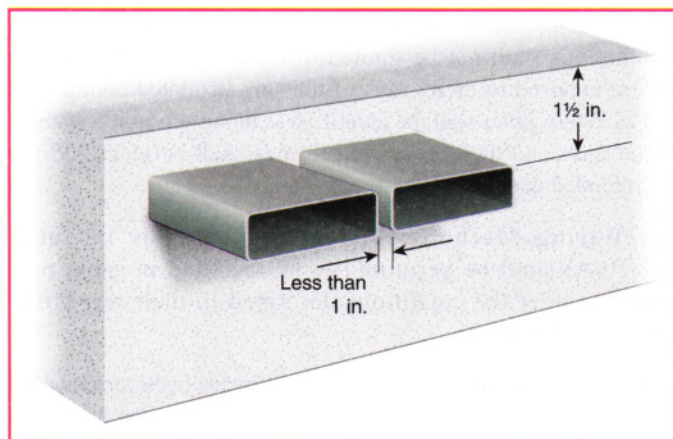


EXHIBIT 390.1 Two side-by-side underfloor raceways over 4 inches wide installed with the required covering.

provide protection at least equal to those of junction box covers. Approved metal flat-top underfloor raceways, if not over 4 inches wide, may be installed flush with a concrete floor, provided they are equipped with covers that afford mechanical protection and rigidity equal to or exceeding that of junction box covers.

(A) Raceways Not over 100 mm (4 in.) Wide. Half-round and flat-top raceways not over 100 mm (4 in.) in width shall have not less than 20 mm (¾ in.) of concrete or wood above the raceway.

Exception: As permitted in 390.15(C) and (D) for flat-top raceways.

(B) Raceways over 100 mm (4 in.) Wide But Not over 200 mm (8 in.) Wide. Flat-top raceways over 100 mm (4 in.) but not over 200 mm (8 in.) wide with a minimum of 25 mm (1 in.) spacing between raceways shall be covered with concrete to a depth of not less than 25 mm (1 in.). Raceways spaced less than 25 mm (1 in.) apart shall be covered with concrete to a depth of 38 mm (1½ in.).

(C) Trench-Type Raceways Flush with Concrete. Trench-type flush raceways with removable covers shall be permitted to be laid flush with the floor surface. Such approved raceways shall be designed so that the cover plates provide adequate mechanical protection and rigidity equivalent to junction box covers.

(D) Other Raceways Flush with Concrete. In office occupancies, approved metal flat-top raceways, if not over 100 mm (4 in.) in width, shall be permitted to be laid flush with the concrete floor surface, provided they are covered with substantial linoleum that is not less than 1.6 mm (⅙ in.) thick or with equivalent floor covering. Where more than one and not more than three single raceways are each installed flush with the concrete, they shall be contiguous with each other and joined to form a rigid assembly.

390.20 Size of Conductors. No conductor larger than that for which the raceway is designed shall be installed in underfloor raceways.

390.22 Maximum Number of Conductors in Raceway. The combined cross-sectional area of all conductors or cables shall not exceed 40 percent of the interior cross-sectional area of the raceway.

390.23 Ampacity of Conductors. The ampacity adjustment factors in 310.15(C) shall apply to conductors installed in underfloor raceways.

390.56 Splices and Taps. Splices and taps shall be made only in junction boxes.

For the purposes of this section, so-called loop wiring (continuous, unbroken conductor connecting the individual outlets) shall not be considered to be a splice or tap.

Exception: Splices and taps shall be permitted in trench-type flush raceway having a removable cover that is accessible after