

## Chapter E 354

## UNDERFLOOR RACEWAYS

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**E 354.01 Other chapters.** Installations of underfloor raceways shall comply with the applicable provisions of chapter E 300.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.02 Use.** Underfloor raceways may be installed 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. Underfloor raceways shall not be installed (1) where subject to corrosive vapors nor (2) in any hazardous location. Unless made of a material judged suitable for the condition, or unless corrosion protection approved for the condition is provided, ferrous or nonferrous metallic underfloor raceways, junction boxes, and fittings shall not be installed in concrete or in direct contact with the earth, or in areas subject to severe corrosive influences.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.03 Covering.** Raceway coverings shall conform to the following:

(1) **RACEWAYS NOT OVER 4 INCHES WIDE.** Half-round raceways not over 4 inches in width, and, except as permitted in (3) of this rule, flat-top raceways not over 4 inches in width, shall have not less than  $\frac{3}{4}$  inches of concrete or wood above the raceway.

(2) **RACEWAYS 4 INCHES WIDE BUT NOT OVER 8 INCHES WIDE.** Flat top raceways 4 inches wide with a minimum of 1 inch spacing between raceways shall be covered with concrete to a depth of not less than 1 inch. Raceways spaced less than 1 inch apart shall be covered with concrete to a depth of  $1\frac{1}{2}$  inches.

(3) **RACEWAYS FLUSH WITH CONCRETE.** Approved flush raceways with removable covers may be laid flush with the floor surface. Such approved raceways shall be so designed that the cover plates will provide adequate mechanical protection and rigidity equivalent to junction box covers.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.04 Size of conductors.** No conductor larger than that for which the raceway is approved shall be installed in underfloor raceways and the largest size conductor allowed shall be 500,000 cm.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.05 Number of conductors in raceway.** The combined cross-sectional area of all conductors shall not exceed 40% of the interior area of the raceway; except that where the raceway contains only armored cable or non-metallic sheathed cable, these requirements shall not apply.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.06 Splices and taps.** Splices or 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) is not considered to be a splice or tap.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.07 Discontinued outlets.** When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors such as would be the case with abandoned outlets on loop wiring, shall be allowed in raceways.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.08 Laid in straight lines.** Underfloor raceways shall be laid so that a straight line from the center of one junction box to the center of the next junction box will coincide with the center line of the raceway system. Raceways shall be firmly held in place to prevent disturbing this alignment during construction.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.09 Markers at ends.** At every end of line of raceway, and at other locations where the location of the raceway is not apparent, a suitable number of markers shall be installed extending through the floor for future location of inserts for system identification.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.10 Dead ends.** Dead ends of raceways shall be closed.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.11 Low points.** Where practicable, raceways and their fittings shall be so arranged as to avoid low points that may form traps for water.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.12 Fittings at angles.** Where raceways are run at other than right angles, special fittings shall be provided.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.13 Junction boxes.** Junction boxes shall be leveled to the floor grade and sealed against the entrance of water. Junction boxes used with metal raceways shall be metal and shall be electrically continuous with the raceways.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.14 Inserts.** Inserts shall be leveled to the floor grade and sealed against the entrance of water. Inserts used with metal raceways shall be metal and shall be electrically continuous with the raceways. Inserts set in or on fiber raceways before the floor is laid shall be mechanically secured to the raceway. Inserts set in fiber raceways

after the floor is laid shall be screwed into the raceway. In cutting through the raceway wall and setting inserts, chips and other dirt shall not be allowed to fall into the raceway, and tools shall be used which are so designed as to prevent the tool from entering the raceway and injuring conductors that may be in place.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.

**E 354.15 Connections to cabinets and wall outlets.** Connections between raceways and distribution centers and wall outlets shall be made by means of rigid or flexible metal conduit or by means of fittings specially approved for the purpose.

**History:** Cr. Register, January, 1968, No. 145, eff. 2-1-68.