

## Chapter E 354

## UNDERFLOOR RACEWAYS

E 354.01	Other chapters	E 354.09	Laid in straight lines
E 354.02	Use	E 354.10	Markers at ends
E 354.03	Covering	E 354.11	Dead ends
E 354.04	Size of conductors	E 354.12	Low points
E 354.05	Number of conductors in raceway	E 354.13	Fittings at angles
E 354.06	Splices and taps	E 354.14	Junction boxes
E 354.07	Discontinued outlets	E 354.15	Inserts
E 354.08	Open-bottom raceway; how laid	E 354.16	Connections to cabinets and wall outlets
		E 354.17	Boxes and fittings

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

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**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. Open-bottom type of raceways may be installed in concrete fill between the rough and the finished floor only. Underfloor raceways shall not be installed (1) where subject to corrosive vapors nor (2) in any hazardous location.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**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 OVER 4 INCHES IN WIDTH OR WITH LESS THAN  $\frac{1}{2}$  INCH SEPARATION. Flat-top raceways over 4 inches in width or raceways of any width placed less than  $\frac{1}{2}$  inch apart, shall be covered with concrete to a depth of not less than  $1\frac{1}{2}$  inches.

(3) RACEWAYS FLUSH WITH CONCRETE. In office occupancies, approved metal flat-top raceways if not over 4 inches in width may be laid flush with the concrete floor surface provided they are covered with substantial linoleum not less than  $\frac{1}{8}$  inch in thickness or with equivalent floor covering. Where more than one and not more than 3 single raceways are each installed flush with the concrete, they must be (a) contiguous with each other and joined to form a rigid assembly, or (b) spaced not less than  $\frac{1}{2}$  inch apart.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**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, April, 1964, No. 100, eff. 5-1-64.

**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, April, 1964, No. 100, eff. 5-1-64.

**E 354.06 Splices and taps.** Splices or taps shall be made only in junction boxes.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.07 Discontinued outlets.** When an outlet is discontinued, the conductors supplying the outlet shall be removed from the raceway.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.08 Open-bottom raceway; how laid.** Open-bottom raceways shall be mechanically secured to the concrete pad. Open-bottom raceways shall be laid on a smooth pad of concrete extending at least 1 inch on each side of the raceway and at least 1 inch thick.

(1) **EXCEPTION NO. 1.** This thickness may be reduced to  $\frac{1}{4}$  inch where the raceway crosses a run of conduit.

(2) **EXCEPTION NO. 2.** That in lieu of a concrete pad, fittings which will protect the conductors from contact with piping, structural steel and other obstructions may be used.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.09 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, April, 1964, No. 100, eff. 5-1-64.

**E 354.10 Markers at ends.** At every end of line of raceway, a fitting shall be installed extending through the surface of the floor to mark the line of the duct. Where a duct line is interrupted by another duct line, but continues in a straight line beyond, and has junction boxes or outlets on either side of the crossing line, no markers are necessary at the interrupting point.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.11 Dead ends.** Dead ends of raceways shall be closed.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.12 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, April, 1964, No. 100, eff. 5-1-64.

**E 354.13 Fittings at angles.** Where raceways are run at other than right angles, special fittings shall be provided, when in the judgment of the administrative authority, these are necessary.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.

**E 354.14 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, April, 1964, No. 100, eff. 5-1-64.

**E 354.15 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, April, 1964, No. 100, eff. 5-1-64.

**E 354.16 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, April, 1964, No. 100, eff. 5-1-64.

**E 354.17 Boxes and fittings.** See chapter E 370.

**History:** Cr. Register, April, 1964, No. 100, eff. 5-1-64.