

Breaks in the mechanical continuity of cable tray systems are permitted and often occur at tees, crossovers, elevation changes, or firestops, or for thermal contraction and expansion. Also, cable tray systems are not required to be mechanically connected to the equipment they serve.

(B) Completed Before Installation. Each run of cable tray shall be completed before the installation of cables.

(C) Covers. In portions of runs where additional protection is required, covers or enclosures providing the required protection shall be of a material that is compatible with the cable tray.

Δ (D) Through Partitions and Walls. Cable trays shall be permitted to extend transversely through partitions and walls or vertically through platforms and floors in wet or dry locations where the installations, complete with installed cables, are made in accordance with 300.21.

(E) Exposed and Accessible. Cable trays shall be exposed and accessible, except as permitted by 392.18(D).

(F) Adequate Access. Sufficient space shall be provided and maintained about cable trays to permit adequate access for installing and maintaining the cables.

Δ (G) Raceways, Cables, Boxes, and Conduit Bodies Supported from Cable Tray Systems. In industrial facilities where conditions of maintenance and supervision ensure that only qualified persons service the installation and where the cable tray systems are designed and installed to support the load, such systems shall be permitted to support raceways and cables, and boxes and conduit bodies covered in 314.1. For raceways terminating at the tray, a listed cable tray clamp or adapter shall be used to securely fasten the raceway to the cable tray system. Additional supporting and securing of the raceway shall be in accordance with the appropriate raceway article. For raceways or cables running parallel to and attached to the bottom or side of a cable tray system, fastening and supporting shall be in accordance with the appropriate raceway or cable article.

For boxes and conduit bodies attached to the bottom or side of a cable tray system, fastening and supporting shall be in accordance with 314.23.

Conduit and cable termination supports as well as outlet boxes are permitted to be supported solely by the cable tray in qualifying industrial facilities only. These items are not permitted to be supported solely by the cable tray in commercial installations.

For commercial installations (and nonqualifying industrial facilities), conduit must be supported within 3 feet of the cable tray, or within 5 feet if structural members do not permit fastening within 3 feet of the cable tray. Cables connecting to equipment outside the cable tray system must be supported according to their respective *NEC*® articles.

(H) Marking. Cable trays containing conductors operating over 600 volts shall have a permanent, legible warning notice carrying the wording “DANGER — HIGH VOLTAGE — KEEP AWAY” placed in a readily visible position on all cable trays, with the

spacing of warning notices not to exceed 3 m (10 ft). The danger marking(s) or labels shall comply with 110.21(B).

Exception: Where not accessible (as applied to equipment), in industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation, cable tray system warning notices shall be located where necessary for the installation to ensure safe maintenance and operation.

392.20 Cable and Conductor Installation.

(A) Multiconductor Cables Operating at 1000 Volts or Less. Multiconductor cables operating at 1000 volts or less shall be permitted to be installed in the same tray.

(B) Cables Operating at Over 1000 Volts. Cables operating at over 1000 volts and those operating at 1000 volts or less installed in the same cable tray shall comply with either of the following:

- (1) The cables operating at over 1000 volts are Type MC.
- (2) The cables operating at over 1000 volts are separated from the cables operating at 1000 volts or less by a solid fixed barrier of a material compatible with the cable tray.

(C) Connected in Parallel. Where single conductor cables comprising each phase, neutral, or grounded conductor of an alternating-current circuit are connected in parallel as permitted in 310.10(G), the conductors shall be installed in groups consisting of not more than one conductor per phase, neutral, or grounded conductor to prevent current imbalance in the paralleled conductors due to inductive reactance.

Single conductors shall be securely bound in circuit groups to prevent excessive movement due to fault-current magnetic forces unless single conductors are cabled together, such as triplexed assemblies.

(D) Single Conductors. Where any of the single conductors installed in ladder or ventilated trough cable trays are 1/0 through 4/0 AWG, all single conductors shall be installed in a single layer. Conductors that are bound together to comprise each circuit group shall be permitted to be installed in other than a single layer.

392.22 Number of Conductors or Cables.

(A) Number of Multiconductor Cables, Rated 2000 Volts or Less, in Cable Trays. The number of multiconductor cables, rated 2000 volts or less, permitted in a single cable tray shall not exceed the requirements of this section. The conductor sizes shall apply to both aluminum and copper conductors. Where dividers are used, fill calculations shall apply to each divided section of the cable tray.

Δ (1) Ladder or Ventilating Trough Cable Trays Containing Any Mixture of Cables. Where ladder or ventilating trough cable trays contain multiconductor power or lighting cables, or any mixture of multiconductor power, lighting, control, and