
DIRECTIVE 16-4

Issue date: April 2019

RACEWAY SYSTEMS

1. General
 - a. All circuits shall be run in raceway or be metal-clad cable (MC Cable).
 - b. A full sized insulated copper equipment grounding conductor is required in all raceways or metal-clad cable.
 - c. A pull cord shall be provided in all spare and empty raceways.
 - d. Raceway homeruns shall be 3/4" minimum.
 - e. Feeder and branch circuit junction boxes shall be labeled by voltage, size, panel of origin, and load served.
 - f. This Directive applies to all power and fire alarm systems wiring. If data and communications cabling is to be installed in raceway, this Directive's requirements should be followed.
 - g. Painting of any cabling which is not installed in raceway is strictly prohibited. In Pre Bid phase submission coordinate editing of the Division 9 "Painting and Coating" specifications to confirm this prohibition.
2. Raceway Schedule
 - a. Galvanized Rigid Steel (GRS) Conduit:
 - (1) GRS Conduit shall be used in areas below 10 foot above finished floors in: Mechanical rooms, Fire Pump rooms and loading docks.
 - (2) GRS Conduit shall be used in areas that are wet, damp or hazardous as defined in the National Electrical Code (NEC).
 - (3) GRS Conduit shall be used in areas where it is exposed and subject to physical damage, such as equipment storage rooms.
 - b. Electrical Metallic Tubing (EMT): May be used in the following locations:
 - (1) Branch circuits or feeders concealed above suspended ceilings.
 - (2) Branch circuits or feeders concealed in hollow areas in dry locations.

- (3) Branch circuits or feeders in exposed locations at elevations at 10 foot or more above finished floor.
- c. Metal-Clad Cable (MC Cable):
- (1) The use of metal-clad cable shall be discussed with the Campus and verified that it is acceptable for each project.
 - (2) Metal-clad cable may be used for branch circuits, when concealed above ceilings and in walls and partitions, except for homerun circuits to an electrical panelboard.
 - (3) Raceway from the electrical panelboard shall be provided to a junction box located above the ceiling in the area that the branch circuit serves. Metal-clad cable may be used from this junction box for lighting fixtures, lighting control devices, general use receptacles and for other similar 20A branch circuits.
- d. Flexible Metal Conduit (FMC):
- (1) Use for final connections to equipment subject to vibration (dry locations), or equipment requiring flexible connection for adjustment or alignment (dry locations).
 - (2) May be used for concealed branch circuits or feeders where conduit must be fished through inaccessible spaces.
- e. Liquidtight Flexible Metal Conduit (LFMC): Same use applications as for FMC except in damp or wet locations.
- f. Surface Metal Raceway: May be used as an exposed raceway system in finished spaces.
- g. Metallic Wireways: May be used in locations for exposed raceway between grouped, wall-mounted equipment.
- h. Chrome Plated or Stainless Steel Conduit: May be used in operating, autopsy, and x-ray rooms, where conduit is to be installed exposed.
- i. Aluminum Conduit: May be used where nonferrous material is desired.
- j. Rigid Polyvinyl Chloride Conduit (PVC): To be used for below grade applications.

- (1) Direct buried shall be schedule 80.
- (2) Encased in reinforced concrete shall be schedule 40.
- k. Plastic Coated Galvanized Rigid Steel: To be used for corrosive environments applications.
- l. Flexible Nonmetallic Conduit, Flexible Nonmetallic Tubing, Flexible Metal Tubing and Armored Cable (Type AC or BX), generally not permitted.
- m. Concrete Slabs:
 - (1) Below or within concrete slabs, utilize PVC or plastic coated GRS conduit.
 - (2) Sweeps and penetrations through the concrete slab shall be with GRS conduit.
- n. Fittings for Conduit, Tubing and Metal-Clad Cable:
 - (1) Galvanized rigid steel, flexible metal and liquidtight flexible metal conduits shall have threaded steel insulated bushings and throats.
 - (2) Electrical metallic tubing shall have steel, set-screw fittings with insulated bushings and throats.
 - (3) Metal-clad cable fittings shall be clamp-type with malleable iron locknuts and have an insulated throat bushing.

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