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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