

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

1. GENERAL INFORMATION

- 1.1 This section applies to raceways, junction boxes, pull boxes and outlet boxes.

2. DESIGN REQUIREMENTS

- 2.1 All conductors shall be installed in conduits.
- 2.2 All raceways shall be installed concealed except in unfinished areas.
- 2.3 All raceways shall be installed above all other utilities, wherever possible.
- 2.4 All raceways shall be run parallel or at right angles to building structural elements.

3. CONSTRUCTION REQUIREMENTS

- 3.1 Unless otherwise required by Code, raceway utilization shall be as follows:
- a. Rigid Steel Conduit
 - 1. All buried conduits, in concrete slabs or in the ground under building construction unless otherwise noted. Where in contact with gravel or earth, conduit shall have a bitumastic coating.
 - 2. Underground conduits 5'-0" on either side of foundation wall or grade beam.
 - 3. Elbows and stub ups through floor slabs from underground raceways.
 - 4. Exposed conduits in mechanical rooms, loading docks, or where subject to physical damage, below 10'-0" A.F.F.
 - 5. All wet and outdoor locations.
 - 6. Classified hazardous locations as per NEC.
 - 7. All feeders over 600 volts.
 - b. Electrical Metallic Tubing (EMT)
 - 1. Feeder and Branch circuits installed within the building except in concrete slabs.
 - 2. Low-voltage temperature control, public address, fire alarm, security system and other signal system wiring installed within the building except in concrete slabs.
 - c. Flexible Metal Conduit
 - 1. Connections to recessed lighting fixtures (maximum 6'-0").
 - 2. Final connections to all interior transformers (maximum 3'-0").
 - 3. Final connections to exposed interior fan motors. (maximum 3'-0").
 - d. Liquid-Tight Flexible Metal Conduit
 - 1. Exterior locations or where exposed to outdoor environment.

2. Moisture or humidity laden atmosphere, or wherever there is a possibility of seepage, leakage, dripping or other exposure to oil or water.
 3. Final connections to all exterior transformers (maximum 3'-0").
 4. Final connections to HVAC motors (internal to equipment) and all generators. (maximum 3'-0").
- e. Rigid Non-Metallic Conduit
1. All buried conduits in concrete envelopes (ductbanks) beyond building perimeter, except RGS at stub-ups to equipment and 5'-0" either side of pavements, foundation walls, manholes, handholes and grade beams.
 2. Site lighting conduits, except RGS at stub-ups to panels and 5' on either side of pavements, foundation walls, manholes, handhole and grade beams.
 3. Electric service conduits for Con Edison service shall be fiberglass reinforced conduit (FRE) from the service end box to 1'-0" beyond the property line. FRE shall be encased in concrete within building.
- 3.2 Raceway fittings shall be:
- a. RGS – Threaded couplings.
 - b. EMT – Steel compression type with insulated throats.
 - c. MC Cable – Steel.
- 3.3 Boxes shall be:
- | <u>Location</u> | <u>Type</u> |
|---|------------------------------|
| Outlet - concealed or exposed in dry location | Galvanized pressed steel |
| Outlet - exposed in damp location | Cast type with thread hubs |
| Pull or Splice - concealed or exposed in dry location | Galvanized pressed steel |
| Pull or Splice - exposed in damp location | Cast type with threaded hubs |
- 3.4 Pull Box Spacing
- a. Provide pull boxes where individual conduit runs contain not more than equivalent of three (3) right angle bends (270 degrees, total).
- 3.5 Provide sleeves for all wall and floor penetrations.
- 3.6 All penetrations through rated walls and floors shall be firestopped.
- 3.7 Pull strings shall be specified for all empty conduits.

4. END OF SECTION