

SECTION 16100

ELECTRICAL RACEWAYS

1. GENERAL

1.01 SCOPE

- A. Furnish and install all conduit, conduit clamps, conduit bodies, conduit fittings, through-the-wall conduit seals, liquid-tight flexible connections, and hardware required to provide the complete raceway systems as shown on the drawings, and as specified.

1.02 RELATED WORK

- A. Section 16000 - Electrical General
- B. Section 16025 - General Electrical Procedures

1.03 QUALITY ASSURANCE

- A. All materials, equipment sizes, and capacities shall conform to the requirements of the National Electrical Code, the National Electrical Manufacturers Association; and prevailing state and local electrical codes.
- B. All materials and equipment must be UL labeled.

1.04 REFERENCE STANDARDS

- A. NFPA 70 - National Electrical Code (NEC).

1.05 SUBMITTALS

- A. Make submittals as specified in Section 01000.
- B. Materials to be Submitted:
  - 1. Manufacturer's standard published catalog sheets and descriptive bulletins.

2. PRODUCTS

2.01 MATERIALS AND COMPONENTS

- A. Rigid Galvanized Steel Conduit (RGS):
  - 1. General: Standard trade sizes, 1/2 minimum.

2. Material: Heavy rigid threaded type, mild steel hot dipped galvanized, inside surface enamel coated or lacquered.
  3. Field Cutting and Threading: Use appropriate power saws or threading machines and cutting lubricants. Cut ends and threads shall have burrs removed and shall be painted with zinc chromate protective coating.
  4. Fittings: Galvanized, standard threaded, as manufactured by OZ Gedney, Appleton, or equal.
  5. Expansion Fittings: Install wherever conduit crosses a building or construction expansion joint. Fittings shall be OZ type EX with Bonding Jumper BJ, Appleton XJB, or equal.
  6. Uses: Indoor exposed, outdoor exposed, buried or embedded conduits, or as shown on the drawings.
- B. Flexible Liquid Tight Conduit (LT):
1. General: Standard trade sizes, 1/2 inch minimum, bearing UL label.
  2. Material: Steel, galvanized, with liquid tight polyvinyl chloride cover, with continuous copper ground built into assembly.
  3. Fittings: Compression type with plastic insert designed for liquid tight conduit.
  4. Uses: As defined by NEC Article 351, between motors or other vibration producing equipment and rigid conduit or junction box, or as shown on the drawings.

3. EXECUTION

3.01 CONDUIT INSTALLATION

- A. General: Install in accordance with requirements of NEC and recognized standards of good practice.
- B. Location: As shown on the drawings. Actual routing to be field verified and coordinated with previous or other work prior to installation.
- C. Sleeves: Set sleeves in concrete during construction, before concrete pour begins. Sleeves shall be galvanized sheet pipe, securely fastened in position. Sleeves through exterior walls shall be filled with oakum after conduit installation, then sealed with polysulfide sealant to form a watertight seal.

- D. Embedded Conduit: Set before concrete pour begins. Use long radius bends. Conduits in structural slabs shall have minimum 2 inch cover.
- E. Bends: Not more than equivalent of three 90 degree bends between pulling points.
- F. Supports: Provide at each elbow and at end of run terminating in box or cabinet. Fasteners spaced maximum of 7 feet horizontal, 8 feet vertical.
  - 1. Conduit clamps shall be malleable iron one hole straps, beam clamps, or approved device with necessary bolts and expansion shields.
  - 2. Trapeze hangers shall be used for parallel runs of conduit. Install U-bolts at end of each run, and pipe clamps every third intermediate hanger for each conduit. Hangers are not detailed on the drawings, but are to be fabricated from 0.055 inch thick steel channel, Unistrut P-2000, Kindorf B-900, or equal, all-thread rod and fasteners, and must be adequate to support combined weight of conduit, conductors, and hangers.
- G. Conduit Ends:
  - 1. Cap spare conduits, label as spare.
  - 2. Cap ends during construction to prevent entrance of foreign materials.
  - 3. Terminate conduits at panels, equipment and boxes with double locknuts and insulating bushings.
  - 4. Stub ups shall extend 6 inches minimum above curb or floor line. Terminate with insulating bushing or appropriate fitting.

END OF SECTION