

SECTION 33 70 02.00 10 – CONDUITS**PART 1 GENERAL****1.01 SCOPE**

- A. Furnish and install all conduits, boxes, fittings, etc., for a complete raceway system.
- B. See Section 26 00 00.00 70 "Boxes"
- C. Furnish Shop Drawing of all conduit layouts indicating routing & size.

PART 2 PRODUCTS**2.01 CONDUIT - Rigid Metallic**

- A. All wiring including feeders, branch circuits and auxiliary wiring shall be run in rigid heavy wall conduit.
- B. All steel conduit shall be galvanized and all conduit shall have the manufacturer's name and U.L. label attached to or stamped on each piece.
- C. Each section of conduit furnished shall be straight, free from blisters and other defects and in 10'-0" lengths. Galvanizing shall be of such nature and so applied that it will not crack or flake when conduit is bent.
- D. All conduit sizes stated herein or marked on the Drawings are minimum size and shall be no less than 3/4" unless otherwise noted.

2.02 CONDUIT - Electrical Metallic Tubing (EMT)

- A. Branch circuits run in interior partitions and above suspended ceilings may be in thin-wall (EMT) conduit, at this Contractor's option. Minimum size shall be no less than 3/4".

2.03 CONDUIT - Flexible Metallic

- A. Flexible neoprene-clad galvanized steel conduit shall be used for "makeup" connections to rotating machinery and heating elements. Lighting fixtures may be supplied with short lengths of flexible conduit with green ground wire.
- B. Minimum size shall be 1/2" trade size.

2.04 CONDUIT FITTINGS - Metallic

- A. All thinwall connectors shall be of the insulated throat type, similar to compression type Thomas and Betts No. 5223-3/4". All fittings shall be steel. No die cast fittings will be allowed. Contractor may use Thomas and Betts, Raco, Steel City or Midwest fittings. All rigid conduit shall have threaded connections. All conduit connections to panels, boxes, transformers etc. that are to Nema 3R, totally enclosed shall be with Meyers Hubs. Lock nuts on all rigid conduit are prohibited. All rigid conduit shall have threaded connections.

- B. Liquid tight flexible metallic fittings shall be Midwest LTB-50. Flexible metallic fittings shall be similar to Steel City XC-241.
- C. "Mineralac" type supports or "Unistrut" type one bolt supports of any design shall not be used below 9'-0" above the floor.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All rigid conduit entering panelboards cabinets, pull boxes, junction boxes or outlet boxes shall be secured with Meyers Hubs with ends bushed.
- B. No more than four (4) 90 degree bends will be allowed in any one conduit run. Where more bends are necessary in any single run, a pull box shall be installed; pull boxes shall also be installed in long runs at a maximum separation of 100'-0". All conduit except in concrete slab or earth shall be routed parallel or perpendicular to the lines of the building and no out of plumb or diagonal lines will be accepted.
- C. Unless otherwise noted, all conduit shall be run concealed with-in the building construction when installed in finished interior or exterior areas. Conduit in equipment rooms, and on roof may be run exposed. Conduit run exposed in the buildings shall be installed tight to structure. The routing shall be approved by the associate.
- D. All conduit shall be substantially supported by pipe straps or suitable clamps or hangers attached to the elements of the building structure to provide rigid installation; in no case shall conduit be attached or supported from adjoining pipe or installed in such a manner as to prevent the ready removal of other pipe for repairs.
- E. Strap iron hangers and wire will not be approved for conduit support.
- F. No conduit shall rest on or be supported from acoustical tile ceilings, or their suspension system.
- G. Exposed conduits rising from floor to surface panels, or boxes, shall have a 4" high concrete curb encasing the conduits at the floor line. Curb to have chamfered edges.
- H. Where conduit runs across building expansion joints, or where necessary to compensate for thermal expansion or contraction provide expansion unions. Note: Expansion joints shown on the viaduct drawings.
- I. Exercise necessary precaution to prevent accumulation of water, dirt, or concrete in conduits during execution of electrical work. Conduit in which water or foreign material has been permitted to accumulate shall be thoroughly cleaned, or replaced where such accumulations cannot be removed.
- J. All conduits must be kept dry and free of water or debris with approved pipe plugs or caps. Care shall be given that plugs or caps be installed before pouring of concrete.
- K. Conduit sleeves through the floor shall project one inch above the finished floor.
- L. The use of Elbows is prohibited.

- M. Sealtite Flexible conduit may only be used as follows:
1. Lighting fixtures may be supplied with short lengths not longer than 6'-0".
 2. Make up connections to transformers in lengths not longer than 2'- 0".
 3. All expansion joints, flexible connections, and vibration isolators shall be bridged with short lengths not longer than 2'- 0". Flexible conduit used for expansion joints on the viaduct shall be sealtite flex.
- N. All connections to rotating machinery and heating elements shall be made with short lengths (minimum 12") of liquid-tite conduit. Where motors are mounted on sliding bases, the flexible connection shall be long enough to allow full travel of the motor on the base (maximum 36".)
- O. Pull Wires
1. A pull wire shall be installed in all empty conduits. In dry locations, pull wire shall be No. 16 gauge galvanized iron or nylon pull cord.
 2. Both ends of all pull wire shall be identified by means of labels or tags, reading "PULL WIRE" and shall be numbered to refer to the same pull wire.
- P. Remove all conduit cut dead except in concrete or masonry. Conduit that is below grade and is to be abandoned shall have the portion that is turned up above grade remove to 1 foot below grade including any concrete bases.
- Q. Conduits thru roof shall be flashed with 6" high pitch pockets or equally effective means approved by the Associate.
- R. Seal water and moisture tight, all conduits entering from outside the building.

End of Section

