PART I - GENERAL

1.1 UTILITY PLANT APPLICATION

A. All wiring in Utility Plants shall be in rigid conduit; EMT conduit is not allowed.

B. All conduits except flexible conduits shall be a minimum size of ¾”.

PART 2 - PRODUCTS

2.1 RACEWAYS AND CONDUITS

A. General – All raceways and conduits shall be installed with fittings, hangars, and accessories that are UL listed for their application.

B. Electrical Metallic Tubing (EMT) shall be:
   1. Galvanized zinc exterior coating
   2. Lacquer coated interior
   3. Reamed after cutting
   4. Installed in masonry walls
   5. Installed above ceilings in joist spaces
   6. Installed with rain tight, concrete tight couplings and connectors with insulated throats, compression type, steel body. As manufactured by Raco, Appleton or Regal.
   7. In accordance with Underwriter's Laboratories Standard UL 797.

C. Rigid Heavy Wall Conduit (Rigid) shall be:
   1. Galvanized steel.
   2. Installed in concrete slabs and walls with 1-inch minimum concrete covering.
   3. Installed in exposed exterior locations above grade.
   4. Reamed after cutting threads.
   5. Coupled with a 3-piece coupling in lieu of running threads.

D. Flexible Conduits shall be:
   1. Flexible Metal Conduit type in all dry locations with steel, insulated throat, squeeze type connectors.
   2. Liquidtight Flexible Metal Conduit type in all wet locations, including all exterior locations, terminated with steel, insulated throat connectors,
   3. LFMC shall be used for the final connection to all motors, and FMC or LFMC shall be used for the final connection to vibrating equipment.
   4. Used for the final connection to all recessed fixtures.
   5. FMC or LFMC used as a lighting fixture whip or equipment whip shall be no longer than 6 feet.
   6. Not used where a flexible connection is not necessary to provide vibration isolation to, or facilitate the removal, replacement, or adjustment of connected equipment, or where

U OF I FACILITIES STANDARDS 26 05 33- 1 RACEWAYS AND CONDUITS
LAST UPDATED JUNE 15, 2013
raceway does not need to be “fished” into existing work. Using flexible conduit to avoid making bends in EMT or Rigid conduit is unacceptable.

7. Minimum size of ½” where “fished” into existing work.

E. PVC Conduits
   1. PVC conduit may be used only in areas where corrosive conditions make use of steel raceways impractical.
   2. PVC conduit may be used under sidewalks and driveways provided it is located 24 inches below concrete. If located less than 24 inches below concrete, PVC conduit shall be encased in concrete.

2.2 CONDUIT SUPPORTS AND HANGERS
   A. General
      1. All straps and clamps shall be galvanized steel.
      2. Support every 8 feet for conduits 1 inch and smaller.
      3. Support every 5 feet for conduits over 1 inch.
      4. Supports for suspended conduits shall be threaded steel rods.
      5. Anchor rods to inserts in concrete.
      6. Anchor rods to beam clamps on steel structure.
   B. Surface Mounted Conduits
      1. Use 1-hole straps.
      2. For EMT use stamped steel straps.
      3. For rigid conduit use malleable iron straps and pipe spacers.
   C. Suspended Conduits
      1. Individual Conduits: Use minerallac galvanized conduit clamps with proper threaded rod.
      2. Two or More Conduits adjacent to each other (trapeze hanger):
         a. Use painted channel 1-5/8 inch by 1-5/8 inch constructed from 12 gauge steel hung from at least 2 rods.
         b. Use suitable galvanized split pipe clamps for rigid and EMT conduits.

PART 3 - EXECUTION

3.1 METHODS OF WIRING
   A. Grounded Metallic Conduits: All of the conductors shall be run in grounded metallic conduits. Equipment and devices installed and not constructed with enclosures suited for mounting and enclosing all live parts, shall be installed in grounded metal cabinets.
   B. Grounded Metallic Raceways: It is intended that complete grounded metallic raceways or enclosures be provided for all circuiting throughout the extent of the systems specified.
   C. Concealed: All conduits shall be run to the distribution cabinets in a neat, accurate manner and shall be installed concealed in ceiling and wall construction where possible or exposed at right angles at roof purlin and beam locations as required.
   D. Hangers: Where conduits are to be run exposed, they shall be rigidly supported or secured in place by means of hangers suited to the conditions under which they are used.
E. Clean Conduit: All conduits shall be swabbed until all moisture and grit is removed before any wires are pulled or installed.

F. Wire Pulling Compound: Compound may be used to ease the pulling of wire or cable. Excess compound must be removed.

3.2 RACEWAYS AND CONDUITS

A. Metallic Conduit: All conductors shall be installed in metallic conduit.

B. Conduit Size: All conduit shall be sized according to the National Electric Code except that minimum allowable size shall be 3/4-inch, except as otherwise noted above in this standard.

C. Exposed Conduits: Shall be run parallel to and plumb with adjacent surfaces.

D. Bends: All conduit bends shall be long radius.

E. Open Ends Plugged: All open ends of conduits shall be plugged with approved raceway closures to prevent entrance of foreign material during construction - newspapers stuffed into boxes and/or conduits will not be allowed.

F. Rigidly Supported: All conduits shall be rigidly supported to the building structure. No tie wiring will be allowed. (See paragraph entitled Conduit Supports & Hangers).

G. Ends of Conduits: All ends of conduits shall butt solidly in couplings.

H. Coordination: Coordinate all conduit locations with other trades before roughing-in.

I. Insulated Inserts: Conduit bushings shall have insulated inserts where wire sizes are number 6 or larger.

J. Four Extra Conduits: Four 1-inch conduits shall be installed from each flush mounted panel and turned into the joist space above the panel for future use.

K. Underground Metal Conduit: Where metal conduit is embedded in concrete or in touch with earth, it shall be PVC coated conduit with factory applied UL listed PVC coating.

L. Primary Voltage Conduit: All outdoor underground conduits for primary voltage shall be a minimum of 5” PVC conduit concrete encased.

M. 600V and below Service Entrance Conduit: All underground service entrance conduits shall be a minimum of 4” PVC conduit concrete encased.

N. Medium and High Voltage Distribution Conduit: All indoor underground medium and high voltage distribution conduits shall be a minimum of 4” PVC conduit.

END OF SECTION 26 05 33

This section of the U of I Facilities Standards establishes minimum requirements only. It should not be used as a complete specification.