

337100S01 ELECTRICAL UTILITY TRANSMISSION AND DISTRIBUTION - Electrical Power Distribution

1. MATERIALS

In addition to this spec, materials must meet all applicable sections of UK Standard 16000S00-16999S00.

Utility markers for electrical identification shall be meet UK Standard 026000D01.

2. METHODS

All underground conduits and ducts, rigid or pvc, added on this project shall be added in groups of 2,4,6,8,10,12 or more runs of five (5) inch minimum for electrical duct and four (4) inch minimum for communications duct. Communications duct shall be 50% 4 inch PVC and 50% Teleduct (quad 1.5" pvc) or equal. No single underground conduit runs shall be added on any project.

All underground conduit, ductbank and raceways shall be steel reinforced and concrete (3000 psi min.) encased PVC or direct buried threaded rigid steel.

A pull wire shall be installed in each spare conduit.

1. Rigid Steel Conduits and Duct Banks

Rigid steel conduits installed under ground shall be field-wrapped with 0.01 inch thick pipe-wrapping plastic tape applied with a 50 percent overlap, or shall have a factory applied plastic resin, epoxy, or two coats of a field applied asphaltum tar specifically made for this purpose. Where the asphaltum tar coating method is used, the Contractor shall notify the UK Project Manager just prior to backfilling so that he may inspect the coating and approve it before the conduit is covered. Painting shall extend to 6" above ground level.

2. Condensation Traps

Duct banks shall be pitched to drain to manholes.

All conduit, tubing, raceways, ducts and duct banks shall be installed in such manner as to insure against collection of trapped condensation and raceway runs shall be arranged so as to be devoid of traps.

Where conduits pass through exterior concrete walls of facilities, the entrance shall be made watertight. This shall be done by providing pipe sleeves in the concrete with 1/2" minimum entrance seal.

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3. Blockages

All necessary precautions to prevent the lodgment of dirt, plaster, or trash in all conduit or tubing, fittings and boxes during construction shall be taken. All conduit in floors, concrete or below grade shall be swabbed free of debris or moisture before wires are pulled.

4. PVC Encased Conduit and Duct Banks

Duct envelope shall be rectangular in cross section having a minimum concrete thickness of 3" around any conduit and shall be sized and placed as shown on the construction documents.

Steel reinforcing rods shall be installed in all duct bank envelopes and must extend into the wall of building, manhole or other structure it terminates at to prevent sheering of ducts. Where a connection is made to an existing conduit line the envelope shall be doweled to the existing encasement. All conduit and ducts must be terminated with bell ends at the manhole, facility or other termination point.. Where trench walls are unstable or the trench width wider than the envelope, the envelope shall be formed as required.

Duct spacers shall be provided at a maximum of eight foot intervals. Conduits shall be anchored at each spacer to prevent duct floating during concrete installation.

Each duct run shall be done with continuous concrete pour. With written exception from UK, broken pours are allowed provided No. 6 or larger rebar is extended 6 inches beyond the end of the envelope at the end of each day's pour and at all stub-outs.

A red color agent shall be added to the top 3 inches of concrete used for underground high voltage electrical ducts. The color agent is subject to approval by the University of Kentucky's Project Manager.

Where conduit or ducts are underground, they shall be kept at least 24 inches from parallel runs of flues, steam pipes, hot gas pipes, hot water pipes or any other utility line which is hot during the normal operation of the facility it serves. Unless written exception is provided by UK, all conduit sections crossing steam lines shall be rigid, and shall be provided with a means of insulation from the steam lines.