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2.7.1 GENERAL

The Mechanical Contractor shall include within his Tender for carrying out ALL electrical wiring associated with his installation (for details see relevant specific specification).

This shall include all wiring, isolators, conduit, switchgear, starters etc., to form a complete installation, as detailed on the relevant drawings and in the Specification.

All wiring shall be carried out by an NICEIC approved Electrical Contractor, in accordance with the 17th Edition Amendment 3 of the IET Wiring Regulations.

2.7.2 INSTALLATION

Unless specified elsewhere in this Specification, the whole installation shall be wired in PVC single core copper cables enclosed in a surface fixed galvanised conduit and trunking system.

All switches/fused connection units shall have a metal clad finish.

Final connections to items of plant shall be made via a flexible conduit.

2.7.3 ISOLATION

The Contractor shall allow to install a suitably sized isolator adjacent each item of plant under his supply.

All isolators shall be labelled to identify the item it is serving.

2.7.4 CONDUIT INSTALLATION

All conduits shall be heavy gauge welded steel manufactured to BS 31 and not less than 20mm diameter, and be of galvanised finish.

All conduits and accessories shall comply with BS4568 Parts 1 and 2 1970 and BS 31:1940 (where applicable).

A separate continuous earth c.p.c. shall be installed throughout the system. In areas where there is a variance in temperature, all figures for spacing shall be reduced.

Conduits shall be securely fixed in such a manner as to preclude any movement or whip.

In roof and floor spaces, spacer saddles, with one fixing screw shall be used.

Saddles, the finish of which shall match the supported conduit, shall be spaced at a distance of not more than 1200mm apart and shall be secured to the walls by means of wood screws into plastic wall plugs. At least 25mm of screw shall enter the plug.

Where condensation is likely to occur, especially in long vertical runs, outside runs and installation in boiler houses and heating chambers, provision shall be made for draining and/or collecting the moisture.

All connections between conduits and switchgear, spoutless adaptable and back outlet boxes and steel trunking shall be made by means of coupling on the conduit and a male thread, brass, hexagon headed bush from the inside of the box etc.

In order to preserve continuity, the finish shall be removed from round the entry hole and the end of the coupling shall be filed square.

All conduits shall be reamed before erection to ensure freedom from burrs.

All exposed threads, surface abrasions and tool scars shall be freed from oil and painted to match the finish of the conduit immediately after erection.

2.7.5 FLEXIBLE CONDUIT

Conduits to all plant which requires to be moveable for cleaning purposes, shall terminate in a flexible conduit.

The length of flexible conduit necessary will vary with circumstances, but must be kept as short as practical, to a maximum of 800mm.

Each end of a flexible conduit shall be fitted with a flexible to screwed adapter of the compression type.

A separate earth wire shall run inside the flexible conduit.

2.7.6 CABLE TRUNKING

Metal trunking shall be of the first quality and as manufactured by a known and approved manufacturer.

Metal trunking shall be preformed from sheet steel and not less than 16 gauge (1.6mm) and shall in all instances be galvanised.

Internal free areas shall be such that wiring cables shall not occupy more than 45% of the area.

Unless otherwise stated, trunking shall be installed in such a manner that the cover plate is located either at the top or side.

Trunking lids shall be secured by means of brass bolts and fixed nuts at 300mm intervals.

All lengths of trunking shall be connected together by internally fitted rectangular couplings of sufficient width to provide a minimum bearing face of 25mm to which the lengths shall be bolted or welded.

All tee pieces and bends shall be formed with similar means of connection and the inner radii shall be such that cables will not be bent through a radius of less than that prescribed in the IET Regulations. Only bends and tees of an approved pattern will be accepted.

Trunking shall be firmly attached to it's respective equipment either by flange bolts or by hexagonal male bushes and locknuts, as appropriate to the installation.

Open ends shall be capped by means of purpose made flanged cover, bolted in position.

Where it is intended to use trunking to facilitate wiring for varying services, then compartmented trunking shall be used to afford segregation of services.

All trunking shall be rigidly secured at fixing centre not exceeding 500mm. All trunking shall be fixed so as to drain off any condensate moisture.

All necessary trunking support work, hangers, brackets and fixing requirements shall be provided within the scope of the Contractor.

2.7.7 CABLES

All cables shall be of 230volt grade made to BS 6004 and BASEC approved.

No cable of size less than 1.5mm sq shall be used.

Coloured cables must be used as given in the Regulations for the Electrical Equipment of Building issued by the I..E.T. 17th Edition Amendment 3, with the addition that all control circuits (i.e. From push button stations or thermostats, etc.) must be run in cable of a colour not used in distinguishing phases.

All wiring shall be carried out on the loop-in principle without any joints.

In all cases, the phase and neutral cable shall run in one conduit. A single cable in a conduit will not be permitted under any circumstances.

The number of cables drawn into any trunking or conduit shall not exceed those specified in the IET Wiring Regulations.

2.7.8 EARTHING

The Specialist shall include for the provision of earthing in compliance with

the following:

1. BS 7671
2. The Earthing Code of Practice CP, 1013, 1965
3. The Local Supply Authority's PME requirements.

Protective conductors shall be sized in accordance with the requirements of the I.E.T. Regulations (BS 7671).

2.7.9 INSPECTION AND TESTING

During the progress and upon completion of the installation and prior to being energised, the works shall be thoroughly inspected and tested in strict accordance with Part 7 of the 17th Edition Amendment 3 of the I.E.T. Wiring Regulations.

All results shall be tabulated, a copy of which shall be provided in the O & M Manual.