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ARAB ENGINEERING BUREAUS

8 TRUNKING

8.1 GENERAL

8.1.1 General Reference

- 1 The work of this section is integral with the whole of the Project Documentation and is not intended to be interpreted outside that context.
- 2 Co-ordinate the work with all other services affecting the work of this Section.
- 3 Related Parts and Sections are as follows:

This Section

Part 1 General Provisions for Installation
Part 6 Cables and Small Wiring
Part 7 Conduits and Conduit Boxes
Part 9 Cable Trays

8.1.2 References

- 1 The following standards are referred to in this Section:

BS 729.....Hot dip galvanised coatings on iron and steel articles (ISO 1461)
BS 3382.....Zinc on steel components (BS 7371-12)
BS 4607.....Fittings and components of insulating materials
BS 4678.....Steel surface trunking (EN 50085-2-1)
BS 4678.....Cable trunking of insulating materials (EN 50085-1)

EN 10142Hot dip zinc coated sheet steel

8.1.3 System Description

- 1 The Contractor shall supply and install the complete trunking system as indicated on the Drawings and specified in this Section.

8.1.4 Submissions

- 1 Samples: submit samples of trunking and accessories.
- 2 Product Data: at the time of submitting samples submit manufacturer's details, catalogues etc.
- 3 Shop Drawings: submit drawings showing route of trunking system and obtain approval before commencing work.

8.2 PRODUCTS

8.2.1 Trunking

- 1 General:

- (a) trunking, associated parts and accessories shall be fabricated from hot dipped galvanised sheet steel not less than 16 SWG
- (b) trunking shall be supplied in 3 m lengths or bigger, each length complete with lid, coupler and coupler screws and shall provide adequate earth continuity throughout the whole trunking run

- (c) shall be complete with necessary fittings and accessories. All accessories and fixing materials shall also be of galvanised sheet steel of not less than 1 mm thickness
- (d) if specified in the Project Documentation, trunking, associated parts and accessories shall be fabricated from high impact PVC-u material, having thickness not less than 1.5 mm and shall be complete with necessary fittings and accessories made from the similar material as for the trunking
- (e) trunking shall not be smaller than the minimum size stated on the Drawings or specified later and shall be so sized, if not specified, that a space factor of 35 % is not exceeded. The Contractor shall check the minimum size of trunking specified is large enough for his requirements without exceeding this space factor
- (f) trunking and accessories installed in hazardous and extremely corrosive environments shall be heavy duty GRP or 316 S31 grade stainless steel.

2 Trunking and Connectors:

- (a) shall be to BS 4678: Part 1, but thickness of metal for body and cover material may not be less than those in Table 1. The PVC trunking system shall satisfy the requirement in Part 4 of BS 4678 providing smooth internal and external finishes
- (b) metal thickness for trunking and connectors exceeding 150 x 150 mm external dimensions shall be to approval and shall not be less than that specified in BS 4678 Part 1 for the largest trunking detailed
- (c) finish for steel trunking:
 - (i) for internal use: Class 3 heavy protection internally and externally (e.g. galvanised steel to EN 10142; protection to BS 4678: Part 1)
 - (ii) for external use: Class 3 protection
- (d) lids shall be clipped and fixed at regular intervals not exceeding 2 m on straight runs, by quick release cam type fasteners. In PVC trunking installations the lids can be slide-in type of proper lengths
- (e) partitions shall be at least 1 mm thick, finished to same standard as trunking. The means of fixing partitions shall prevent them being misplaced and shall not cause corrosion or electrolytic action
- (f) connectors shall span the complete internal surface of the trunking. Trunking sections shall have butt joints
- (g) accessories for bends and tee-off shall be supplied from the same manufacturer and provided with lids as necessary. Reduction type tee-offs shall be provided where smaller size branch trunking is required.

3 Bonding links and fastenings:

- (a) shall satisfy continuity conditions of BS 4678
- (b) shall not cause corrosion
- (c) separate protective conductor of size not less than 4 mm² shall run in the PVC trunking system.

4 Braided Copper Tape:

- (a) shall be 15 x 2 mm minimum having a resistance from fixing to fixing equal to or less than the links used in standard trunking joints.

5 Steel Screws and Fasteners:

- (a) shall have a zinc coating finish to BS 729 or BS 3382 : Part 2, or equivalent

(b) fixings used for securing or fitting shall not cause corrosion or electrolytic action.
Black screws are not acceptable

(c) brackets, mild steel angle or channel finished to same standard as trunking.

6 Vertical Trunking:

(a) shall have cable support units with insulated pins at centres not exceeding 3 meters.

7 Horizontal Trunking:

(a) Sizes exceeding 100 x 50 mm shall have cable separators with insulated pins at maximum centres not exceeding 2 m.

8 Surface Metal Raceway

(a) the surface metal raceway assembly shall comprise of a metal base and cover to form a raceway intended for surface mounting, except in very small sizes. The cover shall be removable to allow wire installation after the raceway has been installed as a complete system.

(b) the surface metal raceway shall be constructed of sheet metal channel with fitted cover.

(c) the minimum size of the surface metal raceway shall be 50 mm x 50 mm or as specified on the layout drawings.

(d) fittings, Boxes, and Extension Rings as practical as possible shall be chosen from the manufacturer's standard range of accessories.

(e) all accessories shall be complete with removable covers.

9 Surface Nonmetal Raceway

(a) the surface nonmetal raceway assembly shall comprise of a molded or extruded non-metallic base and cover to form a raceway intended for surface mounting.

(b) the surface nonmetal raceway shall be constructed of heavy-duty rigid unplasticised PVC channel with fitted cover. The material shall be self-extinguishing and shall be unaffected by sunlight and/or water. The material shall be suitable for continuous ambient temperatures of 650 C.

(c) the minimum size of the surface metal raceway shall be 50 mm x 50 mm or as specified on the layout drawings.

(d) fittings, Boxes, and Extension Rings as practical as possible shall be chosen from the manufacturer's standard range of accessories.

(e) all accessories shall be complete with removable covers.

10 Multioutlet Assembly

(a) the multoutlet assembly shall comprise of surface metal raceway with receptacles. Receptacle devices may be pre-wired in which case they are regularly spaced.

(b) the multoutlet assembly shall be constructed of sheet metal channel with fitted cover and/or with pre-wired receptacles where specified.

(c) the sizes of the multoutlet assembly shall be as indicated on the layout drawings.

(d) provide covers and accessories to accept convenience receptacles in conjunction with the wiring devices.

(e) the spacing between the receptacle shall be 150, 300 or 450 mm or as specified/indicated on the Drawings.

(f) the Colour of receptacle shall be subject to the approval of the Engineer.

- (g) couplings, elbows, outlet and device boxes, and connectors as practical as possible shall be chosen from the manufacturer's standard range of accessories.

11 Wireway

- (a) the wireway shall be Narrow sheet metal enclosure, rectangular in cross section with hinged or removable covers for housing and protecting electric wires and cable and in which conductors are laid in place after the wireway has been installed as a complete system.
- (b) the wireway shall be general purpose, oiltight and dust-tight or rain-tight type as specified and/or indicated on the drawings.
- (c) knockouts shall be as per manufacturer standard.
- (d) the sizes of the wireways shall be as indicated on the drawings.
- (e) the wireways shall be provided with Screw cover and full gasketing.
- (f) the fittings shall be lay-in type with removable top, bottom, and side and be provided with captive screws. Include drip shield where specified.

8.3 INSTALLATION

8.3.1 Installation

1 Fixing Trunking:

- (a) trunking shall be properly aligned, and securely fixed at maximum 2 meters centres on straight runs. At bends, angles and offsets fix with additional fixings at centres not exceeding 150 mm on each side of the fitting
- (b) only manufacturers bends, T-offsets and accessories shall be used. Site fabrication shall not be permitted.

2 Settlement and Expansion Joints:

- (a) make a trunking joint where trunking crosses such joints
- (b) make connection through slotted holes allowing a 10 mm movement horizontally and vertically
- (c) earth continuity link across joints shall be braided copper tape which is long enough to allow for the maximum movement of trunking. Fold braid ends.

3 Fire Barriers:

- (a) where specified, install non-combustible, non-metallic fire barriers
- (i) where trunking passes through walls, floors and ceilings
- (ii) at each floor level when trunking is installed in riser ducts.

4 Connections:

- (a) make connections to conduits, multiple boxes, switchgears, switchboards, motor control centres and distribution boards with flanged units.

5 Cable Retaining Straps:

- (a) fix at not exceeding 1m centres.

6 Raceway and Wireway

- (a) install products in accordance with manufacturer's instructions.
- (b) use flat-head screws, clips, and straps to fasten raceway channel to surfaces. Mount plumb and level.

- (c) use suitable insulating bushings and inserts at connections to outlets and corner fittings.
- (d) provide steel channel for supporting the wireways.
- (e) close ends of wireway and unused conduit openings.
- (f) earth and bond raceway and wireway as described under the "Earthing and Bonding" Part of QCS.
- (g) provide circuit cable clamps at no greater than 500 mm intervals for raceways installed in vertical runs.

8.3.2 Cleaning and Adjustment

1 Making Good:

- (a) make good cutting and damages of the steel trunking systems, remove burrs and rough edges and corrosion and treat with a rust proofing agent, followed by an application of zinc epoxy
- (b) provide a coat of paint to match adjacent surface for PVC system
- (c) provide the paint after application of the zinc epoxy for steel trunking system.

END OF PART