

PART 1 - GENERAL

- 1.1 References .1 Canadian Standards Association (CSA)
- .1 CAN/CSA C22.2 No. 18-98, Outlet Boxes, Conduit Boxes, and Fittings and Associated Hardware.
 - .2 CSA C22.2 No. 45-M1981(R1992), Rigid Metal Conduit.
 - .3 CSA C22.2 No. 56-1977(R1999), Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
 - .4 CSA C22.2 No. 83-M1985(R1999), Electrical Metallic Tubing.
 - .5 CSA C22.2 No. 211.2-M1984(R1999), Rigid PVC (Unplasticized) Conduit.
 - .6 CAN/CSA C22.2 No. 227.3-M91(R1999), Flexible Nonmetallic Tubing.
- 1.2 Waste Management and Disposal .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal, and with the Waste Reduction Workplan.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
 - .3 Ensure emptied containers are sealed and stored safely for disposal away from children.
 - .4 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- 1.3 Location of Conduit .1 Drawings do not indicate all conduits. Those indicated are in diagrammatic form only.

PART 2 - PRODUCTS

- 2.1 Conduits .1 Rigid metal conduit: to CSA C22.2 No. 45, galvanized steel, threaded.
- .2 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with steel set screw couplings and connectors.
 - .3 Rigid pvc conduit: to CSA C22.2 No. 211.2.
 - .4 Flexible metal conduit: to CSA C22.2 No. 56, liquid-tight flexible metal.

2.2 Conduit
Fastenings

- .1 One hole steel straps to secure surface conduits 50 mm (2") and smaller. Two hole steel straps for conduits larger than 50 mm (2").
- .2 Beam clamps to secure conduits to exposed steel work.
- .3 Channel type supports for two or more conduits at 1.5 m (5') oc.
- .4 Threaded rods, 6 mm (1/4") dia., to support suspended channels.

2.3 Conduit
Fittings

- .1 Fittings: manufactured for use with conduit specified. Coating: same as conduit.
- .2 Factory "ells" where 90° bends are required for 25 mm (1") and larger conduits.
- .3 Watertight connectors and couplings for EMT. Set-screws are not acceptable.

2.4 Expansion
Fittings for Rigid
Conduit

- .1 Weatherproof expansion fittings with internal bonding assembly suitable linear expansion, as required.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm (3/4") deflection in all directions.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

2.5 Fish Cord

- .1 Polypropylene.

PART 3 - EXECUTION

3.1 Installation

- .1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
- .2 Conceal conduits except in mechanical and electrical service rooms and in unfinished areas.
- .3 Use rigid galvanized steel threaded conduit where subject to mechanical damage; where indicated; and where not specified or indicated otherwise.
- .4 Use electrical metallic tubing (EMT) except in cast concrete for feeders and branch circuits above 2.4 m (8') and below where not subject to mechanical injury.

3.1 Installation
(Cont'd)

- .5 Use rigid pvc conduit underground in corrosive areas.
- .6 Use flexible metal conduit for connection to motors in dry areas and connection to surface or recessed fluorescent fixtures.
- .7 Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations.
- .8 Minimum conduit size for lighting and power circuits: 16 mm (1/2").
- .9 Bend conduit cold. Replace conduit if kinked or flattened more than 1/10th of its original diameter.
- .10 Mechanically bend steel conduit over 19 mm (3/4") dia.
- .11 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
- .12 Install fish cord in empty conduits.
- .13 Run 2 - 25 mm (1") spare conduits up to ceiling space and 2 - 25 mm (1") spare conduits down to ceiling space from each flush panel. Terminate these conduits in 152 x 152 x 102 mm (6" x 6" x 4") junction boxes in ceiling space or in case of an exposed concrete slab, terminate each conduit in flush concrete type box.
- .14 Remove and replace blocked conduit sections. Do not use liquids to clean out conduits.
- .15 Dry conduits out before installing wire.

3.2 Surface
Conduits

- .1 Run parallel or perpendicular to building lines.
- .2 Run conduits in flanged portion of structural steel.
- .3 Group conduits wherever possible on suspended or surface channels.
- .4 Do not pass conduits through structural members except as indicated.
- .5 Do not locate conduits less than 75 mm (3") parallel to steam or hot water lines with minimum of 25 mm (1") at crossovers.

3.3 Concealed
Conduits

- .1 Run parallel or perpendicular to building lines.
- .2 Do not install horizontal runs in masonry walls.
- .3 Do not install conduits in terrazzo or concrete toppings.

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| <u>3.4 Conduits in
Cast-in-place
Concrete</u> | .1 | Locate to suit reinforcing steel. Install in centre one third of slab. |
| | .2 | Protect conduits from damage where they stub out of concrete. |
| | .3 | Install sleeves where conduits pass through slab or wall. |
| | .4 | Provide oversized sleeve for conduits passing through waterproof membrane, before membrane is installed. Use cold mastic between sleeve and conduit. |
| | .5 | Do not place conduits in slabs in which slab thickness is less than 4 times conduit diameter. |
| | .6 | Encase conduits completely in concrete with minimum 25 mm (1") concrete cover. |
| | .7 | Organize conduits in slab to minimize cross-overs. |
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<u>3.5 Conduits
Underground</u> | .1 | Slope conduits to provide drainage. |