

PART 1 - GENERAL

- 1.1 REFERENCES .1 Canadian Standards Association (CSA International).
.1 CAN/CSA C22.2 No. 18, Outlet Boxes, Conduit
Boxes, Fittings and Associated Hardware, A National
Standard of Canada.
.2 CSA C22.2 No. 45, Rigid Metal Conduit.
.3 CSA C22.2 No. 56, Flexible Metal Conduit and
Liquid-Tight Flexible Metal Conduit.
.4 CSA C22.2 No. 83, Electrical Metallic Tubing.
.5 CSA C22.2 No. 211.2, Rigid PVC (Unplasticized)
Conduit.
- 1.2 SUBMITTALS .1 Provide submittals in accordance with Section
01 33 00 - Submittal Procedures.
.2 Product Data: Submit manufacturer's printed product
literature, specifications and datasheets.
.1 Submit cable manufacturing data.
.3 Quality assurance submittals:
.1 Test reports: submit certified test reports.
.2 Certificates: submit certificates signed by
manufacturer certifying that materials comply with
specified performance characteristics and physical
properties.
.3 Instructions: submit manufacturer's
installation instructions.
- 1.3 WASTE
MANAGEMENT AND
DISPOSAL .1 Separate waste materials for reuse and recycling in
accordance with Section 01 10 10 - General
Instructions.
.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.

PART 2 - PRODUCTS

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| <u>2.1 CONDUITS</u> | .1 | Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings. |
| | .2 | Flexible metal conduit: to CSA C22.2 No. 56, aluminum, liquid-tight flexible metal. |
| <u>2.2 CONDUIT FASTENINGS</u> | .1 | One hole steel straps to secure surface conduits 50 mm and smaller. .1 Two hole steel straps for conduits larger than 50 mm. |
| | .2 | Beam clamps to secure conduits to exposed steel work. |
| | .3 | Channel type supports for two or more conduits at code spacing. |
| | .4 | Threaded rods, 6 mm diameter, to support suspended channels. |
| <u>2.3 CONDUIT FITTINGS</u> | .1 | Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit. |
| | .2 | Ensure factory "ells" where 90, 45, or 22.5 degree bends for 25 mm and larger conduits. |
| | .3 | Steel Connectors and couplings for EMT. .1 Die-cast fittings are not acceptable. .2 All connectors to be c/w insulated throats. |
| <u>2.4 FISH CORD</u> | .1 | Polypropylene. |
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PART 3 - EXECUTION

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| <u>3.1 MANUFACTURER'S INSTRUCTIONS</u> | .1 | Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets. |
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| <u>3.2 INSTALLATION</u> | .1 | Install all conduit, conduit fittings and accessories in accordance with the latest edition of the Canadian Electrical Code in a manner that does not alter, change or violate any part of the installed system components of the CSA/UL certification of these components. |
| | .2 | Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass. |
| | .3 | Conceal conduits except in mechanical and electrical service rooms and in unfinished areas. |
| | .4 | Wiring Method: .1 Use EMT conduit except where specified otherwise. |
| | .5 | Wiring for branch circuits powered from the emergency power system shall be run in separate conduit from the other systems. |
| | .6 | Use flexible metal conduit for connection to motors in dry areas, connection to recessed incandescent fixtures without prewired outlet box, connection to surface or recessed fluorescent fixtures and work in movable metal partitions. Length of fixture drops not to exceed 2.0 m. |
| | .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: 21 mm. |
| | .9 | Bend conduit cold: .1 Replace conduit if kinked or flattened more than 1/10th of its original diameter. |
| | .10 | Mechanically bend steel conduit over 21 mm diameter. Conduits 35mm or larger are to be bent using a |

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3.2 INSTALLATION
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hydraulic bender or use factory bends. Conduits found to be bent using methods other than above will be removed.
- .11 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
- .12 Install fish cord in empty conduits.
- .13 Remove and replace blocked conduit sections.
 - .1 Do not use liquids to clean out conduits.
- .14 Dry conduits out before installing wire.
- .15 Conduits which penetrate through fire walls are to be sealed using approved fire stop material. Conduits which penetrate through non fire rated walls into other parts of the building are to be caulked.
- .16 Run 2-35 mm spare conduits up to ceiling space from each flush panel. Terminate these conduits in 152 x 152 x 102 mm junction boxes in ceiling space or in case of an exposed concrete slab, terminate each conduit in a surface type box.
- .17 Conduits entering sprinkler proof switchgear, panelboards, and other sprinkler proof enclosures shall use only compression style connectors and have all joints within 10 meters of the enclosure sealed with silicone sealant to prevent the intrusion of water in the event of sprinkler action.
- .18 Coordinate all conduit routings with the mechanical trades. Do not run conduits or zone conduits at elevations which may interfere with ventilation or other trades.

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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3.4 CONDUITS IN
CAST-IN-PLACE
CONCRETE

- .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 Where conduits pass through waterproof membrane, provide oversized sleeve before membrane is installed. Use cold mastic between sleeve and conduit.
- .5 Encase conduits completely in concrete with minimum 25 mm concrete cover.
- .6 Do not place conduits in slabs in which slab thickness is less than 4 times conduit diameter.
- .7 Organize conduits in slab to minimize cross-over.

3.5 CLEANING

- .1 Proceed in accordance with Section 01 10 10 - General Instructions.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.