PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 REFERENCES AND CLARIFICATIONS

.1 Canadian Standards Association (CSA International)

.1 CSA C22.1-06, Canadian Electrical Code, Part 1 (20th Edition), Safety Standard for Electrical Installations.

.2 CSA C22.10-10, Code of construction of Quebec, Chapter V-Electricity, section 30 on the installation of the equipment of lighting.

.2 Electrical and Electronic Manufacturer's Association of Canada (EEMAC)

.1 EEMAC 2Y-1-1958, Light Gray Color for Indoor Switch Gear.

.3 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

.4 Certain terms and expressions used in the present specification are defined as follows:

.1 «Project Manager " refers to transport Canada or to a representative of Transport Canada in charge of the concerned works.

.2 "Contractor", in the section of the specification (DIVISION 1), without any other name, designates the Contractor in charge of the electrical work.

.3 "Electricity of power" refer to all the equipment and the cables operating at a tension of 120V, 240V and 600V. This term EXCLUDES the control panels, the instruments, as well as the power cables of the aforementioned instruments.

.4 "Electric Services" refer to all the electrical equipment fed from the 120-240V distribution panels. For example: sockets, switches, lamps, etc.

.5 "Electric Code" means "Code of Construction of Quebec, Chapter V - Electricity" last edition.

.6 “MALT” means earth grounding.

.7 When the Contractor has to "install" and/or "connect" electrical equipment and/or electricalmaterial, it means that the Contractor will have to supply all the work, the tools and the services required to complete the work described in this present specification.

.8 "Outside" (used without any other description) mean any location outside of the buildings, subject to the stress of weather (rain, snows, etc.).

.9 "Inside" (used without any other description) mean any location inside buildings, shielded from the natural bad weather (rain, snow, etc.)

.5 Abbreviations, CODES and STANDARDS :

CSA / ACNOR	:	Canadian Standards Association
BEE	:	Board of Electrical Examiners
EEMAC / AMEEC:		Electrical and Electronics Manufacturers Association of Canada
NEMA	:	National Electrical Manufacturers Association
IES	:	Illuminating Engineering Society
UL	:	Underwriters Laboratories
NFPA	:	National Fire Protection Association

Code of construction of Quebec – Chapter I, building, and national code of the building (modified Canada 1915).

The most recent standards of public works and governmental services Canada (TPSGC).
Other standards, codes or relevant regulations

.6 LAWS ANDLICENSES:
The Contractor shall conform to all the current governmental and municipal laws and to the authorities having jurisdiction. The Contractor shall obtain all the necessary licences and pay all the legal fees for the inspection and the obtaining of these said licenses.

.7 INTERPRETATION OF DOCUMENTS:

.1 This section must be read and understood in concert with the drawings, the appendices, and the other documents of the issued for tender. Any difference, omission and/or conflict between the drawings, the specifications and/or the general specifications of the present call for tenders must be indicated to the Project Manager or his representative. In such a case, unless otherwise specified, the most rigorous specification will apply.

.2 In a general way, during conflict and/or difference, no action related with the interpretation of the documents shall be taken without the written authorization of Project Manager. Any change and/or any substitution of material or derogation in the technical specifications of the contract must be approved by Project Manager before the beginning of the works and/or before the auction of the contract.

.3 The obligations described in the present document are those of the Contractor, unless it is explicitly established that an obligation falls to another person.

.4 The Contractor has to examine the contractual documents, the site of the works and inquire in detail about all the conditions and the limitations. The specifications and the drawings of all the specialities must be carefully studied. The conditions and terms contained in the present document must be scrupulously respected. The Contractor is known for being aware of the difficulties and the requirements of the works.

.5 The location of the materials and electrical equipment can be modified by the Project Manager without additional costs or credit if the modification notice is given before the installation.

.6 Detailed drawings, which can be periodically supplied to the Contractor during the works shall be part of the contract.

.8 WARANTY :

.1 All the materials and equipment, new or reused, shall be covered by a complete and unconditional warranty of one year after the written acceptance of the works by the project manager.

.2 During the warranty period, any material and any defective equipment must be repaired and/or replaced free of charge for the project manager.

1.3 DEFINITIONS

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.4 DESIGN REQUIREMENTS

.1 Operating voltages shall conform to the CAN3-C235 standard.

.2 Motors, electrical heating, controls and distribution devices shall operate satisfactorily at 60 Hz within normal operating limits established by the above standard.

.1 The equipment shall operate under extreme operating conditions as established in the above standard without resulting in damage to the equipment.

.3 Language operating requirements: provide identification nameplates for control items in French.

.4 Use one nameplate or label for both languages.

1.5 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: submit WHMIS MSDS.

.3 Submit for review single-line electrical diagrams under Plexiglas and locate as indicated.

.1 Electrical distribution system in main electrical room.

.2 Electrical power generation and distribution systems in power plant rooms.

.4 Shop drawings:

.1 Submit drawings stamped and signed by a professional engineer registered or licensed in Canada.

.2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure a coordinate installation.

.3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item within an equipment and the interconnection between each item of each equipment.

.4 Indicate on the drawings the required clearances for operation, maintenance, and replacement of operating equipment devices.

.5 Submit PDF files of the shop drawings and data sheets to the competent authority.

.6 If changes are required, notify Ministerial Representative of these changes before they are made.

.5 Quality Control: in accordance with Section 01 45 00 - Quality Control.
.1 Provide CSA certified equipment and material.
.2 Where CSA certified equipment and materials are not available, submit such equipment and material to inspection authorities for approval before delivery to site.
.3 Submit test results of installed electrical systems and instrumentation.
.4 Permits and fees: in accordance with General Conditions of contract.

.6 Manufacturer's Field Reports: submit to Ministerial Representative the manufacturer's written report, within three (3) days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.

1.6 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.

.2 Qualifications: electrical Work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction as per the conditions of Provincial Act respecting manpower vocational training and qualification.
.1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.
.2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.

.3 Site Meetings:
.1 Site Meetings: as part of Manufacturer's Field Services described in Part 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.
.1 After delivery and storage of products, and when preparatory Work is complete but before installation begins.
.2 Twice during progress of Work at 25% and 60% complete.
.3 Upon completion of Work, after cleaning is carried out.

.4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Material Delivery Schedule: provide Ministerial Representative with schedule within 2 weeks after award of Contract.

.2 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 21-Construction/Demolition Waste Management and Disposal.

1.8 SYSTEM STARTUP

.1 Instruct Departmental Representative and operating personnel in operation, care and maintenance of systems, system equipment and components.

.2 Arrange and pay for services of manufacturer's factory service Ministerial Representative to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant will aspects of its care and operation.

1.9 OPERATING INSTRUCTIONS

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Operating instructions to include following:

.1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

.2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.

.3 Safety precautions.

.4 Procedures to be followed in event of equipment failure.

.5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

.3 Print or engrave operating instructions and frame under glass or in approved laminated plastic.

.4 Post instructions where directed.

.5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.

.6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

.7 The Contractor shall supply the necessary equipment and certify CSA for a good execution of the works; so, he has to supply, remove and set up the necessary scaffolds for the work

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

.1 Provide material and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, obtain special approval from inspection authorities before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.

.3 Factory assemble control panels and component assemblies.

2.2 WARNING SIGNS

.1 Warning Signs: in accordance with requirements of Departmental Representative.

.2 Porcelain enamel signs, minimum size 175 x 250 mm.

2.3 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.4 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, colored plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and color coding throughout.

.3 Color coding: to CSA C22.10.10.

2.5 CONDUIT AND CABLE IDENTIFICATION

.1 Color code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colors: 25 mm wide prime color and 20 mm wide auxiliary color.

.4 Colors Code

	Prime	Auxiliary
Up to 250 V	Yellow	
Up to 600 V	Yellow	Green
Up to 5 kV	Yellow	Blue
Up to 15 kV	Yellow	Red
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

2.6 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.
.1 Paint outdoor electrical equipment "equipment green" finish.
.2 Paint indoor switchgear and distribution enclosures light gray to EEMAC 2Y-1.

2.7 LIGHTING

.1 The lighting apparatus used shall be as specified in drawings or approved equivalent. Applications must meet the equivalence criteria for design and manufacturing.

.2 Lumination LED Luminaires use Intrinsx technology to deliver superior performance and greater control of how the light is distributed this allows for better spacing of fixtures while still providing good uniformity on the task plane and face of the luminaire Intrinsx helps to create a space that feels brighter cleaner and more modern with improved efficiency and reducing the “cave effect” associated with recessed luminaires.
.1 Precision farmed optical assembly comprised of injection molded high specular reflectors and an injection molded conformal transmissive lens.
.2 High optical grade acrylic providing good efficiency and impact resistance.
.3 LED light engine consists of a precision die cost aluminum heat sink, a metal care printed circuit board assembly IMCPCBI.
.4 Bean uniformity DU’V’ = 0.0008.
.5 Luminance Uniformity 2:1 max to min.
.6 No visible diodes.

.3 Class 1, replaceable, high efficiency LED drive rated 100,000 hours when used within operating conditions.
.1 Audible Noise – per 29CFR 1910 sub part G: < 24 dBA (1 foot).
.2 Thermal overload protection shuts down the luminaire when system temperatures exceed designed operating conditions THD<20%.
.3 Transient protection 100 KHz ring ware 25KV level
.4 Environmental testing High temperature High Humidity 60ºC/90% (non-condensing)
.5 Electronic Vibration testing multi Axe 5 random vibration profile 2-2000 Hz, 5Gs on electronics.
.6 Input current: (120V / 47W - 400mA) ; (230V / 47W - 220mA) ; (277V / 47W).

.4 Durable long lasting bezel construction steel electro galvanized. Cold-rolled, Commercial quality coated with Electrostatic powder Coat Paint:
.1 IP rating IP30
.2 Impact resistance: IK = 3.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Do complete installation in accordance with CSA C22.10.10 except where specified otherwise.

.2 Drives and internal components accessed via plenum driver may be removed from fixture during service. T-grid mounting brackets provided with luminaire mounting holes provided for hanging wise. Integrated galvanized P5U enclosure delivers low profile and ease of installation. Seismic rating earthquake/hurricane dips provided standard bracket security test per UL1598 fixture mounted to grid and inverted for 60 sec. Luminaire vibration testing luminaire test to 1.5G 100,000 cycles per axis 2 axis.

3.2 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.3 CONDUIT AND CABLE INSTALLATION

.1 Conduits and cables must be installed according to the specifications of the workshop drawing.

.2 If a lamp embedded in fluorescent lamps is installed in a hanging ceiling which creates a space between the ceiling and the false ceiling:
.1 The lamp is installed by a measuring flexible cordon 3 m of length and ending by an index card.
.2 The flexible cordon can support a temperature of at least 90^{o}C.

.3 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

3.4 CO-ORDINATION OF PROTECTIVE DEVICES

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

3.5 FIELD QUALITY CONTROL

.1 Section 01-45-00, Quality control.

3.6 CLEANING

.1 Section 01-74-11, Cleaning.

PART 1 - GENERAL

1.1 PRODUCT DATA

.1 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.

1.2 DELIVERY, STORAGE AND HANDLING

.1 Packaging Waste Management: remove for reuse and return of pallets, crates, paddling, and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 BUILDING WIRES

.1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.

.2 Copper conductors: size as indicated, with 1000 V for 600V networks and 600V for 208V networks, insulation of cross-linked thermosetting polyethylene material rated RWU90 XLPE, “BX”.

2.2 GROUNDING CONDUCTOR

.1 Tin-plated bare copper conductor, the size indicated on the plans.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform tests using method appropriate to site conditions and to approval of Engineer and local authority having jurisdiction over installation.

.3 Perform tests before energizing electrical system.

3.2 GENERAL CABLE INSTALLATION

.1 Not used.

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PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation for cable splice and junction boxes.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.3 REFERENCES

.1 Canadian Standards Association (CSA International)
.1 CSA C22.2 No.40-M1989(R1999), Cutout, Junction and Pull Boxes.

1.4 PRODUCT DATA

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material for recycling in accordance with Waste Management Plan.

.4 Divert unused metal and wiring materials from landfill to metal recycling facility as approved by Ministerial representative.

.5 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 SPLICE BOXES

.1 Splice boxes cast iron enclosures 6 mm thick painted with chromate primer and gray enamel to provide mechanical protection and

moisture seal for direct buried cable splices rated 3 kV and consisting of:

.1 Two halves, split along cable axis, finely ground matching surfaces, fastened with galvanized steel bolts, top half with large filling holes with gasketted plugs for medium hard asphalt base compound, bottom half with screws on inside for bonding armour, and box end openings sealed by:

.1 Wrapping cables with anhydrous tape and clamping to make snug fit, for 4 way splices.

.2 Fitting boxes with cable entrance fittings suitable for steel tape armour sheaths, for 4 way splices.

.2 Not used.

2.2 JUNCTION BOXES SUBWAY LEVEL

.1 Not used.

2.3 JUNCTION BOXES DISTRIBUTION LEVEL

.1 Not used.

2.4 JUNCTION BOXES POWER LEVEL

.1 Not used.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Not used.

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PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 26 05 21 – Wires and Cables (0-1000 V).

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)
.1 CAN/CSA C22.2 No. 18-98(R2003), Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, A National Standard of Canada.
.2 CSA C22.2 No. 45-M1981(R2003), Rigid Metal Conduit.
.3 CSA C22.2 No. 56-04, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
.4 CSA C22.2 No. 83-M1985(R2003), Electrical Metallic Tubing.
.5 CSA C22.2 No. 211.2-M1984(R2003), Rigid PVC (Unplasticized) Conduit.
.6 CAN/CSA C22.2 No. 227.3-05, Nonmetallic Mechanical Protection Tubing (NMPT), A National Standard of Canada (February 2006).

1.3 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.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.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

2.1 CABLES AND REELS

.1 Provide cables on reels or coils.
.1 Mark or tag each cable and outside of each reel or coil, to indicate cable length, voltage rating, conductor size, and manufacturer's lot number and reel number.

.2 Each coil or reel of cable to contain only one continuous cable without splices.

.3 Identify cables for exclusively dc applications.

2.2 CONDUITS

.1 Rigid metal conduit: to CSA C22.2 No. 45, galvanized steel threaded.

.2 Epoxy coated conduit: to CSA C22.2 No. 45, with zinc coating and corrosion resistant epoxy finish inside and outside.

.3 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings.

.4 Rigid pvc conduit: to CSA C22.2 No. 211.2.

.5 Flexible metal conduit: to CSA C22.2 No. 56, steel.

.6 Flexible pvc conduit: to CAN/CSA-C22.2 No. 227.3.

2.3 CONDUIT FASTENINGS

.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 50 m on centre.

.4 Threaded rods, 6 mm diameter, to support suspended channels.

2.4 CONDUIT FITTINGS

.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 degrees bends for 25 mm and larger conduits.

.3 Watertight connectors and couplings for EMT.
.1 Set-screws are not acceptable.

2.5 EXPANSION FITTINGS FOR RIGID CONDUIT

.1 Weatherproof expansion fittings with internal bonding assembly suitable for 200 mm linear expansion.

.2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection.

.3 Weatherproof expansion fittings for linear expansion at entry to panel.

2.6 FISH CORD

.1 Polypropylene.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 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.

.3 Use electrical metallic tubing (EMT) except in cast concrete.

.4 Use rigid PVC conduit underground.

.5 Use flexible metal conduit for[connection to motors in dry areas, connection to surface or recessed fluorescent fixtures, and work in movable metal partitions.

.6 Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations.

.7 Use explosion proof flexible connection for connection to explosion proof motors.

.8 Install conduit sealing fittings in hazardous areas.
.1 Fill with compound.

.9 Minimum conduit size for lighting and power circuits: 19 mm.

.10 Bend conduit cold:
.1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.

.11 Mechanically bend steel conduit over 19 mm diameter.

.12 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.

.13 Install fish cord in empty conduits.

.14 Run 2-25 mm spare conduits up to ceiling space and 2-25 mm spare conduits down to ceiling space from each flush panel.
.1 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 flush concrete type box.

.15 Remove and replace blocked conduit sections.
.1 Do not use liquids to clean out conduits.

.16 Dry conduits out before installing wire.

3.3 SURFACE CONDUITS

.1 Run parallel or perpendicular to building lines.

.2 Locate conduits behind infrared or gas fired heaters with 1.5 m clearance.

.3 Run conduits in flanged portion of structural steel.

.4 Group conduits wherever possible on suspended channels.

.5 Do not pass conduits through structural members except as indicated.

.6 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

3.4 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.

3.5 CONDUITS IN CAST-IN-PLACE CONCRETE

.1 Locate to suit reinforcing steel.
.1 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.
.1 Use cold mastic between sleeve and conduit.

.5 Conduits in slabs: minimum slab thickness 4 times conduit diameter.

.6 Encase conduits completely in concrete with minimum 25 mm concrete cover.

.7 Organize conduits in slab to minimize cross-overs.

3.6 CONDUITS IN CAST-IN-PLACE SLABS ON GRADE

.1 Run conduits 25 mm and larger below slab and encase in 75 mm concrete envelope.
.1 Provide 50 mm of sand over concrete envelope below floor slab.

3.7 CONDUITS UNDERGROUND

.1 Slope conduits to provide drainage.

.2 Waterproof joints (PVC excepted) with heavy coat of bituminous paint.

3.8 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

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