

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.1-12, Canadian Electrical Code, Part I, the latest edition, Safety Standard for Electrical Installations.
- .2 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.

1.2 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.

1.3 SCOPE OF WORK

- .1 As electrical scope of work is minor, electrical drawing details are submitted as part of mechanical drawings.
- .2 Remove the existing electrical cables and wiring in the mechanical pipe line in dike and re-route as shown in the contract drawings.
- .3 Perform grounding/bonding across flange as shown in the contract drawings.
- .4 Re-wiring to control valve and pumps as shown in the contract drawings.

1.4 GENERAL

- .1 These specifications shall be read together with the Drawings and all other sections of the contract documents.
- .2 The complete Work under this trade shall be governed by the dictates of good practice in all details of materials and methods even if not minutely specified. The Work shall be properly co-ordinated with the requirements of other units of work specified in other sections.
- .3 When all work has been completed, the Contractor shall obtain a Final Certificate of Approval (without reservations) from the Electrical Inspector having jurisdiction certifying that the installation is in accordance with the requirements of the contract drawings, specifications, and all governing codes and regulations.
- .4 Upon completion of the project, the Contractor shall provide the Owner with a complete set of record drawings, with changes indicated in red pencil.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

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

- .2 The Contractor shall provide Operation and Maintenance data for incorporation into maintenance manual as specified in Section 01 33 00.

1.6 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.
- .2 Qualifications: electrical Workmanship shall be the best quality, executed by workmen experienced and skilled in their respective trades. Ensure full cooperation among all trades and coordination of the Work with continuous supervision.
- .3 Materials and Products: supplied and installed shall be new. Materials and products supplied shall conform to these specifications and to applicable standards. Use product for which replacement parts and service are readily available. Use product of one manufacturer for product of the same type or classification.
- .4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

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 and approved for hazardous classification based on CEC Section 18. Where CSA certified material and equipment are not available, obtain special approval from authority having jurisdiction or inspection authorities before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.

2.2 MANUFACTURER'S INSTRUCTION

- .1 Unless otherwise specified, comply with the manufacturer's/supplier's instructions for material or product and installation methods.
- .2 Notify the Departmental Representative in writing of any conflict between these Specifications and the instructions of the manufacturer/supplier.

2.3 WARNING SIGNS

- .1 Warning Signs: in accordance with requirements of authority having jurisdiction or inspection authorities Departmental Representative.

2.4 WIRING TERMINATIONS

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

2.5 WIRES AND CONDUCTORS

- .1 All wires and conductors shall be to be copper and to match the existing wires and conductors as shown on the drawing.

2.6 FITTINGS, BOXES AND SEALS

- .1 Fittings, seals, flexible couplings and boxes used in hazardous locations, as defined in CEC Section 18, shall be explosion-proof and rated for use in Class I, Zone 0, 1 or 2 locations, as applicable, and as shown on drawings, and shall be rated for use in Group IIA vapour atmospheres.
- .2 Boxes shall be copper- free aluminum and/or malleable iron, cadmium or zinc finish, Crouse-Hinds or approved equal. All fittings shall have sufficient room for insulated joints, wires and bushings.
- .3 Seals shall be provided as per code requirements.

2.7 CONDUITS

- .1 All conduits shall be sized in accordance with the Canadian Electrical Code unless a larger size is specifically called for on the Drawings.
- .2 All conduits shall be rigid, heavy wall, mild steel tube, electro-galvanized or hot-dipped galvanized. Aluminum conduits shall be considered in certain areas as applicable and permitted by Canadian Electrical Code to those areas only.

2.8 FASTENINGS

- .1 Provide metal fastenings and accessories in the same texture, colour and finish as the base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spaces for securing exterior work, or work that may be located in a corrosive atmosphere.
- .2 Malleable iron clamps shall be used for anchoring conduits.
- .3 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage.
- .4 Space fastenings evenly and lay out neatly.

2.9 GROUNDING AND GROUNDING CONDUCTOR

- .1 Materials for grounding systems shall be in accordance with Section 10 of the Canadian Electrical Code, except that the ground wire sizes shall be no less than the sizes indicated on the drawings and shall be copper stranded.
- .2 The ground wire for anti-static grounding shall be minimum No. 4 AWG stranded copper.

Part 3 Execution

3.1 INSTALLATION

- .1 Complete installation in accordance with CSA C22.1 except where specified otherwise.

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 FIELD QUALITY CONTROL

- .1 Conduct following tests in accordance with Section 01 45 00 - Quality Control.

3.4 CLEANING

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

END OF SECTION