
PART 1 - GENERAL

1.1 General

- .1 Supply of various electrical components are included in Divisions other than Division 16. Be responsible to review all specifications sections and all related shop drawings as prepared by the various project sub contractors as related to required electrical Works. Be responsible to make all electrical components operational as required by the contract documents. Supply materials and complete Works as required to fully integrate and make Work operational and integrated if not specifically itemized in other Divisions.
- .2 The building heating, lighting and equipment are serviced by 3 existing panels. The existing pumps and controls as related to the pool/splash pad equipment are serviced by a Square D 120/240V 3 phase 3 wire panel with 21/42 circuits and a Cutler-Hammer 120/240V 3 phase 3 wire panel with 21/42 circuits. There are sufficient spares and unused circuits available for the proposed Works.
- .3 Use existing breaker panel(s) to feed the electrical devices as required. Provide breakers as required, remove unused breakers.
- .4 New Control Panel: new control panel supply and install is by Division 16. Specifications for new control panel have been incorporated in Section 15200 as this section describes function and process control.
- .5 Complete wiring between existing splash pad controller and new control panel to obtain splash pad start/stop signal and to provide emergency stop to splash pad controller. Be responsible to hire Playquest Recreation to supply and upload a DataKey that will reprogram the existing controller to energize a set of contacts when the water supply is running.
 - .1 Playquest Recreation has provided a quote of \$1,575.00 to complete programming Works. Contractor responsible to confirm pricing with PlayQuest Recreation.
- .6 See Section 15200 for electrical components scope of Work descriptions.
- .7 Complete electrical Works as required for new drain water pump, controls, panels and related Works.

1.2 Commissioning and Training

- .1 Be responsible to review Section 01730 and 01820 and include commissioning and training requirements as outlined in Section 01730 and 01820 in scope of Work.

1.3 Codes and Standards

- .1 Do complete installation in accordance with CSA C22. 1-02 except where specified otherwise.
- .2 Complete all Works under an electrical permit and obtain inspections as required.

1.4 Laws, Rules, and Ordinances

- .1 The installation of the electrical systems shall comply with the requirements of the Manitoba Electrical Code, latest edition, the Manitoba Hydro inspection department, and all provincial and municipal laws, rules and ordinances and to the satisfaction of the Contract Administrator.

- .2 In cases of conflict between the Electrical Code and the plans and specifications the most stringent shall govern however the minimum requirements of the Electrical Code must be met or exceeded at all times.
- .3 In cases of conflict between the Electrical Code, the Electrical Safety Authority and this document the most stringent shall govern however the minimum requirements of the Electrical Code and Electrical Safety Authority must be met or exceeded at all times.

1.5 Permits, Fees
and Inspection

- .1 Obtain all necessary electrical permits and pay all fees.
- .2 Submit to Electrical Inspection Department necessary number of drawings and specifications for examination and approval prior to commencement of Work.
 - .1 Pay associated permit and inspection fees.
- .3 Be responsible for the arranging inspection of the Work by Electrical Safety Authority.
- .4 Notify Contract Administrator in writing of changes required by Electrical Inspection Department.
- .5 Furnish to Contract Administrator the Hydro Inspection Department Acceptance Certificate on completion of Work. Certify that there are no outstanding issues in other correspondence that is not shown on the Acceptance Certificate.

1.6 Responsibility

- .1 Install all Work promptly and in advance of concrete pouring or similar Work.
- .2 Be responsible for excavation and backfilling of power and/or control cables.
- .3 Protect finished and unfinished work from damage due to the carrying out of the Work.

1.7 Workmanship

- .1 Execute all Work in a first class and workmanlike manner.
- .2 Ensure all supports, hangers and securing devices are solid and substantial.
- .3 Neatly lay out all Work in its mechanical appearance and logically arrange for simplicity of installation, accessibility and electrical efficiency.
- .4 Provide to other trades and obtain from other trades all dimensional information as may be required to install and locate openings, piping and conduit for all electrical related equipment or material supplied under this section. Ensure openings, conduit and piping line up on the same plane in all directions with equipment to be connected. Obtain and confirm dimensions of all equipment to be serviced prior to cutting or placing openings or conduit to ensure proper alignment and placement of openings or conduit.
- .5 Rigidly attach panels, boxes, cabinets, switch boxes, etc., to the structure by means of lag bolts, tamp-ins or other approved means of support.

1.8 Materials and
Equipment

- .1 Equipment and materials to carry CSA, ULC or cUL approval and conform with applicable standards, **no exceptions or alternatives.**

- .2 Use stainless steel fasteners for all appurtenances for all Works.

1.9 Drain Water Pump (DWP-101)

- .1 Provide breaker as required.
- .2 Provide starter and control as may be required.
- .3 Provide disconnect switch at manhole to also act as a junction box for pump removal. Ensure disconnect switch is pad lockable on and off.
- .4 Run cable between pump and panel in same trench as piping, ensure minimum 300 mm horizontal clearance from all piping.
- .5 Integrate pump start stop with control panel.

1.10 Splash Pad Supply Pump

- .1 Utilize existing breaker, starter and wiring as required.
- .2 Provide on/off control by new control panel.

1.11 Breakers

- .1 Provide breakers for new equipment in existing breaker panel as required to match existing.
- .2 As a minimum provide new breakers for drain water feed pump and control panel.

1.12 Shop Drawings

- .1 Refer to Section 01340 "Shop Drawings" for shop drawing submission details and requirements. Prepare all required shop drawings in accordance with Section 01340 and as requested within Division 16.

1.13 Maintenance Manuals

- .1 Supply maintenance instructions for each piece of major equipment apparatus in accordance with Section 01730, properly indexed and identified for maintenance and operation. Refer to Section 01730. Include all shop drawings and any other equipment which the Contract Administrator shall designate.

1.14 Identification

- .1 Install designator lettering on all electrical equipment.
- .2 Use lamicoid plastic engraving sheet, black face, white core, mechanically attached with self tapping screws. Label maker and adhesive industrial tape is acceptable.
- .3 Label each switch, switch unit, receptacle, control panel, motor starter, contactor, actuated valves, meters, etc. For disconnects, starters and contactors indicate equipment being controlled and voltage. Label all equipment as to identification including sequential numbering, descriptive purpose, circuit used and function or normal position.

1.15 Testing

- .1 On completion, measure insulation resistance and comply with Table 24 of the Canadian Electrical Code. The insulation resistance shall be in compliance with the latest edition of the

Canadian Electrical Code. If this insulation resistance test is less than required by the Code, the defective circuits or equipment shall be replaced. Submit data sheets with values measured.

- .2 Test all wiring and connections for continuity and grounds before equipment is energized.
- .3 Before energizing system, check all connections and set and calibrate all relays and instruments for proper operation.

1.16 Mounting

- .1 Unistrut
 - .1 Provide Unistrut or other approved metallic U-channel support complete with associated fittings to mount all control panels.
 - .2 Where the protective coating of U-channel support material is disturbed or bare metal is exposed due to drilling, filing, sawing through, or by other means, restore the protective coating by applying appropriate primer prior to painting.

End Section 16010