

**ELECTRICAL SPECIFICATION**

Electrical installation shall be in accordance with the current edition of The Canadian Electrical Code, Provincial, Municipal and other codes, rules and regulations.

The contract shall include the furnishing of labor, new material, equipment and services necessary and reasonably implied and/or incidental to the complete installation of the electrical work as shown on the plans and or specified. Supply and install all devices required for the complete approved system, operating to the complete satisfaction of the responsible Contract Administrator.

Prepare and submit to the proper authorities all necessary permits and pay all fees. Provide responsible Contract Administrator a PDF copy of all electrical permits.

Upon completion and before final payment is made, present to Contract Administrator a Certificate of Approval for all electrical work from the inspection department having jurisdiction.

Electrical work shall be completed in conformance with, and subject to, all cautionary notes available to the reader including those available on the websites of the manufacturers and Contract Administrators.

Electrical installation including electrical equipment supplied, installed or connected shall be tested in the presence of the Contract Administrator on completion of the work.

The Electrical Sub-Contractor shall visit the site and ascertain that all work indicated can be carried out without additional cost to the Contract Administrator.

The Electrical Sub-Contractor shall guarantee the satisfactory operation of all work and apparatus included and installed under this section of the specification for a period of twelve (12) calendar months after the final acceptance of the complete building.

The Electrical Sub-Contractor shall be responsible for any damage caused the Contract Administrators or their contractors by improperly carrying out this contract.

The Electrical Sub-Contractor shall carefully examine all drawings and specifications relating to the work to be certain that the work under this contract can be satisfactorily carried out and prior to the submission of his tender, report at once to the Contract Administrator any defect, discrepancy, omission or interference affecting the work of this section or the guarantee of same.

Submit one set of "as-built" prints or PDF documents to the Contract Administrator.

Grounding shall be in accordance with the latest edition of The Canadian Electrical Code.

Panelboards, motor starters, disconnect switches, etc., shall be properly identified by means of engraved lamacoid nameplates.

Supply and install all motor controls unless noted otherwise on the drawings. Refer to Mechanical drawings for exact location of motors and mechanical equipment. Unless otherwise specified and/or shown on the drawings, supply and install the following motor control equipment:

- Manual motor starters.
- Magnetic motor starters which are not part of package equipment. Refer to Mechanical drawings and specifications.
- Pushbutton stations.
- Hand-off-auto selector switches.
- Motor disconnect switches.
- Interlock contacts as required for starters.
- Enclosures.
- Starter heater elements as required for starters.
- Contactors.
- Time clocks, time switches and photoelectric relays.
- Pilot lights for all starters, switches and pushbutton stations.

Mechanical and Electrical Sub-Contractors are responsible for the mutual coordination of all electrical requirements of mechanical equipment. Coordination is to include the communication of all final electrical complete information from the mechanical contractor to the Electrical Sub-Contractor, the communication of the detailed control information as well as any ancillary information required for the final systems to operate as intended by the responsible Contract Administrator. The coordination is to occur prior to the ordering of equipment by either trade. No extra compensation will be allowed due to failure to carry out this coordination. Report at once to the Contract Administrator any defect, discrepancy, omission or interference affecting the satisfactory completion of work.

Conduits shall be electric metallic tubing unless otherwise noted on drawings or unless prohibited by regulations. Conduits in direct contact with earth or in concrete shall be rigid PVC. Conduits shall be concealed unless otherwise noted on the drawings. Conduits shall not be exposed in any area where concealed work is required without prior written approval.

Outlet, junction and switch boxes shall be galvanized pressed steel of size and type to suit the requirements of each outlet. Outlet boxes shall be accessible.

All wiring shall be in conduit, except that armoured cable may be used in stud partitions and for drops to recessed luminaires (max. 4 luminaires per drop). Armoured cable drops (including any daisy chain) shall not exceed 9m in total length.

Wire and cable shall be copper of standard AWG sizes with 600V (90 Degree C) insulation. Insulation shall be X-Link Polyethylene unless otherwise noted on drawings or prohibited by regulations. Aluminum conductors will not be accepted, unless otherwise indicated. Minimum wire size shall be # 12 AWG.

Panelboards shall be factory-assembled custom made of size, type and arrangement as shown on drawing. Circuit breakers shall be bolt-in, moulded-case, thermal and magnetic trip. Trip values as shown on drawing. Two or three pole breakers shall have common trip units. Mount a typewritten directory behind a plastic shield on the inside of panelboard doors. All distribution equipment to be sprinkler-proof and c/w lockable door. All top entry of conduits or cables must utilize rain-tight wiring methods. Minimum fault rating of circuit breakers shall be 22KA S.C.I.C.

Wall-mounted flush switches shall be specification grade 15A, 125VAC, white handle, side or back wiring. Mount switches 1200mm above finished floor unless otherwise noted on the drawings.

Duplex receptacles shall be specification grade 15A, 125VAC, parallel slot, U-ground, white, side and back wiring. Mount receptacles 450mm above finished floor or 150mm above counter tops unless otherwise noted on the drawings.

Cover plates for flush-mounted receptacles and switches on concealed conduit system shall be stainless steel.

Telephone raceway system shall be in separate and independent conduit system. Empty conduits shall be complete with a #12 AWG pull wire. Install as shown on drawings. Complete entire installation to local telephone utility requirements and satisfaction.

Mount surface mounted equipment such as panelboards, telephone cabinets and other electrical equipment on fireguard mounting boards, c/w grey enamel finish.

Any cutting and patching in existing walls or floors required for the addition or relocation of electrical equipment shall be the responsibility of the Electrical Sub-Contractor.

Existing Work:  
The Electrical Sub-Contractor shall take into account items which he is responsible for due to the changes and alterations to the existing building and/or site and allow for such items that may occur in his bid price.

Provide code conforming emergency lighting and exit system. Min. wire size for this system as per manufacturers recommendations. Acceptable manufacturers include: Ailmitte, Lumacell.

The Electrical Sub-Contractor shall relocate outlets at no additional charge if requested prior to roughing in. The Electrical Sub-Contractor shall relocate outlets at no additional charge if requested by the local authority having jurisdiction.

Electrical installation shall in conformance with the barrier free requirements applicable in the latest edition of the National Building Code of Canada.

Where luminaires are recessed into insulated ceilings, the Electrical Sub-Contractor is responsible for providing luminaires suitable for that use.

Supply and install all indicated electric heaters, standard watt density to be Chromalox or approved equal. Thermostats to be calibrated in degrees Celsius.

Equipment and material shall be installed as specified.

Electrical Sub-Contractor shall submit shop drawings to Contract Administrator for review prior to ordering equipment.

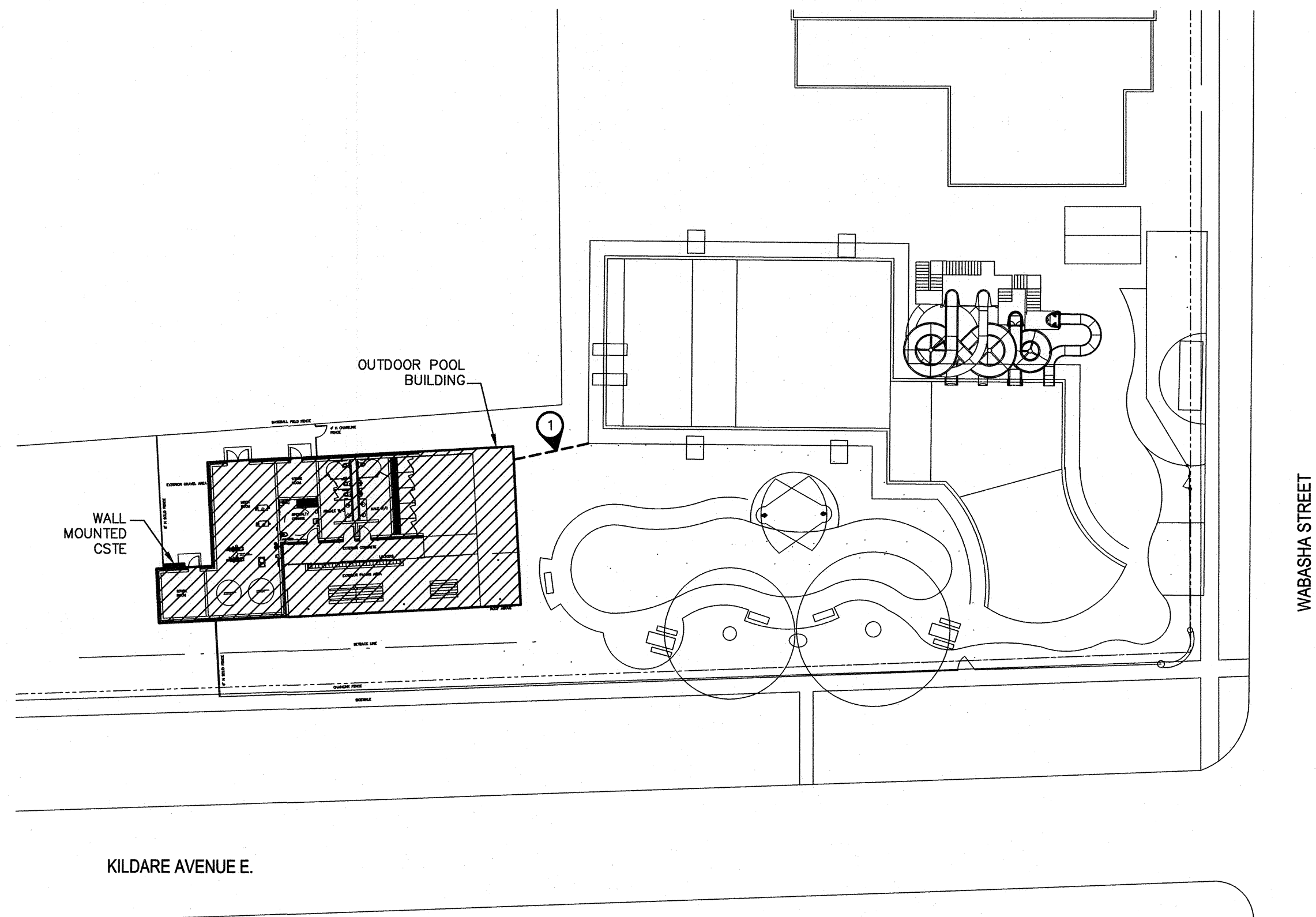
Supply and install, wire and connect all luminaires (to be complete with lamps) as indicated. All luminaires exceeding 150V shall be complete with an integral disconnecting means that will simultaneously open all circuit conductors and conductors supplying the ballast(s). All luminaires exceeding 150V shall be marked in a conspicuous, legible, and permanent manner adjacent to the disconnecting means, identifying the specific purpose. Refer to Canadian Electrical Code rule 30-308(4).

Final connection to all mechanical equipment to be flexible. Obtain and refer to mechanical shop drawings of mechanical equipment for circuit breaker and wire size. Adjust circuit breaker and wire size without additional cost to Contract Administrator.

All existing and new Contract Administrators equipment is to be wired and connected. Supply and install, wire and connect matching receptacle for portable equipment complete with cord and cap. Refer to equipment name plate rating for electrical characteristics prior to rough-in. All Contract Administrators equipment which is non-portable, shall be directly connected via cab tyre cord matching electrical characteristics as determined by nameplate ratings of equipment. Confirm nameplate characteristics prior to rough-in.

Pay all utility contribution charges for associated power and telephone services. Provide trenching and backfilling as required. Coordinate all requirements with utilities prior to tender close to ensure availability and contribution costs of services.

Contract Administrator is responsible for the supply & installation of all communication wiring, unless otherwise noted.



**ELECTRICAL SITE PLAN**  
SCALE: 1/32" = 1'-0"

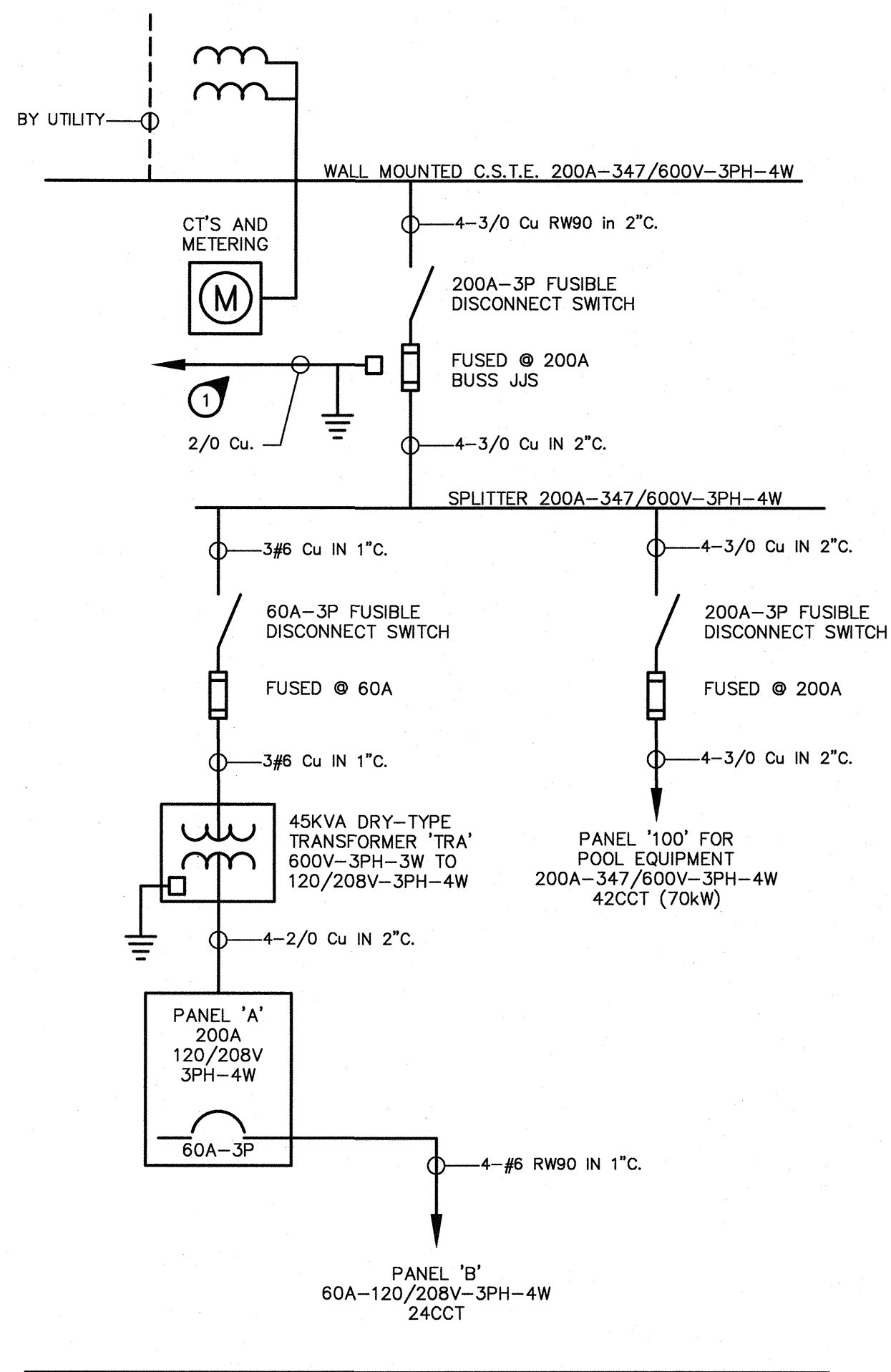
**SYMBOL SCHEDULE**

- Linear luminaire, 'B1-a' denotes panel circuit # and switch.
- Night light luminaire.
- Ceiling mounted luminaire.
- Wall mounted luminaire. 'A' denotes type.
- Single pole switch.
- Single pole switch c/w occupancy sensor control. Auto on/off unless otherwise indicated. Sensorswitch.
- Ceiling mounted occupancy sensor. 'W' indicates wall mounted. Auto on/off unless otherwise indicated. Sensorswitch.
- Time clock by electrical contractor. Tork ELC series.
- Photocell by electrical contractor.
- Duplex receptacle.
- Duplex receptacle mounted above counter level. (See architectural elevations.)
- Corrosion resistant duplex receptacle.
- Duplex receptacle on separate circuit. Provide lamacoid label indicating "SC".
- Duplex receptacle weather proof.
- Ground fault duplex receptacle.
- 20A T-slot duplex receptacle.
- Combination voice/data outlet c/w cover plate. Run two(2) Cat6 UTP cables back to telephone backboard.
- Fireguard backboard c/w power supply and #6 AWG green ground wire to building ground and c/w one(1) 3" entrance conduit as required by the telephone utility and one(1) 3" entrance conduit as required by the CATV utility.
- Motor. Refer to mechanical for exact location. For roof mounted equipment, supply and install wire and connect a separate circuit GFI receptacle in accordance with C.E.C. rule 26-704.
- Disconnect switch to suit application. By electrical contractor.
- Motorized damper control wiring by mechanical contractor, 120V power supply by electrical contractor.
- Junction box.
- TO-HDR101 with no drip tray hand dryer (120V-1PH, 390W).
- Electric force flow heater c/w built in thermostat unless otherwise indicated. 'FF-4' denotes type. '4K' denotes wattage. See heating schedule for details.
- Electric heater. 'C' denotes type, see electric heating schedule. "1000" denotes watt. ● denotes heater c/w built in thermostat. ○ denotes heater controlled by remote thermostat. Provide low voltage relays if required. Refer to mechanical for details.
- Thermostat by electrical contractor.
- Emergency battery bank c/w two(2) 6W (540 lumen) LED heads. 12V, backup battery capacity to suit. Lumacell.
- LED Emergency double head fixture c/w two(2) 6W (540 lumen) LED heads. Wire to battery bank. Lumacell. 'VR' indicates vandal-resistant, NEMA 4X.
- 120V carbon monoxide detector c/w sounder base local alarm.

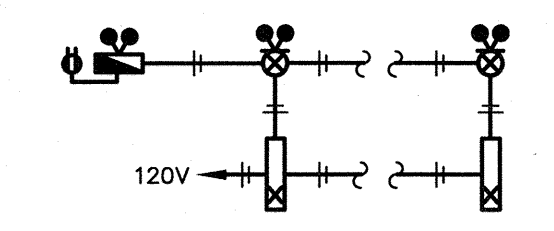
Note:  
'E' indicates existing to remain.  
'R' indicates existing electrical device relocated to new location indicated.  
'c' indicates ceiling mounted.

**SPECIFIC ELECTRICAL NOTES**

- CONNECT POOL GROUND GRID TO BUILDING GROUND IN ACCORDANCE WITH W.E.B.



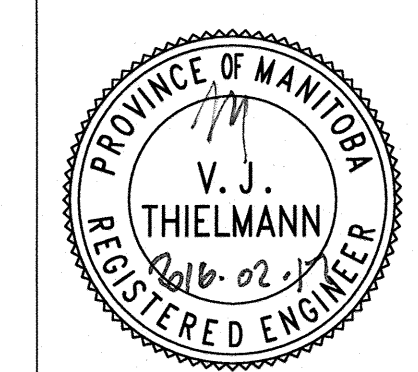
**SINGLE LINE DIAGRAM**  
N.T.S.



**EMERGENCY LIGHTING AND SIGNAGE**  
N.T.S.

- CONDUCTORS SIZED TO MANUFACTURERS RECOMMENDATIONS. MAXIMUM 5% VOLTAGE DROP.
- WIRE AND CONNECT DC TO ALL COMPONENTS.
- PROVIDE 30 MINUTE CAPACITY UNDER FULL LOAD.
- INTERLOCK WITH NORMAL LIGHTING CIRCUIT TO ACTIVATE EMERGENCY LIGHTING UPON LOSS OF NORMAL LIGHTING IN THE AREA, FOR EACH EMERGENCY LIGHTING HEAD. PROVIDE ZONE SENSING RELAYS AS REQUIRED.

No.	DATE	REVISION / ISSUANCE
4	YY.MM.DD	-
3	YY.MM.DD	-
2	YY.MM.DD	-
1	YY.MM.DD	-
0	2016.02.17	Issued for Construction



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Project: BID OPPORTUNITY 1008-2015  
**TRANSCONA CENTENNIAL POOL**  
**PHASE 1B - NEW OUTDOOR POOL BLDG**  
1101 WABASHA STREET

**ELECTRICAL - SPECIFICATION AND LAYOUTS**

**APEGM**  
Certificate of Authorization  
Nova 3 Engineering Ltd.  
No. 962 Date: 2016.02.17

Project No. 1426  
Date: Feb. 17, 2016  
**E1.0**