

## 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 as specified. Supply and install all devices required for the complete approved system, operating to the complete satisfaction of the Contract Administrator.

Prepare and submit to the proper authorities all necessary permits and pay all fees. Provide 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, consultants and Contract Administrator.

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

The Electrical Subcontractor shall visit the site and ascertain that all Work indicated can be carried out without additional cost to the City.

The Electrical Subcontractor 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 Subcontractor shall be responsible for any damage caused the Owners, the City or their Subcontractors by improperly carrying out this contract.

The Electrical Subcontractor 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.

Mechanical and Electrical Subcontractors are responsible for the mutual coordination of all electrical requirements of mechanical equipment. Coordination is to include the communication of all final electrical nameplate information from the Mechanical Subcontractor to the Electrical Subcontractor, 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 Professional Engineer. 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. PVC conduit exposed to the extremes of outdoor temperatures shall not be used without prior approval from the responsible engineer. Conduits shall be concealed unless otherwise noted on the drawings. Conduits shall not be exposed in any area where concealed installation, apparatus or 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.

Circuit breakers shall match existing. 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.

Wall-mounted flush switches shall be specification grade 15A, 125VAC. White handle, side or back wiring. Mount switches 1200mm (to top of box) 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.

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 Subcontractor.

Existing apparatus, installations & works:

The Electrical Subcontractor shall take into account items which he is responsible for due to the changes and alterations to the existing building and allow for such items that may occur in his tendered price.

The Electrical Subcontractor is to notify the supply utility of all load increases to existing service.

Existing conduits, wire and outlets which are in good repair and sized to meet all code requirements, may be reused. All equipment to be reused must be approved by the local inspection department and the Contract Administrator.

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

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

Electrical installation shall be 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 Subcontractor is responsible for providing luminaires suitable for that use.

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

Equipment and material shall be installed as specified. Requests for equal status shall be submitted in accordance with B7. Where not covered by B7, request shall be submitted to Contract Administrator 5 Working days prior to tender submission none of these requests will be accepted past the 5 day deadline and only one request will be considered from each supplier (if rejected for any reason, no further substitutes from the same supplier will be reviewed).

Electrical Subcontractor shall submit shop drawings to Contract Administrator for review prior to ordering equipment. At the request of the Contract Administrator, the successful Electrical Subcontractor shall submit a completed C-1 form (form available from Contract Administrator).

Supply and install, wire and connect all luminaires (to be complete with lamps) as indicated.

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 The City.

All existing and new City 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 City equipment which is non-portable shall be directly connected via cable type cord matching electrical characteristics as determined by nameplate ratings of equipment. Confirm nameplate characteristics prior to rough-in.

## WORK IN EXISTING AREA

A. Refer to electrical, architectural, and mechanical drawings for work involved in existing building.

B. Examine the site and local conditions affecting the work to establish all information necessary for the installation. No extra compensation will be allowed due to failure to make this examination.

C. Install, wire and connect all new mechanical equipment as shown or noted on the drawing as specified.

D. Rewire, alter, modify, divert and extend existing wiring as herein specified and as may be required to provide a complete, approved, and fully operative installation to the satisfaction of the Contract Administrator.

E. In all areas where existing walls, ceilings, etc. are required to be cut into or removed, or other similar construction or alterations are required, existing wiring in the areas required to remain in use for any reason, this contractor shall reroute, alter, and/or divert all such wiring in these areas in an approved manner, concealed in the building structure where required in such a manner that the original electrical capacity or characteristics of the existing wiring is maintained to the complete satisfaction of the Contract Administrator.

F. Conduits and boxes shall be installed exposed (surface mounted) only in areas specified.

G. Cutting and patching necessary for conduit work, etc., shall be as specified in another section of this contract. Routes of conduits, etc. shall be coordinated with the City and Contract Administrator in order to keep such cutting and patching to a minimum. All existing wiring that is required to remain in use and required to be diverted and extended to appropriate existing panelboards, etc., shall be installed in conformance with this specification.

H. Existing branch circuit wiring within the areas of the renovations which are substandard or do not meet normal requirements, shall be noted and the City advised. All existing circuits which are required to be reconnected shall be free from interconnection (cross connected circuits, i.e. accidentally connected to the conductors of another circuit) and shall conform to the installation tests described elsewhere in this section of the specification. The responsibility for existing wiring which is not required to be altered in any way is beyond the area of this contract and is not included in this scope of work unless such wiring is specifically affected due to work carried out in this contract.

J. Existing branch circuit wiring and outlets, etc. for any electrical systems no longer required to remain in use shall be removed, or if this is not possible, rendered permanently inaccessible and completely disconnected from the electrical distribution system. Existing branch circuit wiring which unnecessarily extends into the construction area shall be terminated (dead-ended) in an approved manner.

K. Disconnect and remove all existing lighting fixtures and dispose of in an approved manner.

L. Scheduling work in existing building shall be as arranged with the City to minimize disruption to the City's operations during normal working hours. Any shutdowns or interruptions to systems or operation shall be at times acceptable to and approved by the City and architects.

M. The City shall remove items such as special equipment, devices, cables, etc., in areas to be renovated prior to commencement of electrical work. Electrical trade shall remove/terminate any branch circuit wiring, etc., no longer required which supplied the above equipment.

N. Disconnect and remove existing ceiling mounted electrical devices for the construction of new ceiling. Once new ceiling is complete, reinstall and reconnect to original locations and circuits.

## SYMBOL SCHEDULE

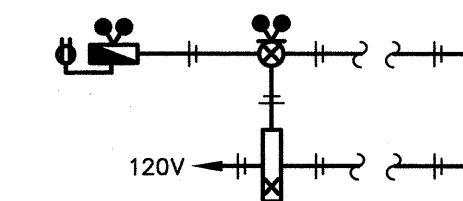
- Linear luminaire, 'B1-d' denotes panel circuit # and switch.
- Ceiling mounted luminaire.
- Wall mounted luminaire. 'A' denotes type.
- Single pole switch.
- Three way switch.
- Single pole switch c/w occupancy sensor control. Auto on/off unless otherwise indicated. Sensorswitch.
- Duplex receptacle.
- Duplex receptacle mounted above counter level. (See architectural elevations.)
- 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 26-708 and 26-710.
- Fusible disconnect switch to suit application. By electrical contractor.
- Magnetic motor starter. By electrical contractor.
- Junction box.
- 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 watts.  denotes heater c/w built in thermostat.  denotes heater controlled by remote thermostat. Provide low voltage relays if required. Refer to mechanical for details.
- Emergency battery bank c/w two(2) 6W (540 lumen) LED heads. 12V, backup battery capacity to suit. Lumacell.
- Vandal resistant, LED Emergency double head fixture c/w two(2) 6W (540 lumen) LED heads. Wire to battery bank. Lumacell.
- Combination LED pictogram exit sign/emergency double head fixture c/w two(2) 6W (540 lumen) LED lamps and integral battery backup (minimum 30 minutes). Lumacell.
- Provide 120V power for CO/NO2 sensor (by others).

Note:

- 'E' indicates existing to remain.
- 'R' indicates existing electrical device relocated to new location indicated.

PANEL MOUNTING LOCATION	A (EXISTING) SURFACE GARAGE 103	VOLTAGE MAIN BUS	120/240V-1PH-3W 100A
DESCRIPTION	BKR	CIRCUIT	REMARKS
EXTERIOR LIGHTING	15	1	2
RECEPTACLES/AUTO FLUSH TRANSFORMER	15	3	4
T-SLOT RECEPTACLE	20	5	6
EF-1/HRV-1/CO NO2/MOTORIZED DAMPER	15	7	8
T-SLOT RECEPTACLE	20	9	10
EXISTING FORCEMAIN LEAK MONITOR	-	11	12
SPARE	20	13	14
EXISTING HOT WATER TANK	20	15	16
			15
			20
			30
			P-1
			#10 WIRE
			SPARE

REUSE EXISTING CIRCUIT BREAKERS AS PRACTICABLE. PROVIDE NEW MATCHING CIRCUIT BREAKERS FOR ALL OTHERS



## 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.

## NOVA 3 ENGINEERING LTD. PROFESSIONAL ENGINEERS

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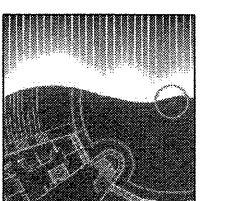
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### Revisions

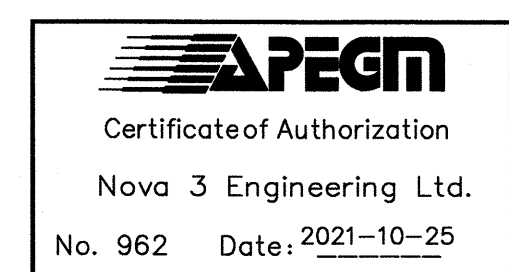
2021-10-25 Issued for Construction  
 Date Revision

Northern Sky Architecture Inc.

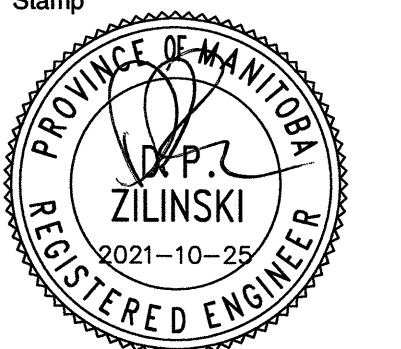
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Stamp



Stamp



Project  
 City of Winnipeg  
 Churchill Park Maintenance  
 Building Renovation  
 430 Churchill Dr  
 Winnipeg, Manitoba

drawing title	ELECTRICAL SPECIFICATION		
scale	as noted	designed by	CL
date	2021-08-30	drawn by	CL
project no.	21.190	reviewed by	DZ
reference no.	sheet	E1.0	REV.