

PART 1**ELECTRICAL GENERAL PROVISIONS****1.1 GENERAL**

1. The specification covering the General Conditions of the Contractor, General Specifications, Instructions to Contractor and all associated sections form an integral part of this specification and shall be read in conjunction herewith.

1.2 SCOPE

1. Provide all materials, labour, plant and equipment required for a complete and working installation as herein specified and as shown on the drawings.
2. The electrical installation shall be in accordance with the current edition of the Canadian Electrical Code, Provincial and Municipal codes and regulations.
3. Obtain all permits, approvals and pay all related fees required for this installation.
4. All equipment supplied by this Contractor shall be new and be C.S.A. approved.
5. Contractor to co-ordinate all telephone conduit runs with MTS before installation begins.
6. Contractor to arrange for, and co-ordinate, rough-in and final inspections with Code Authorities, Contract Administrator and The City of Winnipeg.

1.3 EXAMINATION

1. Examine drawings to ensure the Work can be satisfactorily carried out. Report any discrepancies to the Contract Administrator prior to submission of bid opportunity.
2. Examine the site, local conditions and all existing apparatus if any to be re-used and verify that the condition of this equipment is suitable for its intended use in the new construction.

1.4 SUPERVISION

1. Contractor to supervise the work at all times.
2. Full co-operation shall be shown with other trades to facilitate installations and to avoid delays in carrying out the work.

1.5 ACCURACY OF DATA

1. Drawings are schematic; exact locations, distances, levels and other dimensions shall be governed by the building as constructed.
2. Outlets or equipment shall be moved to any point within a 10' radius when relocation is requested by the Contract Administrator before the work has been substantially completed, without additional cost.
3. Branch circuit wiring shall be installed with circuits arranged exactly as shown on the drawings. Conduit and cable runs may be modified to suit the installation.

1.6 APPROVAL OF MATERIAL

1. Request for approval of material as equals or alternates to that specified shall be submitted to the Contract Administrator with a stamped self-addressed envelope and performance specifications five (5) Business days in accordance

with B6. Samples shall be provided on request.

1.7 SHOP DRAWINGS

1. Submit shop drawings of electrical equipment to the Contract Administrator. Fabrication of equipment shall not commence until shop drawings of such equipment have been reviewed by the Contract Administrator. Two sets shall be submitted with local Inspection Department approval where required.

1.8 RECORD DRAWINGS

1. Keep a record set of drawings on the site at all times recording any changes that may occur. Submit these drawings to the Contract Administrator upon completion of the work. Record drawings shall include circuiting of new and existing equipment to remain. Transfer changes to electronic disc AutoCAD file. Submit disc and hard copy for final review and submission to the Contract Administrator.
2. Submit a Certificate of Inspection from the local Inspection Authority upon completion of work and include with record drawings.
3. The Contract Administrator reserves the right to recommend that a portion of the Contract funds be withheld pending submission of acceptable record drawings.

1.9 TEST

1. The electrical installation shall be completely tested demonstrating that the equipment and systems installed perform in the manner intended.

1.10 GUARANTEE

1. The satisfactory operation of all work shall be guaranteed for a period of 12 calendar months after final acceptance of the building.

1.11 REQUESTS FOR CHANGE

1. All quotations in response to request for change shall be submitted complete with an itemized cost breakdown of all materials and labour required in the change.

1.12 GROUNDING

1. The entire installation shall be grounded in accordance with the Canadian Electrical Code.

1.13 WORKMANSHIP

1. Install equipment, conduit and cables in a workmanlike manner to present a neat appearance to the satisfaction of the Contract Administrator. Install conduit and cable runs parallel and perpendicular in chases, behind furring or above ceilings. In areas where systems are to be exposed (electrical room only), install neatly and group to present a tidy appearance.
2. Install equipment and apparatus requiring maintenance, adjustment or eventual replacement with adequate clearances and accessibility for same.
3. Include, in the work, all requirements shown on the shop drawings or manufacturers' installation instructions.
4. Replace work unsatisfactory to the Contract Administrator without extra cost.
5. All conduit shall be clipped to structural concrete by means of anchors or supported by Unistrut hangers as close to U/S as possible. Tye wraps and tie

wire for wire and conduit support and fastening is not acceptable. Perforated strapping is also unacceptable.

6. All support material for all luminaires, outlet boxes, junction boxes, etc. in a non-combustible building shall be of non-combustible material. Wood is not acceptable.

1.14 WORK IN EXISTING BUILDING

1. The building shall remain open and in normal operation during the construction period of this Contract.
2. Where existing services such as electrical power, fire alarm system, television system, are required to be disrupted and/or shut-down, co-ordinate the shut-downs with the Contract Administrator and carry out the work at a time and in a manner acceptable to them. Carefully schedule all disruptions and/or shutdowns and ensure that the duration of same is kept to a minimum. Submit for approval, a written schedule of each disruption at least 72 hours in advance of performing work and obtain the Contract Administrator's written consent prior to implementing.
3. Should any connections be required to maintain services during work in the existing building, supply and install all necessary material and equipment and provide all labour at no extra cost. Should any existing system be damaged, make full repairs without extra cost, and to the satisfaction of the Contract Administrator.
4. The drawings indicate major items of equipment to be deleted or relocated but may not indicate every item of equipment or conduit to be deleted or relocated. Be responsible for determining which existing equipment is to be deleted or relocated by examining the site and Construction Documents.
5. Existing junction boxes shall remain accessible.
6. Refer to Contract Administrator for phasing and staging of work and adhere to it. Comply with instructions regarding working hours necessary to maintain the building in operation.
7. It shall be the responsibility of the Contractor to ensure that any coring of holes through the deck will not penetrate existing conduits, cables or equipment in or under the floor slabs. The Contractor shall be responsible to take any and all action as deemed necessary by the Contract Administrator to correct any such penetrations at his cost. No coring shall be undertaken unless permission is given by the Contract Administrator.

PART 2**MATERIALS AND INSTALLATION****2.1 OUTLET BOXES**

1. Outlet, junction and switch boxes shall be galvanized pressed steel of size and type to suit each individual application.

2.2 WIRING METHODS

1. Unless otherwise shown on the drawings, all wire shall be copper, minimum #12 AWG with 90 degrees Celsius x-link insulation. Wiring to be installed in conduit.
2. Wiring in concrete or masonry construction shall be installed in steel electrical metallic tubing (EMT). Provide a separate grounding conductor in EMT conduit runs embedded in concrete slabs. Conduits installed in areas exposed to moisture shall have watertight fittings.
3. All wiring in finished areas shall be concealed. Conduits shall be run at right angles to the building lines.
4. Conduit and wiring shall be grouped where possible and clipped in a neat and workmanlike manner.

2.3 IDENTIFICATION OF EQUIPMENT

1. All equipment, including receptacles, shall be identified with engraved lamacoid nameplates either screwed or rivetted in place, or DYNAMO 6000 identification strip.

2.4 MECHANICAL EQUIPMENT WIRING

1. Provide starters and wiring for all heating, ventilating and plumbing equipment unless specified otherwise.
2. Power and control wiring for the mechanical equipment shall be performed by the Contractor. Obtain wiring diagrams for all equipment.
3. Refer to the drawings for the exact locations requiring an electrical connection.

2.5 PANEL BOARDS

1. Circuit breakers shall be bolt on moulded case with thermal breakers rated at 10,000A symmetrical.
2. Revise the directory in existing panels to suit revised circuiting (typewritten). Place existing directory behind new directory for verification by Contract Administrator and The City of Winnipeg.
3. New panel and subdistribution shall match existing.

2.6 CUTTING AND PATCHING

1. Arrange and pay for all cutting and patching as required for the installation.

END OF SECTION