

PART 1 GENERAL

1. GENERAL SPECIFICATION

- 1.1. IT IS RECOMMENDED THAT THE BIDDERS EXAMINE THE SITE AND THE EXISTING CONDITIONS AFFECTING THE PROJECT. EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THAT THE WORK CAN BE CARRIED OUT WITHOUT SIGNIFICANT CHANGES TO THE INTENT OF THE DOCUMENTS. NO FUTURE ALLOWANCE WILL BE MADE CHANGES UNLESS THE ENGINEER HAS BEEN NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERFERENCES. PRIOR TO THE CLOSE OF TENDERS, NO ALLOWANCE WILL BE MADE FOR ITEMS WHICH SHOULD HAVE BEEN NOTED DURING A PRE-TENDER SITE INSPECTION.
1.2. THE LOCATION, ROUTING AND ELEVATIONS OF ALL NEW AND EXISTING SERVICES AND UTILITIES SHOWN ON THE DRAWINGS ARE TO BE CONSIDERED AS APPROXIMATIONS ONLY. VERIFY THE EXACT LOCATIONS, ROUTINGS AND ELEVATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK, AND ASSUME RESPONSIBILITY FOR LAYING OUT ALL WORK. THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ANY DAMAGE TO EXISTING SERVICES AND UTILITIES.
1.3. ALL ASPECTS OF THE INSTALLATION MUST COMPLY WITH THE MOST STRINGENT OF THE APPLICABLE BUILDING CODES, LOCAL REGULATIONS, AND BY-LAWS. BEFORE PROCEEDING WITH THE WORK, OBTAIN APPROVED DRAWINGS AND SPECIFICATIONS FROM THE AUTHORITIES HAVING JURISDICTION.
1.4. PROVIDE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES REQUIRED BY LAW, AND ARRANGE FOR ALL INSPECTIONS RELATED TO THE PERFORMANCE OF THE SPECIFIED WORK.
1.5. PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THE WORK AS SHOWN AND AS SPECIFIED, SO AS TO LEAVE THE OWNER WITH A COMPLETE AND FUNCTIONING SYSTEM. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND C.S.A. APPROVED, UNLESS SPECIFICALLY NOTED OTHERWISE. ALL SIMILAR EQUIPMENT AND OR MATERIALS SHALL BE BY THE SAME MANUFACTURER.
1.6. REQUEST FOR APPROVAL OF SUBSTITUTE MATERIAL AND/OR EQUIPMENT FOR THAT SPECIFIED, SHALL BE SUBMITTED TO THE ENGINEER WITH A STAMPED SELF-ADDRESSED ENVELOPE OR RETURN FAX NUMBER AT LEAST FIVE WORKING DAYS PRIOR TO TENDER CLOSING. REQUESTS SHALL INCLUDE ALL PERFORMANCE SPECIFICATIONS, PHYSICAL DATA AND OTHER PERTINENT INFORMATION REQUIRED FOR THE ENGINEER TO MAKE A COMPLETE COMPARISON.
1.7. ALL CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. EXISTING EXPOSED SURFACES SHALL BE RETURNED TO AN "AS-FOUND" CONDITION ACCEPTABLE TO THE OWNER.
1.8. PROVIDE ALL REQUIRED ACCESS PANELS WITH SUITABLE FIRE RATINGS FOR THE WALL OR CEILING THAT THEY ARE BEING INSTALLED IN.
1.9. EACH CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER CONTRACTORS IN ORDER TO AVOID CONFLICTS.
1.10. NEATLY STORE ALL MATERIALS, AND CLEAN UP REFUSE ON A REGULAR BASIS. PROTECT AND MAINTAIN ALL WORK UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
1.11. THE INSTALLATION SHALL BE COMPLETELY TESTED, DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED ARE PERFORMING IN THE MANNER INTENDED.
1.12. AT THE COMPLETION OF THE INSTALLATION, PROVIDE TWO MARKED-UP COPY OF THE OF THE "AS-BUILT" DRAWINGS FOR RECORD PURPOSES. PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS. PAY ALL COSTS ASSOCIATED WITH THE PRODUCTION OF THE "AS-BUILT" DRAWINGS AND THE MANUALS. SUBMIT THE DOCUMENTS TO THE ENGINEER FOR REVIEW, AND MAKE ANY REQUESTED CHANGES BEFORE DELIVERING THEM TO THE OWNER.
1.13. REVIEW THE OPERATION AND MAINTENANCE OF THE SYSTEMS WITH THE OWNER'S MAINTENANCE PERSONNEL AND PROVIDE WRITTEN AND/OR VERBAL INSTRUCTIONS AS REQUIRED.
1.14. FURNISH CERTIFICATES CONFIRMING THAT THE WORK HAS BEEN INSTALLED TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.
1.15. NO CERTIFICATE ISSUED, PAYMENT MADE, OR PARTIAL OR ENTIRE USE OF THE SYSTEMS BY THE OWNER, SHALL BE CONSTRUED AS ACCEPTANCE OF DEFECTIVE WORK OR MATERIALS.
1.16. THE CONTRACTOR SHALL PROVIDE A ONE YEAR LABOR AND MATERIAL WARRANTY ON ALL NEW EQUIPMENT AND COMPONENTS, COMMENCING UPON THE DATE OF ACCEPTANCE BY THE OWNER.
1.17. REPLACE AT NO CHARGE TO THE OWNER, ALL ITEMS WHICH FAIL OR PROVE DEFECTIVE WITHIN A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE OWNER, PROVIDED THAT THE FAILURE IS NOT DUE TO IMPROPER USAGE BY THE OWNER, MAKE GOOD ALL DAMAGES INCURRED AS A RESULT OF THE FAILURE AND OF THE REPAIRS.
1.18. THE ELECTRICAL SUB-CRONTACTOR SHALL PROVIDE AND INSTALL ALL UNIT, FORCEFLOW AND BASEBOARD HEATERS

2. ELECTRICAL SPECIFICATIONS

- 2.1. REFER TO DIVISION 1 AND ARCHITECTURAL SPECIFICATIONS AND OTHER GENERAL CONDITIONS.
2.2. PROVIDE FOR A COMPLETE AND WORKING INSTALLATION AS HEREIN SPECIFIED AND AS SHOWN ON THE DRAWINGS.
2.3. THE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE, PROVINCIAL AND MUNICIPAL CODES AND REGULATIONS.
2.4. OBTAIN ALL PERMITS, APPROVALS AND PAY ALL RELATED FEES REQUIRED FOR THIS INSTALLATION.
2.5. ALL EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE NEW AND BE C.S.A. APPROVED.
2.6. ARRANGE FOR, AND COORDINATE, ROUGH-IN AND FINAL INSPECTIONS WITH INSPECTION AUTHORITIES, CONSULTANT AND THE BUILDING OWNER'S REPRESENTATIVE.
2.7. CONFIRM ALL RECEPTACLE CONFIGURATIONS, OUTLETS AND WIRING FOR OWNER SUPPLIED EQUIPMENT BEFORE INSTALLATION OF SAME. VISIT EXISTING SITE WHERE SUCH EQUIPMENT IS PRESENTLY INSTALLED, AND/OR OBTAIN OUTLETS, WIRING AND RECEPTACLE CONFIGURATIONS FROM EQUIPMENT MANUFACTURERS. EXACT CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN ON THE DRAWINGS. INCLUDE ALL COSTS TO PROVIDE NECESSARY OUTLETS WIRING AND RECEPTABLES.
2.8. UPON COMPLETION AND BEFORE FINAL PAYMENT IS MADE, PRESENT TO THE CITY'S CONTRACT ADMINISTRATOR A CERTIFICATE OF APPROVAL FOR ALL ELECTRICAL WORK FOR INSPECTION DEPARTMENT HAVING JURISDICTION.

3. EXAMINATION

- 3.1. EXAMINE THE ARCHITECTURAL, INTERIOR DESIGN, STRUCTURAL AND MECHANICAL DRAWINGS TO ENSURE THAT THE WORK UNDER THIS CONTRACT CAN BE SATISFACTORILY CARRIED OUT. REPORT ANY DISCREPANCIES TO THE CONSULTANT PRIOR TO SUBMISSION OF TENDER.
3.2. THE ELECTRICAL SUBCONTRACTOR SHALL EXAMINE THE SITE, LOCAL CONDITIONS AND CONSIDER HOW THEY MAY AFFECT THE PROJECT.

4. SUPERVISION

- 4.1. SUPERVISE THE WORK AT ALL TIMES THROUGH A RESPONSIBLE AND COMPETENT JOURNEMEN ELECTRICIAN / SUPERVISOR.

- 4.2. FULL COOPERATION SHALL BE SHOWN WITH OTHER TRADES TO FACILITATE INSTALLATIONS AND TO AVOID DELAYS IN CARRYING OUT THE WORK.

5. ACCURACY OF DATA

- 5.1. DRAWINGS ARE SCHEMATIC; EXACT LOCATIONS, DISTANCES, LEVELS AND OTHER DIMENSIONS SHALL BE GOVERNED BY THE BUILDING AS CONSTRUCTED.
5.2. OUTLETS OR EQUIPMENT SHALL BE MOVED TO ANY POINT WITHIN A 10' RADIUS WHEN RELOCATION IS REQUESTED BY THE CONSULTANT OR OWNER BEFORE THE WORK HAS BEEN SUBSTANTIALLY COMPLETED, WITHOUT ADDITIONAL COST.
5.3. 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.

6. APPROVAL OF MATERIAL

- 6.1. REQUEST FOR APPROVAL OF MATERIAL AS EQUALS OR ALTERNATES TO THAT SPECIFIED SHALL BE SUBMITTED TO THE CONSULTANT WITH A STAMPED SELF-ADDRESSED ENVELOPE OR RETURN FAX NUMBER AND PERFORMANCE SPECIFICATIONS FIVE (5) WORKING DAYS PRIOR TO THE TENDER SUBMITTAL. SAMPLES SHALL BE PROVIDED ON REQUEST.

7. SHOP DRAWINGS

- 7.1. SUBMIT SHOP DRAWINGS FOR REVIEW BY THE ENGINEER IN PDF FORMAT VIA EMAIL.
7.2. THE REVIEW OF THE SHOP DRAWINGS IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THE REVIEW SHALL NOT MEAN APPROVAL OF THE DETAILED DESIGN INHERENT IN THE EQUIPMENT, THE RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR. THE REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONFIRMING AND CORRELATING THE DIMENSIONS ON THE JOBSITE, AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION PROCESS, CONSTRUCTION TECHNIQUES, AND INSTALLATION DETAILS, AND FOR COORDINATING ALL WORK OF THE RELATED SUB-TRADES.
7.3. FABRICATION OF EQUIPMENT SHALL NOT COMMENCE UNTIL SHOP DRAWINGS OF SUCH EQUIPMENT HAVE BEEN REVIEWED BY THE CONSULTANT. TWO SETS SHALL BE SUBMITTED WITH LOCAL INSPECTION DEPARTMENT APPROVAL WHERE REQUIRED.
7.4. REQUIRED SHOP DRAWINGS:
• LIGHT FIXTURES, LAMPS, BALLASTS AND CONTROL SYSTEMS
• LOW VOLTAGE LIGHTING CONTROLS

8. AS-BUILT DRAWINGS

- 8.1. KEEP A RECORD SET OF DRAWINGS ON THE SITE AT ALL TIMES RECORDING ANY CHANGES THAT MAY OCCUR. SUBMIT THESE DRAWINGS TO THE CONSULTANT UPON COMPLETION OF THE WORK. AS-BUILTS SHALL INCLUDE CIRCUITING OF NEW AND EXISTING EQUIPMENT TO REMAIN.
8.2. SUBMIT A CERTIFICATE OF INSPECTION FROM THE LOCAL INSPECTION AUTHORITY UPON COMPLETION OF WORK AND INCLUDE WITH "AS-BUILT" DRAWINGS.
8.3. THE CONSULTANT RESERVES THE RIGHT TO RECOMMEND THAT A PORTION OF THE CONTRACT FUNDS BE WITHHELD PENDING SUBMISSION OF ACCEPTABLE AS-BUILT DRAWINGS.

9. TESTING

- 9.1. THE ELECTRICAL INSTALLATION SHALL BE COMPLETELY TESTED DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED PERFORM IN THE MANNER INTENDED.

10. GUARANTEE

- 10.1. THE SATISFACTORY OPERATION OF ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 CALENDAR MONTHS AFTER FINAL ACCEPTANCE OF THE BUILDING.

11. REQUEST FOR CHANGE

- 11.1. 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.

12. GROUNDING

- 12.1. THE ENTIRE INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE AND AS SHOWN ON DRAWINGS.

13. WORKMANSHIP

- 13.1. INSTALL EQUIPMENT, CONDUIT AND CABLES IN A WORKMANLIKE MANNER TO PRESENT A NEAT APPEARANCE TO THE SATISFACTION OF THE CONSULTANT. INSTALL CONDUIT AND CABLE RUNS PARALLEL AND PERPENDICULAR IN CHASES, BEHIND FURRING OR ABOVE CEILINGS, IN AREAS WHERE SYSTEMS ARE TO BE EXPOSED, INSTALL NEATLY AND GROUP TO PRESENT A TIDY APPEARANCE.
13.2. INSTALL EQUIPMENT AND APPARATUS REQUIRING MAINTENANCE, ADJUSTMENT OR EVENTUAL REPLACEMENT WITH ADEQUATE CLEARANCES AND ACCESSIBILITY FOR SAME.
13.3. INCLUDE, IN THE WORK, ALL REQUIREMENTS SHOWN ON THE SHOP DRAWINGS OR MANUFACTURERS' INSTALLATION INSTRUCTIONS.
13.4. REPLACE WORK UNSATISFACTORY TO THE CONSULTANT WITHOUT EXTRA COST.
13.5. USE OF CLIPS FOR SECURING AC90 TO CEILING SYSTEM IS PROHIBITED.
13.6. ALL CONDUITS MUST BE CLIPPED TO STRUCTURAL CONCRETE BY MEANS OF ANCHORS OR SUPPORTED BY UNISTRUT HANGERS AS CLOSE TO UNDERSIDE AS POSSIBLE. THE WRAPS FOR WIRE HANGING AND FASTENING IS NOT ACCEPTABLE. PERFORATED STRAPPING IS ALSO UNACCEPTABLE. ALL ELECTRICAL COMPONENTS MUST BE SUPPORTED INDEPENDENTLY.
13.7. ALL ELECTRICAL SUPPORTS AND HANGER ARE TO CO-ORDINATED AND ACCEPTABLE TO THE PRE-ENGINEERED MANUFACTURE PRIOR TO INSTALLATION.

14. WORK IN EXISTING BUILDING

- 14.1. THE BUILDING SHALL REMAIN OPEN AND WILL OPERATE NORMALLY DURING THE CONSTRUCTION PERIOD OF THIS CONTRACT.
14.2. REFER TO GENERAL CONDITIONS FOR PHASING AND STAGING OF WORK AND ADHERE TO THAT PROGRAM. COMPLY WITH INSTRUCTIONS REGARDING WORKING HOURS NECESSARY TO MAINTAIN THE BUILDING IN OPERATION. COORDINATE ALL WORK WITH GENERAL CONTRACTOR.
14.3. REFER TO ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR NEW WORK INVOLVED IN EXISTING BUILDING.
14.4. EXAMINE THE SITE AND LOCAL CONDITIONS AFFECTING ALL THE WORK TO OBTAIN DETAILS AND ALL INFORMATION NECESSARY TO DO THE WORK. NO EXTRA COMPENSATION WILL BE ALLOWED DUE TO FAILURE TO MAKE THIS EXAMINATION. REFER TO ARCHITECT'S SUMMARY OF WORK SECTION 01010.
14.5. CONTRACTOR IS RESPONSIBLE TO INCLUDE ALL WORK AND ITEMS REQUIRED TO ACCOMMODATE ALL CHANGES AND ALTERATIONS TO THE EXISTING BUILDING. INCLUDE ALL COSTS IN ORIGINAL TENDER PRICE.

- 14.6. WHERE EXISTING SERVICES SUCH AS ELECTRICAL POWER AND FIRE ALARM SYSTEM, ETC. ARE REQUIRED TO BE DISRUPTED AND/OR SHUT-DOWN, COORDINATE THE SHUT-DOWNS WITH THE OWNER AND CARRY OUT THE WORK AT A TIME AND IN A MANNER ACCEPTABLE TO THEM. CAREFULLY SCHEDULE ALL DISRUPTIONS AND/OR SHUT-DOWNS 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 OWNER'S WRITTEN CONSENT PRIOR TO IMPLEMENTING.
14.7. 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 OWNER.
14.8. 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. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHICH EXISTING EQUIPMENT IS TO BE DELETED OR RELOCATED BY EXAMINING THE SITE AND ALL CONSTRUCTION DOCUMENTS.

- 14.9. WHERE EXISTING DEVICES (RECEPTABLES, SWITCHES, ETC.) MOUNTED ON A WALL WHICH WILL BE COVERED WITH A NEW FINISH, PROVIDE AN EXTENSION RING, COVERPLATE, ETC. AS REQUIRED TO MOUNT THE DEVICE TO THE NEW WALL.
14.10. EXISTING JUNCTION BOXES SHALL REMAIN ACCESSIBLE.
14.11. PROVIDE PIPE GUARD RAILS FOR PANELBOARDS WHERE INDICATED AND WHERE PANELS OR CONDUITS MAY BE SUBJECT TO DAMAGE. COORDINATE ALL WORK WITH G.C.
14.12. RE-WIRE, MODIFY AND EXTEND EXISTING WIRING AS SPECIFIED AND AS MAY BE REQUIRED TO PROVIDE AND COMPLETE, APPROVED AND FULLY OPERATIVE INSTALLATION TO THE SATISFACTION OF THE ENGINEER AND OWNER.

- 14.13. IN AREAS WHERE EXISTING WALLS, CEILINGS, ETC. ARE REQUIRED TO BE CUT INTO OR REMOVED, OR OTHER SIMILAR CONSTRUCTION ALTERNATIVES ARE REQUIRED, THE EXISTING WIRING IN THE AREAS REQUIRED TO REMAIN IN USE FOR ANY REASON, THE CONTRACTOR SHALL RE-ROUTE, ALTER AND /OR EXTEND 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 IS MAINTAINED. ALL WORK SHALL BE TO THE COMPLETE SATISFACTION OF THE ENGINEER AND OWNER.
14.14. DISCONNECT AND REMOVE EXISTING CEILING MOUNTED ELECTRICAL DEVICES FOR THE CONSTRUCTION OF NEW CEILINGS, SKY-LIGHT OPENINGS OR RELATED WORK. ONCE NEW WORK IS COMPLETE, RE-INSTALL AND RE-CONNECT ELECTRICAL DEVICES TO ORIGINAL LOCATIONS AND CIRCUITS. PROVIDE ALL WIRING REQUIRED.

- 14.15. CONDUITS AND BOXES SHALL BE SURFACE MOUNTED ONLY IN AREAS SPECIFIED.
14.16. ALL EXISTING AND NEW OWNERS 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 NAMEPLATE RATING FOR ELECTRICAL CHARACTERISTICS PRIOR TO ROUGH-IN.
14.17. ALL EXISTING OWNER EQUIPMENT WHICH IS NON-PORTABLE, SHALL BE DIRECTLY CONNECTED VIA SOWJ OR SOWJ CORD MATCHING ELECTRICAL CHARACTERISTICS AS DETERMINED BY NAMEPLATE RATINGS OF EQUIPMENT. CONFIRM NAMEPLATE CHARACTERISTICS PRIOR TO ROUGH-IN.

- 14.18. MINIMIZE ELECTRICAL SERVICE AND OTHER SYSTEM INTERRUPTIONS. COORDINATE CHANGE-OVER WORK WITH OWNER SITE REPRESENTATIVE ON SITE PRIOR TO INITIATING WORK.

15. REMEDIAL WORK SPECIFICATIONS

- 15.1. ALL AC-90 HOME RUN SHALL BE REMOVED AND REPLACED BY EMT CONDUIT AND RW90 XLPE COPPER CONDUCTORS (MINIMUM #12). NUMBER OF HOME RUNS SHALL BE MINIMIZED.
15.2. ALL UNUSED CABLES AND CONDUITS (INCLUDING COMMUNICATIONS CONDUCTORS) SHALL BE REMOVED FROM SITE.
15.3. AC-90 MAY BE USED FOR DROPS TO LIGHT FIXTURES AND DROPS FROM ZONED CONDUITS TO STEEL STUD WALLS OR DECK RECEPTABLES WHERE THE CABLE WILL NOT BE EXPOSED IN MORE THAN A FIVE FOOT RADIUS OF THE JUNCTION BOX AT THE DECK.
15.4. IT IS THE ELECTRICAL SUB-CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ANY CORING OF HOLES THROUGH DECKS OR FLOOR SLABS WILL NOT PENETRATE EXISTING CONDUITS, CABLES OR MECHANICAL EQUIPMENT IN OR UNDER DECKS OR FLOOR SLABS. HE SHALL AT HIS COST, BE RESPONSIBLE TO TAKE ALL ACTIONS REQUIRED AND AS MAY BE DEEMED NECESSARY BY THE CONSULTANT/OWNER'S REPRESENTATIVE TO CORRECT ANY DAMAGE. NO CORING SHALL BE UNDERTAKEN UNLESS PERMISSION IS GIVEN BY THE CONSULTANT.
15.5. ALL EXISTING JUNCTION BOXES PRESENTLY MOUNTED ON DUCTWORK OR CEILING SYSTEM SHALL BE RELOCATED AND INDEPENDENTLY SUPPORTED.

16. RE-USE EXISTING EQUIPMENT

- 16.1. EXISTING 'MANUFACTURER' OF ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE CONSIDERED 'APPROVED' FOR NEW INSTALLATION WHERE REQUIRED.
16.2. THE CONTRACTOR SHALL VISIT THE WORK SITE PRIOR TO TENDER CLOSE TO DETERMINE WHAT ELECTRICAL DEVICES AND EQUIPMENT CAN BE RE-USED.
16.3. WHERE A DEVICE IS INDICATED TO BE "NEW", THE CONTRACTOR MAY RE-USE AN EXISTING DEVICE IN THE SAME LOCATION. RE-USED DEVICE SHALL HAVE SAME CHARACTERISTICS AND SHALL NOT REDUCE QUALITY OR DESIGN INTENT.
16.4. REPLACE OR REPAIR EXISTING ELECTRICAL EQUIPMENT TO BE RE-USED AS NECESSARY, TO EFFECT A GOOD AND "LIKE NEW" WORKING UNIT/SYSTEM.
16.5. WHERE COST EFFECTIVE, AND UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR MAY RE-USE EXISTING ELECTRICAL DEVICES WHICH HE DEEMS TO BE RE-USABLE. CAUTION: THIS DOES NOT APPLY TO MAIN DISTRIBUTION BREAKERS OR OTHER SUCH MAJOR EQUIPMENT THAT ARE SPECIFICALLY NOTED TO BE NEW. COORDINATE ALL EQUIPMENT RELOCATIONS WITH G.C.
16.6. WHERE PANELBOARDS ARE SHOWN TO BE "RELOCATED", THE CONTRACTOR HAS THE OPTION TO RE-USE THE EXISTING PANELBOARDS OR INSTALL NEW PANELBOARDS AND DISCARD THE OLD. IF EXISTING PANEL IS RE-USED THE CONTRACTOR SHALL RE-FURBISH THE EXISTING PANEL AND BREAKERS TO "AS NEW" CONDITION AND CARRY FULL WARRANTY AS IF PROVIDED AS NEW.
16.7. RE-USE OF OWNER'S LIGHTING EQUIPMENT: REFER TO LUMINAIRES SECTION IN SPECIFICATIONS.
16.8. THE CONTRACTOR SHALL NOT JEOPARDIZE STORE OPERATION OR PROJECT COMPLETION SCHEDULE BY SPENDING TOO MUCH TIME RE-FURBISHING OLD EXISTING PANELS OR OTHER EXISTING EQUIPMENT.
16.9. ENSURE THAT FIRE ALARM SYSTEM COMPONENTS ARE RE-USABLE AND REPLACE AS NECESSARY, WHERE MORE THAN 10% OF THE SYSTEM COMPONENTS (NEW OR RELOCATIONS) BY NUMBER OF DEVICES ARE MODIFIED, REPLACE ALL EXISTING NON-COMFORMING DEVICES WITH NEW AS PART OF THE BASE CONTRACT WORK.

PART 2 MATERIALS AND INSTALLATION

1. OUTLET BOXES

- 1.1. OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED PRESSED STEEL OF SIZE AND TYPE TO SUIT EACH INDIVIDUAL APPLICATION.
1.2. OUTLETS SHALL NOT BE LOCATED ANYWHERE ON THE OUTSIDE CURTAIN WALL. OUTLETS SHOWN THUS SHALL BE MOUNTED ON THE NEAREST DIVIDING WALL 2" FROM OUTSIDE WALL, OR NEAREST FURRED OUT COLUMN.
1.3. PROVIDE ALL REQUIRED ACCESS PANELS WITH SUITABLE FIRE RATINGS FOR THE WALL OR CEILING THAT THEY ARE BEING INSTALLED IN.
1.4. ELECTRICAL WORK: SUPPLY & INSTALL TWO (2) 4 POLE CONTRACTORS WITH 30A RATING, TWO (2) CONTRACTOR COLS IN NEMA 1 ENCLOSE C/W ONE (1) SINGLE CONNECTION TO TIME CLOCK (SPEC.GRADE) TO OPERATE CONTRACTORS WHICH SWITCHES RINK LIGHTS (RECOMMENDED MANUFACTURERS: ALLEN-BRADLEY, SQUARE D, SIEMENS OR APPROVED EQUAL).

2. WIRING METHODS

- 2.1. 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 (INCLUDING WIRING ON ROOF DECK FLUTES WHERE APPROVED).
2.2. 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 WATER TIGHT FITTINGS.
2.3. ALL WIRING IN FINISHED AREAS SHALL BE CONCEALED. ALL CONDUCTORS AND CONDUITS SHALL BE RUN PERPENDICULAR OR PARALLEL TO THE BUILDING CORE WALLS.
2.4. CONDUIT AND WIRING SHALL BE GROUPED WHERE POSSIBLE AND CLIPPED IN A NEAT AND WORKMANLIKE MANNER.
2.5. AC-90 CABLE TO BE USED FOR DROPS FROM CONDUIT SYSTEMS TO RECESSED LIGHTING FIXTURES IN ACCESSIBLE CEILINGS OR OUTLET BOXES IN STEEL STUD WALLS ONLY. HOME RUNS SHALL BE IN CONDUIT. MAXIMUM RUN OF AC-90 IN ACCESSIBLE CEILING SPACE SHALL BE 5'-0".
2.6. EACH CIRCUIT FOR COMPUTER EQUIPMENT, PRINTERS AND COPIERS SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR.
2.7. PROVIDE ONE ISOLATED GROUND CONDUCTOR PER THREE 2 WIRE ISOLATED GROUND CIRCUITS.
2.8. CONDUIT RUNS SHALL BE INSTALLED AND INSPECTED BEFORE AC-90 RUNS ARE INSTALLED TO ENSURE CONFORMANCE WITH ITEM 5 HEREIN.
2.9. THREE WIRE AC-90 SHALL NOT BE USED FOR ISOLATED GROUND WIRING, UNLESS IT INCLUDES A GREEN INSULATED CONDUCTOR FOR THIS PURPOSE.
2.10. ALL AC-90 USED FOR DROPS SHALL BE RUN TIGHT TO DECK AND FOLLOW LINES OF BREAMS AND BUILDING.
2.11. ALL WIRING IN SERVICE AREAS TO BE IN SURFACE MOUNTED EMT. DO NOT RUN CONDUIT HORIZONTALLY ON WALLS, VERTICAL DROPS ONLY.
• ALL CONDUITS TO BE MINIMUM 3/8" IN SIZE.
• DIE CAST SET SCREW COUPLINGS AND CONNECTORS (INSULATED THROAT).

3. UNDERGROUND CONDUITS & CABLES

- 3.1. CONDUITS AND MULTI-CONDUCTOR CABLES TO BE LAID OUT AND SPACED APPROPRIATELY.
3.2. SINGLE CONDUCTOR CABLES TO BE SPACED 6" (150mm) APART.
3.3. INSTALL SAND 6" (150mm) BELOW AND 6" (150 mm) ABOVE CABLES AND CONDUITS.
3.4. INSTALL CONDUIT WITH WATER TIGHT COUPLINGS. MAKE TRANSITIONS, OFFSETS AND CHANGES IN DIRECTION USING 5' BEND SECTIONS. DO NOT EXCEED A TOTAL OF 20' WITH CONDUIT OFFSET. CLEAN CONDUITS BEFORE LAYING. CAP ENDS OF CONDUITS DURING CONSTRUCTION AND AFTER INSTALLATION TO PREVENT ENTRANCE OF FOREIGN MATERIALS. INSTALL PULL CORDS IN EMPTY CONDUITS.
3.5. INSTALL CONTINUOUS OVERLAPPING COPRINOL-TREATED PLANKING 6" (150mm) ABOVE CABLES AND CONDUITS BEFORE BACKFILLING. INSTALL CONTINUOUS YELLOW MARKER TAPES 6" (150mm) ABOVE TREATED PLANKING.
3.6. IN, AROUND AND UNDER GAS BAR (WHERE APPLICABLE), WIRING SHALL CONFORM WITH CANADIAN ELECTRICAL CODE, SECTION 18 - HAZARDOUS AREAS METHODS. CONFIRM LOCAL REQUIREMENTS ALSO WITH AUTHORITY HAVING JURISDICTION.
3.7. WHERE BURIED IN CRAWLSPACE OF BUILDING, INSTALL PRE-CAST CONCRETE SIDEWALK BLOCKS (600x600x50mm) END TO END, 300mm ABOVE CABLES BEFORE BACKFILLING.
3.8. ADVISE CONSULTANT THAT HE MAY INSPECT CABLE AND CONDUIT INSTALLATION PRIOR TO BACKFILLING.
3.9. INCLUDE ON AS-CONSTRUCTED DRAWINGS, EXACT DIMENSIONED POSITION AND ROUTING OF ALL UNDERGROUND CABLE FEEDERS, PULLBOXES, ETC.
3.10. COORDINATE UNDERGROUND INSTALLATION WITH UTILITIES (INCLUDING UNDERGROUND WORK OF OTHER TRADES) BEFORE COMMENCING ANY WORK.
3.11. COORDINATE UNDERGROUND INSTALLATIONS WITH OTHER TRADES BEFORE COMMENCING ANY WORK.

4. IDENTIFICATION OF EQUIPMENT

- 4.1. ALL EQUIPMENT SHALL BE IDENTIFIED WITH 3/8" X 1 1/2" (1/8" LETTERS) ENGRAVED LAMACOID NAMEPLATES INDICATING PANEL AND CIRCUIT NUMBER OR FIRE ALARM HORN DESIGNATION. LAMACOID SHALL BE EITHER SCREWED OR RIVETED IN PLACE, WITH EXCEPTION TO RECEPTABLES AND LIGHTING SWITCHES. SELF ADHESIVE TYPE IS NOT ACCEPTABLE. LAMACOID SHALL BE WHITE LETTERING ON RED FACE FOR EMERGENCY AND FIRE ALARM DEVICES AND WHITE LETTERING ON BLACK FACE TO NORMAL POWER DEVICES AND COMMUNICATION PANELS.
4.2. PROVIDE 1" X 3" LAMACOID FOR EACH NEW CDP BREAKER, INDICATING PANEL OR FEED BEING FED.

5. CUTTING AND PATCHING

- 5.1. ARRANGE AND PAY FOR ALL CUTTING AND PATCHING AS REQUIRED FOR THE ELECTRICAL INSTALLATION.
5.2. PROVIDE APPROPRIATE FIRE STOP AT ALL FIRE WALL PENETRATIONS. ACCEPTABLE MANUFACTURERS: DOW CORNING, FIRE-STOP SYSTEMS (ELASTA-SEAL) OR G.E. SILICONE.
5.3. REFER TO ARCHITECTURAL SPECIFICATIONS FOR PRODUCT AND INSTALLATION DETAILS.

6. LUMINAIRES

- 6.1. POLES SHALL BE 30"-0" HIGH STEEL TAPERED OCTAGONAL POLES C/W STANDARD TOP TENON AS MANUFACTURED BY MARTEC MANUFACTURING (SERIES MFP-30) OR APPROVED EQUAL.
6.2. POLES SHALL BE LOCATED AS PER THE CONSTRUCTION DRAWINGS. EXACT LOCATIONS OF THE LIGHT POLES SHALL BE INSPECTED AND APPROVED BY THE CITY'S CONTRACT ADMINISTRATOR PRIOR TO EXCAVATION FOR NEW CONCRETE PILES.
6.3. MOUNT POLES ON CONCRETE BASES PLUMB AND TRUE, UTILIZING METAL SHIMS AS REQUIRED. ENSURE COMPLETE ELECTRICAL CONNECTION AND SECURELY ANCHOR POLES TO CONCRETE PILES.

7. DEVICES

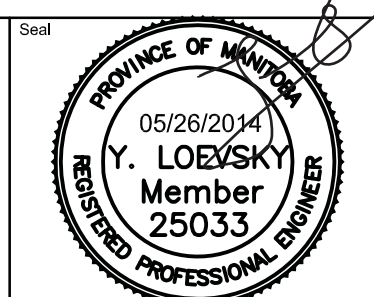
- 7.1. WHERE HANDICAP WHEELCHAIR ACCESS IS CONSIDERED, INSTALL ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:
7.1.1. SWITCHES, DIMMERS, PUSHBUTTONS: 47" (1200mm) (TO TOP)
7.1.2. RECEPTABLES, TELEVISION, TELEPHONE: 24" (600mm)
7.1.3. THERMOSTATS: 47" (1200mm) (TO TOP)
7.1.4. FIRE ALARM PULLSTATIONS, INTERCOMS: 47" (1200mm) (TO CENTER)

8. OWNER SUPPLIED EQUIPMENT

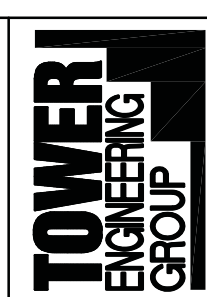
- 8.1. WIRE AND CONNECT ALL OWNER SUPPLIED EQUIPMENT AS SHOWN ON THE DRAWINGS. VERIFY NAMEPLATE RATINGS WITH POWER PROVISIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONSULTANT.
8.2. ALL OWNER SUPPLIED EQUIPMENT, WITH THE EXCEPTION OF PLUG-IN TYPES, SHALL BE HARD-WIRED AT LOCATIONS SHOWN ON THE DRAWINGS.

May 27, 2014

Table with 4 columns: No., Date, Issue/Revision, By. Row 1: 0, 05/26/2014, ISSUED FOR TENDER, YL. Row 2: B, 04/29/2014, ISSUED FOR 100% REVIEW, YL. Row 3: A, 03/18/2014, ISSUED FOR 30% REVIEW, YL.



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Table with 2 columns: Design, Draw, Check, Date, File. Row 1: YL, WD, YL, 5.27.2014, H4-08. Includes Project: MAYFAIR PARK ASPHALT AND LIGHTING IMPROVEMENTS, Sheet No.: E-4.0, Rev.: 0.

The general contractor shall check & verify all dimensions and report any errors or omissions to the Contract Administrator.