

ELECTRICAL SPECIFICATION
SECTION 16010 ELECTRICAL GENERAL PROVISIONS

- 1 GENERAL
 - .1 PROVIDE ALL MATERIALS, LABOUR, PLANT AND EQUIPMENT NECESSARY TO MAKE A COMPLETE INSTALLATION AS DESCRIBED AND SHOWN. THIS INSTALLATION SHALL BE LEFT COMPLETE AND READY FOR OPERATION.
 - .2 THE ENTIRE INSTALLATION SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE CITY. REPLACE AT NO ADDITIONAL COST ANY WORK OR MATERIAL WHICH MAY FAIL OR PROVE DEFECTIVE DURING THE GUARANTEE PERIOD.
 - .3 THE INSTALLATION SHALL CONFORM IN EVERY RESPECT TO THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE AND ALL LOCAL CODES. ALL WORK SHALL BE UNIFORM AND HIGH QUALITY. ALL EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE NEW AND BUILT IN ACCORDANCE WITH IEC/ANSI STANDARDS. SHALL BE CSA CERTIFIED OR CERTIFIED BY AN EQUIVALENT RECOGNIZED CERTIFYING AGENCY TO MEET CANADIAN STANDARDS AND LOCALLY APPROVED. ELECTRICAL EQUIPMENT CONSISTING OF INDIVIDUAL CERTIFIED COMPONENTS MUST ALSO HAVE A CSA OR EQUIVALENT CERTIFICATION FOR THE ENTIRE ASSEMBLY. PROVIDE INSPECTION CERTIFICATE UPON COMPLETION OF THE WORK.
 - .4 CAREFULLY EXAMINE ALL PLANS AND SPECIFICATIONS PERTAINING TO THIS CONTRACT AND VISIT SITE TO DETERMINE ALL FACTORS AFFECTING COSTS AND INCLUDE SAME IN BID. NOTIFY CONTRACT ADMINISTRATOR OF DISCREPANCIES OR CONFLICTS WITH ANY REGULATION BEFORE SUBMITTING PRICE. FAILING SUCH NOTIFICATION, THIS CONTRACTOR SHALL MEET ALL SUCH REQUIREMENTS WITHOUT EXTRA COST TO THE CITY.
 - .5 OBTAIN ALL NECESSARY PERMITS, PAY ALL NECESSARY FEES, GIVE ALL NECESSARY NOTICES AND OBTAIN APPROVAL OF THE ELECTRICAL AUTHORITIES HAVING JURISDICTION.
- 2 SHOP DRAWINGS
 - .1 SUBMIT SIX (6) COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT.
 - .2 FOR SHOP DRAWING'S SUBMITTED ELECTRONICALLY, INCLUDE PROJECT NAME IN SUBJECT LINE OF E-MAIL TO CONTRACTADMIN@SMSENG.COM.
 - .3 EQUIPMENT PROPOSED SHALL MEET THE SAME STANDARDS OF PERFORMANCE, QUALITY AND WORKMANSHIP AS THAT SPECIFIED.
 - .4 SHOP DRAWINGS TO BE REVIEWED AND STAMPED BY THE TRADE AND GENERAL CONTRACTOR.
- 3 REQUEST FOR INTERPRETATION (RFI)
 - .1 FOR RFI'S SUBMITTED ELECTRONICALLY, INCLUDE PROJECT NAME AND RFI NUMBER IN SUBJECT LINE OF E-MAIL. SEND RFI'S TO CONTRACTADMIN@SMSENG.COM.
 - .2 CONTENT OF THE RFI: INCLUDE A DETAILED DESCRIPTION OF THE ITEM NEEDING INTERPRETATION AND PROPOSED SOLUTION.
- 4 AS-BUILTS
 - .1 PROVIDE MARKUPS OF REDLINE "AS-BUILT" DRAWINGS.
- 5 OPERATION AND MAINTENANCE MANUALS
 - .1 PROVIDE DATA FOR INCORPORATION INTO MAINTENANCE MANUAL. MANUAL SHALL INCLUDE INSTRUCTIONS FOR ALL EQUIPMENT SUPPLIED, COPY OF REVIEWED SHOP DRAWINGS AND TECHNICAL DATA SUCH AS PARTS LISTS, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, ETC. THREE (3) HARD COVER COPIES OF MAINTENANCE MANUALS ARE TO BE SUBMITTED.
- 6 REMOVALS
 - .1 REMOVE ALL UNNECESSARY EXISTING ELECTRICAL EQUIPMENT, WIRING AND FIXTURES IN THOSE PORTIONS OF THE EXISTING BUILDING WHICH ARE BEING REMODELED OR DEMOLISHED. THE EQUIPMENT MAY BE REUSED ON THIS PROJECT IF, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, SUCH EQUIPMENT IS IN SATISFACTORY CONDITION AND MEETS THE STANDARDS ESTABLISHED. THE CITY MAY SELECT FROM THE MATERIALS AND/OR EQUIPMENT REMAINING WHICH HE WISHES TO RETAIN AND THE REMAINDER SHALL BE REMOVED FROM THE SITE.
 - .2 ANY ELECTRICAL EQUIPMENT IN REMODELED SECTIONS OR IN STRUCTURES REMOVED OR ALTERED, ADJACENT TO NEW WORK, NECESSARY FOR THE OPERATION OF THE EXISTING BUILDING, SHALL BE RELOCATED AS NECESSARY.
 - .3 ALL EXISTING EQUIPMENT REUSED SHALL BE MADE GOOD AND GUARANTEED.
 - .4 POWER INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE A TIME SUITABLE TO THE BUILDING OCCUPANT(S).
- 7 WORK IN EXISTING BUILDING
 - .1 CO-ORDINATION.
 - .1 THE BUILDING SHALL REMAIN OPEN AND IN NORMAL OPERATION DURING THE CONSTRUCTION PERIOD.
 - .2 WHERE EXISTING SERVICES SUCH AS ELECTRICAL POWER, FIRE ALARM SYSTEM, SOUND SYSTEM, ETC. ARE REQUIRED TO BE DISRUPTED AND/OR SHUT DOWN, CO-ORDINATE THE SHUTDOWNS WITH THE CITY AND CARRY OUT THE WORK AT A TIME AND IN A MANNER ACCEPTABLE TO THEM. CAREFULLY SCHEDULE ALL DISRUPTION AND/OR SHUT-DOWNS AND ENSURE THAT THE DURATION OF SAME IS KEPT TO THE ABSOLUTE MINIMUM. SUBMIT FOR APPROVAL A WRITTEN, CONCISE SCHEDULE OF EACH DISRUPTION AT LEAST 120 HOURS IN ADVANCE OF PERFORMING WORK AND OBTAIN CITY'S WRITTEN CONSENT PRIOR TO IMPLEMENTING.
 - .3 SHOULD ANY TEMPORARY 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 CITY AND CONTRACT ADMINISTRATOR.
 - .4 IF EXISTING EQUIPMENT SHOWN ON DRAWINGS IS DEFECTIVE IT SHOULD BE BROUGHT TO THE CONTRACT ADMINISTRATOR AND THE CITY ATTENTION PRIOR TO WORK COMPLETION.
 - .2 INSTALLATION
 - .1 INSTALL BOXES, CONDUIT AND WIRING THROUGH EXISTING AREAS AS REQUIRED FOR THE NEW INSTALLATION.
 - .2 ADD MODULES, SWITCHES, ETC. IN EXISTING CONTROL PANELS, AS REQUIRED, TO EXTEND EXISTING SYSTEMS TO NEW OR RENOVATED AREAS.
 - .3 PATCH AND REPAIR WALLS AND CEILINGS IN EXISTING AREAS THAT HAVE BEEN DAMAGED OR CUT OPEN DUE TO THE NEW ELECTRICAL INSTALLATION.
 - .4 WHERE NEW CABLES OR CONDUITS HAVE BEEN INSTALLED THROUGH EXISTING FIRE RATED WALLS, SEAL OPENING AROUND CABLES AND CONDUIT TO MAINTAIN FIRE RATING.
 - .3 ALL EXISTING EQUIPMENT REUSED SHALL BE MADE GOOD AND GUARANTEED.
 - .4 POWER INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE A TIME SUITABLE TO THE BUILDING OCCUPANT(S).

- 8 MOUNTING HEIGHTS
 - .1 MOUNTING HEIGHT IS CENTERLINE OF EQUIPMENT ABOVE FINISHED FLOOR. IF MOUNTING HEIGHT IS NOT INDICATED VERIFY BEFORE PROCEEDING WITH INSTALLATION. MOUNT SAME HEIGHT AS EXISTING IF DIFFERENT FROM THAT SHOWN HERE UNLESS INDICATED OTHERWISE ON DRAWING.
 - .2 MOUNTING HEIGHTS
 - .1 MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRE LINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.
 - .2 IF MOUNTING HEIGHT OF EQUIPMENT IS NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION.
- 9 CONDUITS AND CABLE
 - .1 DRAWINGS DO NOT INDICATE ALL CONDUIT AND CABLE RUNS. THOSE INDICATED ARE IN DIAGRAMMATIC FORM ONLY.
 - .2 MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS INDICATED OTHERWISE.
 - .3 ALL CONDUITS SHALL HAVE A SEPARATE INSULATED GREEN GROUND CONDUCTOR.
- 10 CONDUIT AND CABLE IDENTIFICATION
 - .1 COLOUR CODE CONDUITS, BOXES AND METALLIC SHEATHED CABLE.
 - .2 COLOUR CODING TO MATCH EXISTING WHERE APPLICABLE.
 - .3 CONFIRM COLOUR CODING WITH THE CITY AND CONTRACT ADMINISTRATOR PRIOR TO START OF WORK.
 - .4 CODE WITH PLASTIC TAPE OR PAINT AT POINTS WHERE CONDUIT OR VALE ENTERS WALL, CEILING OR FLOOR AND AT 15M INTERVALS.
 - .5 COLOURS: 25MM WIDE PRIME COLOUR AND 20MM WIDE AUXILIARY COLOUR.

	PRIME	AUXILIARY
UP TO 250V (NORMAL POWER)	YELLOW	GREEN
UP TO 600V (NORMAL POWER)	YELLOW	GREEN
UP TO 250V (EMERGENCY POWER)	YELLOW & RED	GREEN
UP TO 600V (EMERGENCY POWER)	YELLOW & RED	GREEN
VOICE/DATA	GREEN	BLUE
OTHER COMMUNICATION SYSTEMS	GREEN	BLUE
FIRE ALARM	RED	BLUE
EMERGENCY VOICE	RED	BLUE
OTHER SECURITY SYSTEMS	RED	YELLOW
CONTROL	BLUE	YELLOW
FIBRE OPTIC	ORANGE	
 - .6 OTHER CONDUIT SYSTEMS AS DIRECTED ON SITE; ALL CONDUIT SYSTEMS SHALL BE IDENTIFIED.
 - .7 COLOR OUTLET BOX COVERS TO COLOR DESIGNATED AND SHOW CIRCUIT NUMBERS IN BLACK FELT MARKER ON INSIDE OF COVERS.
- 11 CONDUITS, FASTENINGS AND FITTINGS
 - .1 ONE HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS 50MM AND SMALLER.
 - .2 FITTINGS FOR RACEWAYS: TO CSA C22.2 NO. 18
 - .3 FITTINGS: MANUFACTURED FOR USE WITH CONDUIT SPECIFIED COATING SAME AS CONDUIT.
 - .4 FACTORY "ELLS" WHERE 90° BENDS ARE REQUIRED FOR 25MM AND LARGER CONDUITS.
 - .5 STEEL SET SCREW CONNECTORS AND COUPLINGS. INSULATED THROAT LINERS ON CONNECTORS.
- 12 EQUIPMENT IDENTIFICATION
 - .1 IDENTIFY ELECTRICAL EQUIPMENT WITH NAMEPLATES AND LABELS AS FOLLOWS:
 - .2 NAMEPLATES: LAMACOID 3MM THICK PLASTIC ENGRAVING SHEET, WHITE FACE WITH BLACK CORE (WHITE WITH BLACK LETTERS). LETTERING ACCURATELY ALIGNED AND ENGRAVED INTO CORE. MECHANICALLY ATTACHED WITH SELF TAPPING SCREWS. LETTERS TO BE MINIMUM 5MM HIGH.
 - .3 WORDING ON NAMEPLATES AND LABELS TO BE APPROVED BY CONTRACT ADMINISTRATOR PRIOR TO MANUFACTURE.
 - .4 ALLOW FOR MINIMUM OF TWENTY-FIVE(25) LETTERS PER NAMEPLATE AND LABEL.
 - .5 ROOM NAMES AND NUMBERS USED SHALL BE ACTUAL ROOM NAMES AND NUMBERS THAT WILL BE USED ON THE PROJECT. COORDINATE AND CONFIRM WITH TRADES INVOLVED.
 - .6 COORDINATE NAMES OF EQUIPMENT AND SYSTEMS WITH MECHANICAL SECTION TO ENSURE THAT IDENTICAL NAMES ARE USED.
 - .7 NAMEPLATES FOR CONTROL DEVICES: INDICATE EQUIPMENT CONTROLLED.
 - .8 TO MATCH EXISTING WHERE APPLICABLE.

SECTION 16100 ELECTRICAL MATERIALS AND INSTALLATION

- 1 WIRING METHOD
 - .1 FOR GENERAL PURPOSE WIRING: RW90 CONDUCTORS IN EMT CONDUIT. USE AC90 FOR FIXTURE DROPS (MAXIMUM 6' LENGTHS) AND IN METAL STUD WALLS.
 - .2 FOR CONNECTION TO MOTORS AND MISCELLANEOUS MECHANICAL EQUIPMENT USE LIQUIDTIGHT FLEXIBLE CONDUIT.
 - .3 RUN ALL CONDUIT AND CABLE CONCEALED, PARALLEL AND PERPENDICULAR TO BUILDING LINES, STAPLED AND/OR CLIPPED IN A NEAT WORKMANLIKE MANNER.
 - .4 ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG EXCEPT AS NOTED.
- 2 GROUNDING
 - .1 THE ENTIRE INSTALLATION SHALL BE GROUNDED IN CONFORMANCE TO THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE.
 - .2 ALL CONDUIT TO HAVE A SEPARATE INSULATED GROUND CONDUCTOR.
- 3 BOXES
 - .1 OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED STEEL AND SIZED ACCORDING TO THE ELECTRICAL CODE AND TO SUIT EACH APPLICATION.
 - .2 PROVIDE MOULDED BOX VAPOUR BARRIER. FACTORY MOULDED POLYETHYLENE BOX FOR USE WITH RECESSED ELECTRIC BOXES IN EXTERIOR WALLS.
- 4 WIRING DEVICES
 - .1 PROVIDE WIRING DEVICES FOR ALL OUTLETS AS REQUIRED AND INDICATED. COLOUR AND MOUNTING TO MATCH EXISTING.
- 5 LIGHTING SYSTEM - GENERAL
 - .1 PROVIDE FIXTURES EQUAL TO THOSE SPECIFIED WITH LAMPS, SUSPENSION HARDWARE, LENSES AND ALL OTHER ACCESSORIES REQUIRED TO COMPLETE THE INSTALLATION.
 - .2 FLUORESCENT FIXTURE BALLASTS SHALL BE T-8 ELECTRONIC TYPE. BALLAST MUST BE LISTED BY MANITOBA HYDRO AS ACCEPTABLE BY THEIR POWER SMART REBATE PROGRAM.
- 6 EXIT LIGHTING SYSTEM
 - .1 PROVIDE EXIT LIGHTING AS SHOWN WITH WIRING RUN IN DEDICATED CONDUIT SYSTEM. WIRING SHALL BE MINIMUM #12 AWG WITH TYPE RW-90 INSULATION.
 - .2 FIXTURES SHALL MATCH EXISTING.
- 7 POWER DISTRIBUTION SYSTEM
 - .1 PROVIDE BREAKERS AS INDICATED IN THE PANEL SCHEDULE AND AS INDICATED ON THE DRAWING.
 - .2 ALL NEW BREAKERS SHALL MATCH PANEL VOLTAGE UNLESS INDICATED OTHERWISE. CIRCUIT BREAKERS SHALL BE THERMAL MAGNETIC TYPE.
 - .3 COMPLETE CIRCUIT DIRECTORY WITH TYPEWRITTEN LEGEND SHOWING LOCATION AND LOAD OF EACH CIRCUIT.
 - .4 WIRING IN PANELBOARDS SHALL BE NEAT AND SET IN AS IF LACED. ALL NEUTRAL CONDUCTORS SHALL BE IDENTIFIED IN THE PANEL WITH THEIR ASSOCIATED CIRCUIT NUMBERS BY MEANS OF BRADY MARKERS.
 - .5 INTERRUPTING CAPACITY OF NEW BREAKERS IN EXISTING PANELS SHALL MATCH EXISTING.

NOTES:

THESE DRAWINGS SHALL NOT BE SCALED.

THE CONTRACTOR SHALL VISIT THE SITE AND SATISFY ONESELF ALL DIMENSIONS, DATUM, AND DETAILED INFORMATION SHOWN ARE CORRECT.

THE CONTRACTOR IS TO REVIEW AND COORDINATE ALL ARCHITECTURAL, MECHANICAL, ELECTRICAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL OPENINGS THROUGH FLOORS, WALLS, AND CEILINGS FOR DUCT, PIPE & ELECTRICAL RISERS AND ALL OPENINGS NOT SHOWN ON DRAWINGS.

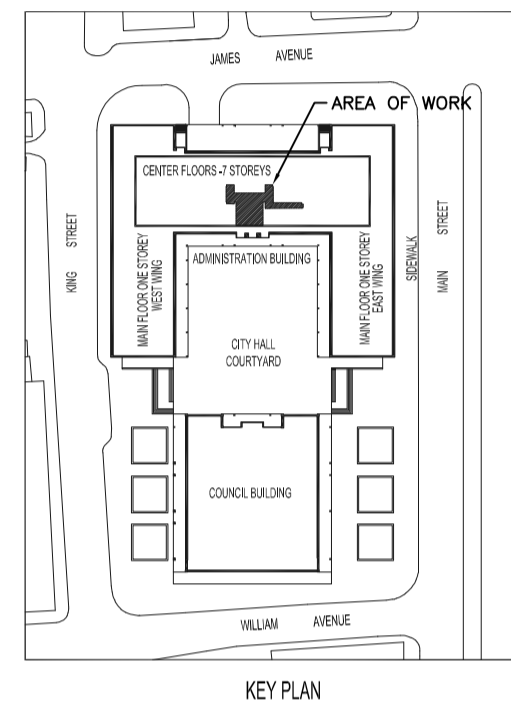
ALL OPENINGS THROUGH FIRE ASSEMBLIES ARE TO BE FIRE STOPPED AND SEALED WITH ULIC APPROVED FIRE STOPPING TO MAINTAIN THE INTEGRITY OF THE FIRE SEPARATION, AND PROVIDE A SMOKE-TIGHT BARRIER.

ALL PRODUCTS AND MATERIALS TO BE USED AND INSTALLED SHALL CONFORM WITH MANUFACTURER'S SPECIFICATIONS & APPLICABLE CODES.

THE CONTRACTOR SHALL BE RESPONSIBLE TO PATCH AND MAKE GOOD ALL EXISTING CONSTRUCTION AFFECTED BY THE REMOVAL OF ALL ITEMS FORMING THE PART OF THE RENOVATION WORK.

WHERE NEW FLOORING AND BASE IS TO BE INSTALLED IN EXISTING AREAS (REFER TO FLOOR PLAN AND ROOM SCHEDULE) THE EXISTING FLOORING SURFACE AND BASE MUST BE REMOVED, UNLESS OTHERWISE NOTED. ALL FLOOR SURFACES SHALL BE PREPARED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION OF NEW FLOOR.

WHERE PAINTING OF EXISTING WALLS IS INDICATED ON THE ROOM SCHEDULE, THESE WALLS MUST BE CLEANED OF ANY EXISTING WALL COVERING, PATCHED & PREPARED TO ACCEPT NEW MATERIAL, UNLESS OTHERWISE NOTED.



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APEGM

Certificate of Authorization
SMS Engineering Ltd.
No. 166 Expiry: April 30, 2014

PROVINCE OF MANITOBA
G.J. WHIFFEN
REGISTERED PROFESSIONAL ENGINEER
Member # 34242
Expires 19, 2014

1	ISSUED FOR BID OPPORTUNITY	03/17/14
0	ISSUED FOR CONSTRUCTION	AS 12/04/13
No.	REVISION/DESCRIPTION	BY DATE

SCALE	GS	CHECKED	GW	DESIGNED	AS	APPROVED	GW
DATE	2014/03/17	USER		APPROVAL			

THE CITY OF WINNIPEG
PLANNING, PROPERTY AND DEVELOPMENT DEPARTMENT
MUNICIPAL ACCOMMODATIONS DIVISION
3-65 GARRY STREET, R3C 4K4

PROJECT
CITY HALL - ADMINISTRATION BUILDING
BASEMENT & SUB-BASEMENT
FINISHED SURFACE DESIGN
510 MAIN STREET

SHEET TITLE
ELECTRICAL
SPECIFICATIONS

SCALE	PROJECT No:	SHEET No:
AS NOTED	2009-079-03	E2.0