

PART 2 MATERIALS AND INSTALLATION

1. OUTLET BOXES

- OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED PRESSED STEEL OF SIZE AND TYPE TO SUIT EACH INDIVIDUAL APPLICATION.
- 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.
- PROVIDE ALL REQUIRED ACCESS PANELS WITH SUITABLE FIRE RATINGS FOR THE WALL OR CEILING THAT THEY ARE BEING INSTALLED IN.

2. WIRING METHODS

- 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).
- WIRING IN CONCRETE OR MASONRY CONSTRUCTION SHALL BE INSTALLED IN STEEL ELECTRICAL METALLIC TUBING (EMT). PROVIDE A SEPARATE GROUND CONDUCTOR IN EMT CONDUIT RUNS EMBEDDED IN CONCRETE SLABS. CONDUITS INSTALLED IN AREAS EXPOSED TO MOISTURE SHALL HAVE WATERTIGHT FITTINGS.
- ALL WIRING IN FINISHED AREAS SHALL BE CONCEALED. ALL CONDUCTORS AND CONDUITS SHALL BE RUN PERPENDICULAR OR PARALLEL TO THE BUILDING CORE WALLS.
- CONDUIT AND WIRING SHALL BE GROUPED WHERE POSSIBLE AND CLIPPED IN A NEAT AND WORKMANLIKE MANNER.
- AC90 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".
- EACH CIRCUIT FOR COMPUTER EQUIPMENT, PRINTERS AND COPIERS SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR.
- PROVIDE ONE ISOLATED GROUND CONDUCTOR PER THREE 2 WIRE ISOLATED GROUND CIRCUITS.
- CONDUIT RUNS SHALL BE INSTALLED AND INSPECTED BEFORE AC90 RUNS ARE INSTALLED TO ENSURE CONFORMANCE WITH ITEM .5 HEREIN.
- THREE WIRE AC90 SHALL NOT BE USED FOR ISOLATED GROUND WIRING, UNLESS IT INCLUDES A GREEN INSULATED CONDUCTOR FOR THIS PURPOSE.
- ALL AC90 USED FOR DROPS SHALL BE RUN TIGHT TO DECK AND FOLLOW LINES OF BEAMS AND BUILDING.
- 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 3/4" IN SIZE.
 - STEEL SET SCREW COUPLINGS AND CONNECTORS (INSULATED THROAT)
- ALL CABLE SHALL BE MINIMUM FT4 RATED UNLESS RUN IN PLENUM. ALL CABLE RUN THROUGH PLENUM SPACE TO BE FT6 RATED. OTHERWISE CABLE SHALL BE RUN IN EMT OR NON COMBUSTIBLE RACEWAY.

3. IDENTIFICATION OF EQUIPMENT

- ALL EQUIPMENT AND DEVICES SHALL BE IDENTIFIED WITH 10MM X 40MM X 3MM LETTERS (3/8" X 1 1/4" X 1/8" LETTERS) ENGRAVED LAMACOID. NAMEPLATES INDICATING PANEL AND CIRCUIT NUMBER OR FIRE ALARM HORN DESIGNATION. LAMACOIDS SHALL BE EITHER SCREWED OR RIVETED IN PLACE. WITH EXCEPTION TO RECEPTACLES AND LIGHTING SWITCHES, SELF ADHESIVE TYPE IS NOT ACCEPTABLE AND WILL ONLY APPROVED ON A CASE BY CASE SITUATION. LAMACOIDS 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.
- PROVIDE 25MM X 76MM (1" X 3") LAMACOIDS FOR EACH NEW CDP BREAKER, INDICATING PANEL OR FEED BEING FED.

4. LUMINAIRES

- EXISTING LUMINAIRES TO BE RELOCATED AND REUSED AS SHOWN.

5. PANELBOARDS

- RE-USE EXISTING PANELS AS SHOWN.
- BRANCH CIRCUIT BREAKERS SHALL BE BOLT-ON MOULDED CASE WITH THERMAL BREAKERS RATED TO MATCH EXISTING OR AS INDICATED ON SINGLE LINE DRAWING.
- AFFIX TYPEWRITTEN DIRECTORY TO THE INSIDE OF THE PANELBOARD INDICATING LOADS CONTROLLED BY EACH CIRCUIT. INCLUDE COPY IN OPERATION AND MAINTENANCE MANUALS.

6. CUTTING AND PATCHING

- ARRANGE AND PAY FOR ALL CUTTING AND PATCHING AS REQUIRED FOR THE ELECTRICAL INSTALLATION.
- PROVIDE APPROPRIATE FIRE STOP AT ALL FIRE WALL PENETRATIONS. ACCEPTABLE MANUFACTURERS: DOW CORNING, FIRE-STOP SYSTEMS (ELASTA-SEAL) OR GE. SILICONE.
- REFER TO ARCHITECTURAL SPECIFICATIONS FOR PRODUCT AND INSTALLATION DETAILS.
- COLOURS OF RECEPTACLES, SWITCHES, OUTLETS AND COVERPLATES SHALL BE WHITE IN OFFICE AREAS AND WHITE IN ALL OTHER AREAS, UNLESS NOTED OTHERWISE. RECEPTACLES SHALL BE DECORA STYLE.
- SWITCHES SHALL BE SPECIFICATION GRADE HUBBELL, ARROW HART, BRYANT, LEVITON, WOODHEAD, PASS & SEYMOUR, 15 AMPS, 125 / 347 VAC. MOUNT SWITCHES 1200MM A.F.F. TO CENTRE UNLESS OTHERWISE NOTED. SWITCHES SHALL BE DECORA STYLE.
- ACCEPTABLE MANUFACTURERS FOR RECEPTACLES SHALL BE HUBBELL, ARROW HART, BRYANT, LEVITON, WOODHEAD, PASS & SEYMOUR, CATALOGUE NO.5252 OR DRS15 WHERE DECORATOR STYLE SPECIFIED FOR ALL MANUFACTURERS. ISOLATED GROUND RECEPTACLES TO BE ORANGE FACE. MOUNT RECEPTACLES 400mm A.F.F. TO BOTTOM, UNLESS OTHERWISE NOTED.
- RECEPTACLES IN RESIDENTIAL SUITE SHALL BE TAMPER PROOF TYPE UNLESS INTENDED FOR SPECIFIC APPLIANCE OR ABOVE COUNTER.
- LED DIMMERS SHALL BE COMPATIBLE WITH THE FIXTURE INTENDED TO BE DIMMED (FORWARD PHASE, REVERSE PHASE, 0-10V ETC.). THE CONTRACTOR SHALL VERIFY DIMMING COMPATIBILITY PRIOR TO INSTALLATION OF DIMMING SWITCH.
 - WALL DIMMER OCCUPANCY SENSORS (0-10V) SHALL BE EQUAL TO LUTRON MAESTRO 0-10V DIMMER SENSOR.
 - WALL OCCUPANCY SENSORS SHALL BE EQUAL TO LUTRON MAESTRO OCCUPANCY SENSING SWITCH.
 - WALL DIMMER SWITCH SHALL BE EQUAL TO LUTRON MAESTRO LED+ OR DIVA FOR 0-10V SWITCHES.
 - CEILING MOUNT OCCUPANCY SENSORS SHALL BE EQUAL TO LUTRON LOS-CDT SERIES COMPLETE WITH PP SERIES LUTRON POWER PACK TO CONTROL INTENDED FIXTURES.
- PROVIDE STAINLESS STEEL COVERPLATES FOR RECESSED DEVICES.
- ELECTRICAL INSTALLATION SHALL COMPLY WITH BARRIER FREE REQUIREMENTS AS PER THE LATEST EDITION OF THE NATIONAL BUILDING CODE AND APPLICABLE LOCAL BY-LAWS. INSTALL ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:
 - SWITCHES, DIMMERS, PUSHBUTTONS: 1200mm TO CENTRE
 - DOOR OPERATING CONTROL MECHANISM: 900mm TO CENTRE
 - RECEPTACLES, TELEVISION, TELEPHONE: 400mm TO BOTTOM
 - THERMOSTATS: 1200mm TO CENTRE
 - FIRE ALARM PULLSTATIONS, INTERCOMS: 1200mm TO CENTRE

8. COMMUNICATIONS CONDUITS

- CONDUIT SHALL BE COMPLETELY INDEPENDENT FROM OTHER CONDUIT. INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH THE LOCAL TELEPHONE AND TELEVISION SYSTEM REGULATIONS WITH REGARD TO PULLBOXES, BENDS, ETC. MINIMUM RISER CONDUIT SIZE TO BE 3/4". REFER TO RISER DIAGRAM FOR DETAILS.
- VOICE/DATA COMMUNICATIONS CONDUITS (INCLUDING POS)
 - CONDUIT SHALL BE COMPLETELY INDEPENDENT FROM OTHER CONDUIT. INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH THE LOCAL TELEPHONE SYSTEM REGULATIONS WITH REGARD TO PULLBOXES, BENDS, ETC. MINIMUM CONDUIT SIZE TO BE 3/4".
 - EMPTY CONDUIT TO BE PROVIDED WITH A NYLON PULL CORD.
 - CONDUITS SHALL BE PROVIDED FROM EACH COMMUNICATIONS OUTLET TO ACCESSIBLE CEILING SPACE.
 - WHERE OUTLETS ARE SHOWN PEDESTAL MOUNTED, ONE CONTINUOUS 1" C FROM EACH PEDESTAL SHALL BE RUN TO THE CEILING SPACE OF THE FLOOR CONTAINING THE PEDESTAL.

10. SEISMIC CONTROL

- PROVIDE SEISMIC RESTRAINTS ON ALL ELECTRICAL EQUIPMENT AS REQUIRED BY THE PROVINCIAL BUILDING CODE AND LOCAL AUTHORITIES HAVING JURISDICTION.
- OBTAIN THE SERVICES OF AND INCLUDE ALL COSTS FOR A REGISTERED PROFESSIONAL ENGINEER TO DESIGN AND OBSERVE CONSTRUCTION OF SEISMIC RESTRAINT SYSTEM(S). THE SEISMIC DESIGN ENGINEER SHALL BE RESPONSIBLE FOR

SIGNING AND SEALING ALL RELATED SEISMIC RESTRAINT ASSURANCE LETTERS AND FOR FIELD REVIEW AND REPORTING OF SEISMIC RESTRAINT INSTALLATIONS. (SKETCHES USED ON DRAWINGS SHALL NOT BE USED AS GUIDELINES ONLY).

- E.C. TO SUBMIT SEISMIC ENGINEER'S TEST INSPECTION VERIFICATIONS AND FINAL CERTIFICATE STATING ALL ELECTRICAL COMPONENTS HAVE BEEN INSTALLED IN ACCORDANCE WITH THEIR DESIGN AND THE LATEST PUBLISHED EDITION OF THE PROVINCIAL BUILDING CODE, LOCAL BUILDING BY-LAWS AND THE NBC. THIS CONTRACTOR TO PAY FOR THE REQUIRED FIELD REVIEWS AND THE COST OF THE CERTIFICATE. RESULTS TO CONSULTANT AND INCLUDE IN MAINTENANCE MANUAL.
- COMPLY WITH REQUIREMENTS OF DIVISION 1 (STRUCTURAL).
- PROVIDE A COMPLETE SYSTEM OF STRUCTURAL SUPPORTS AND BRACING TO ALL ELECTRICAL EQUIPMENT IN DIVISION 16 TO COMPLY WITH PART 4, STRUCTURAL DESIGN, OF THE PROVINCIAL BUILDING CODE OF THE PROVINCE IN WHICH PROJECT IS LOCATED.
- PROVIDE ALL EARTHQUAKE RESTRAINT DEVICES INCLUDING LIMIT STOPS AND SLACK CABLES, WHERE REQUIRED FOR ALL ELECTRICAL COMPONENTS INCLUDING EQUIPMENT AND PIPING IN ACCORDANCE WITH THE LATEST PUBLISHED EDITION OF THE PROVINCIAL BUILDING CODE, LOCAL BUILDING BY-LAWS AND THE NATIONAL BUILDING CODE (NBC). THE RESTRAINT EQUIPMENT DURING OR AFTER THE EVENT OF AN EARTHQUAKE DOES NOT NECESSARILY HAVE TO REMAIN OPERATIONAL AS UNDERRATED OPERATING CONDITIONS. THE MANDATORY REQUIREMENT IS THAT THE RESTRAINT EQUIPMENT SHALL NOT MOVE FROM ITS NORMAL POSITION IN THE EVENT OF AN EARTHQUAKE.
- ARRANGE FOR 4" HIGH CONCRETE HOUSEKEEPING PADS UNDER NEW ELECTRICAL DISTRIBUTION. SECURE PROVIDE DISTRIBUTION WITH MINIMUM 7 BOLT DOWN TYPE DRILLED INSERTS.
- USE PRODUCTS AS INDICATED HEREIN AND AS PER THE SEISMIC BRACING DESIGNERS RECOMMENDATIONS.
- DETAILS OF THE SEISMIC BRACING FOR ELECTRICAL EQUIPMENT SHALL BE PREPARED BY A CERTIFIED PROFESSIONAL RECOGNIZED IN THE FIELD OF SEISMIC DESIGN AND SHALL BE SUBMITTED TO THE CONSULTANT FOR RECORD.
- ZONAL VELOCITY RATION (HORIZONTAL GROUND VELOCITY) SHALL BE DETERMINED FROM THE APPLICABLE SECTION OF THE SUPPLEMENT TO THE NATIONAL BUILDING CODE.
- WHERE DRILLING OF THE STRUCTURE IS REQUIRED FOR ANCHORAGE REQUIREMENTS, THE DRILLING SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER.
- PROVIDE ALL REQUIRED SEISMIC BRACING, SUPPORTS, BOLTS, WASHERS, NUTS, ETC. FOR CONDUITS AND CONDUIT SUPPORTS, CABLE TRAY SUPPORTS, TRACK CABLE, ETC.
- PROVIDE A SYSTEM TO SECURE ALL RECESSED LUMINAIRES INDEPENDENTLY FROM THE SUSPENDED CEILINGS. LUMINAIRES SHALL BE SUPPORTED DIRECTLY AND LATERALLY FROM THE BUILDING STRUCTURE ABOVE, USING NO. 12 GAUGE WIRE, MINIMUM.

1	ISSUED FOR CONSTRUCTION	TN 11.04 2025
0	ISSUED FOR REVIEW	TN 08.15 2025
No.	REVISION/DESCRIPTION	BY DATE

SEAL



ENGINEERS
GEOSCIENTISTS
MANITOBA
Certificate of Authorization
Tower Engineering Group
No. 4156
2025-11-05

DATE 2025.08.01 DESIGN TN DRAWN SH CHECKED DKG APPROVED SMM



THE CITY OF WINNIPEG
ASSETS & PROJECT MANAGEMENT DEPARTMENT
MUNICIPAL ACCOMMODATIONS DIVISION
3-65 GARRY STREET, R3C 4K4

PROJECT
CITY HALL - COUNCIL BUILDING
RECEPTION SECURITY WALLS

510 MAIN STREET
SHEET TITLE

SPECIFICATIONS

SCALE AS SHOWN PROJECT No. 251313 SHEET No. E-5.1
DRAWING SHEET SIZE: D (24" x 36") PLOT 1:1