

MECHANICAL SPECIFICATIONS

1. GENERAL
 - 1.1. VISIT JOBSITE DURING TENDER. DRAWINGS INDICATE APPROXIMATE LOCATION OF EXISTING MECHANICAL EQUIPMENT AND SERVICES. VERIFY EXACT LOCATIONS OF EXISTING MECHANICAL EQUIPMENT AND SERVICES AND ALLOW FOR NECESSARY RELOCATING OF NOTED SERVICES (OR RECONNECTION TO EXISTING SERVICES) TO SUIT NEW CONSTRUCTION.
 - 1.2. ALL WORK SHALL CONFORM TO MANITOBA BUILDING CODE, MANITOBA PLUMBING CODE AND LOCAL AUTHORITIES. APPLY FOR, OBTAIN AND PAY FOR ALL NECESSARY PERMITS.
 - 1.3. COORDINATE INSTALLATION WITH ALL RELATED TRADES. ARCHITECTURAL DRAWINGS, INTERIOR DESIGN PLANS AND REFLECTED CEILING PLANS. VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING EQUIPMENT AND SERVICES PRIOR TO PROCEEDING WITH WORK.
 - 1.4. SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT TO CONTRACT ADMINISTRATOR.
 - 1.5. PROVIDE ONE YEAR GUARANTEE FOR ALL EQUIPMENT.
 - 1.6. ALL CONNECTIONS TO EXISTING BUILDING MECHANICAL SERVICES SHALL BE COORDINATED WITH THE CONTRACT ADMINISTRATOR.
 - 1.7. ALL NECESSARY CUTTING AND PATCHING SHALL BE PERFORMED BY COMPETENT SUBCONTRACTORS EMPLOYED BY MECHANICAL SUBCONTRACTOR TO SATISFACTION OF CONTRACT ADMINISTRATOR.
 - 1.8. REFER TO INSTRUCTIONS TO BIDDERS FOR REQUIREMENTS REGARDING PROJECT PHASING, WORKING HOURS, SHUT-DOWN PROCEDURES, ACCESS, ETC.
 - 1.9. PROVIDE MILCOR ACCESS DOORS IN DRYWALL CEILINGS AND WALLS FOR ACCESS TO MECHANICAL EQUIPMENT. MINIMUM SIZE 24" X 18"
 - 1.10. PRIOR TO DRILLING HOLES AND/OR OPENINGS IN EXISTING STRUCTURE, CONTRACTOR SHALL RETAIN SERVICES OF NATIONAL TESTING LABORATORIES LIMITED TO LOCATE AND MARK ALL STRUCTURAL REINFORCING STEEL LOCATED IN AREA WHERE CUTTING OR DRILLING IS PROPOSED. AT NO TIME SHALL REINFORCING STEEL BE CUT WITHOUT PRIOR WRITTEN APPROVAL FROM STRUCTURAL ENGINEER QUALIFIED AND LICENSED TO PRACTICE IN PROVINCE OF MANITOBA. NO HOLES OR OPENINGS WILL BE PERMITTED WITHIN AREA OF STRUCTURAL DROP PANELS LOCATED AT COLUMNS.
 - 1.11. ALL INTERIOR SPACE POWER HAMMERING, DRILLING AND OTHER NOISY WORK SHALL BE PERFORMED BETWEEN HOURS OF 8:00 P.M. AND 8:00 A.M.
 - 1.12. BIDS SHALL BE BASED ON THE USE OF SPECIFIED EQUIPMENT, UNLESS ACCEPTANCE FOR THE USE OF EQUAL MANUFACTURERS IS APPROVED IN ACCORDANCE WITH B7.
 - 1.13. PROVIDE A MARK-UP OF THE CONTRACT DRAWINGS FOR RECORD "AS-BUILT" DRAWINGS, REVISED AS REQUIRED TO SHOW ANY CHANGES FROM THAT ORIGINALLY SHOWN.
 - 1.14. ALL DUCTWORK AND PIPING TO BE INSTALLED STRAIGHT, PARALLEL TO THE BUILDING WALLS.
 - 1.15. WHERE PIPES OR DUCTS GO THROUGH AN EXTERIOR ROOF OR WALL, THEY SHOULD BE BOXED-IN, FLASHED AND WATERPROOFED. ALLOW FOR EXPANSION AND CONTRACTION OF PIPE.
 - 1.16. PIPE HANGERS SHALL BE GRINNELL FIG. 65 FOR STEEL PIPE AND FIG. C765 FOR COPPER PIPE, ALL WITH FIG. 140 THREADED ROD ATTACHED TO FIG. 117 EXPANSION CASE SET IN HOLES DRILLED IN CONCRETE, OR ATTACHED TO FIG. 225 OR 227 CLAMP ATTACHED TO JOISTS OR BEAMS.
 - 1.17. ALL EXTRANEOUS MATERIAL IN CEILING SPACE UNRELATED TO NEW AND REVISED WORK SHOWN, INCLUDING PIPING, CONTROL TUBING, DUCTWORK, ETC. SHALL BE REMOVED.
 - 1.18. PROVIDE FIRESTOPPING FOR ALL OPENINGS IN FIRE SEPARATIONS FOR PASSAGE OF PIPES, DUCTS, ETC. TO MAINTAIN INTEGRITY OF FIRE SEPARATIONS AS PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
 - 1.19. INSTALLATION OF WORK SHALL BE COORDINATED WITH THE CONTRACTOR AND SHALL BE SCHEDULED SO AS NOT TO ENDANGER OR DISTURB THE CITY OF WINNIPEG OR USERS OF THE BUILDING. SHUTDOWN OF EXISTING BUILDING SYSTEMS SHALL BE COORDINATED WITH THE CONTRACT ADMINISTRATOR.
 - 1.20. ALL WIRING FOR EQUIPMENT SPECIFIED HEREIN SHALL BE BY THE ELECTRICAL SUBCONTRACTOR, UNLESS OTHERWISE NOTED.
 - 1.21. CONTRACTOR SHALL REVIEW ALL EQUIPMENT REQUIRING ELECTRICAL HOOK-UP WITH ELECTRICAL SUBCONTRACTOR AND ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT. ENSURE PROPER ELECTRICAL CHARACTERISTICS ARE DETERMINED FOR ALL AFFECTED AND RELATED WORK.
 - 1.22. PRIOR TO INSTALLATION OF THE CEILING, NOTIFY THE CONSULTANT AND ARRANGE FOR A FINAL REVIEW OF THE WORK. FOR UNDERTAKING THIS REVIEW, THE FOLLOWING SHALL BE COMPLETED:
 - 1.22.1. ALL SYSTEMS TO BE FULLY OPERATIONAL, AS-BUILT DRAWINGS SUPPLIED AND OPERATING AND MAINTENANCE MANUALS SUBMITTED. TWO (2) DAYS NOTIFICATION (IN WRITING) IS REQUIRED TO BE GIVEN TO THE CONTRACT ADMINISTRATORS PRIOR TO REVIEWS BEING UNDERTAKEN.
 - 1.22.2. ALL DEFICIENCIES SHALL BE COMPLETED WITHIN TWO (2) WEEKS OF AN AGREED PERIOD OF TIME AFTER FINAL REVIEW AND A LETTER SHALL BE SUBMITTED TO THE CONSULTANT WITHIN THAT TIME ADVISING OF SUCH. FAILURE TO COMPLETE WORK MAY RESULT IN WORK BEING DONE BY THE CITY OF WINNIPEG AND THE COSTS DEDUCTED FROM FINAL PAYMENT.
 - 1.23. SILICONE ALL FIXTURES TO ADJACENT WALLS, FLOORS OR COUNTERTOPS ETC.
2. INSULATION
 - 2.1. INSULATE ALL DOMESTIC WATER PIPING (COLD, HOT AND RECIRCULATION PIPING) WITH 1/2" FIBERGLAS 7 LB. DENSITY, PIPE INSULATION WITH ASJ AS PER MFG. RECOMMENDATIONS. SEAL ALL BREAKS, JOINTS WITH ASJ TAPE.
 - 2.2. ALL COLD PIPING INSULATION SHALL BE CIW WITH VAPOUR BARRIER.
 - 2.3. INSULATION ON PIPING IN FINISHED AREAS TO BE RECANVASSED OR COVERED WITH WHITE P.V.C. INSULATION COVER.
 - 2.4. INSULATE CONDITIONED AIR DUCTWORK WITH 1" FIBERGLAS RFRK FLEXIBLE OR RIGID DUCT INSULATION INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. PLUMBING
 - 3.1. PROVIDE LABOUR, MATERIAL, EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO SUPPLY AND INSTALLATION OF SYSTEMS SHOWN ON DRAWINGS. GENERALLY THIS SHALL INCLUDE:
 - 3.1.1. DRAINAGE SYSTEM
 - 3.1.2. WATER SUPPLY SYSTEM
 - 3.2. DRAINAGE SYSTEMS
 - 3.2.1. PROVIDE COMPLETE SYSTEMS OF DRAINAGE AND VENTING TO SERVE ALL FIXTURES, EQUIPMENT, ETC. AS NOTED ON DRAWINGS AND IN ACCORDANCE WITH LOCAL CODES.
 - 3.2.1.1. CLEANOUTS:
 - 3.2.1.1.1. INSTALL CLEANOUTS AT ALL CHANGES OF DIRECTION, AT INTERVALS OF NOT OVER FIFTY FEET (50) IN HORIZONTAL RUNS, AT ALL POINTS WHERE OBSTRUCTIONS MIGHT BE FORMED AND AT ALL POINTS REQUIRED BY PLUMBING REGULATIONS OR SHOWN ON DRAWINGS.
 - 3.3. WATER SUPPLY
 - 3.3.1. PROVIDE COMPLETE SYSTEM OF WATER SUPPLY PIPING AS NOTED ON DRAWINGS.
 - 3.3.2. GRADE HORIZONTAL RUNS OF PIPING TO DRAIN THROUGH RISERS.
 - 3.3.3. INSTALL DRAIN VALVES IN MAINS FOR COMPLETE DRAINAGE.
 - 3.3.4. INSTALL DIELECTRIC INSULATING COUPLINGS BETWEEN ALL PIPES CONSTRUCTED OF DISSIMILAR METALS.
 - 3.3.5. PROVIDE SHOCK ABSORBER UPSTREAM OF EVERY SOLENOID VALVE OR QUICK CLOSING VALVE. THIS APPLIES ALSO TO NIC EQUIPMENT HAVING SOLENOID VALVES SUPPLIED BY OTHER DIVISIONS, SUCH AS WASHING MACHINES, DISHWASHERS, ETC. REVIEW PROPOSED LOCATION AND TYPE OF SHOCK ABSORBERS WITH CONTRACT ADMINISTRATOR PRIOR TO INSTALLATION.
 - 3.4. INSTALL BACKFLOW PREVENTION DEVICES IN ACCORDANCE WITH CITY OF WINNIPEG BACKFLOW PREVENTION BY-LAW. INCLUDE COSTS OF ALL TESTING.
 - 3.5. DRAIN AND VENT PIPING
 - 3.5.1. PIPE AND FITTINGS SHALL CONFORM TO STANDARDS LISTED IN APPLICABLE BUILDING CODE (LATEST REVISION).
 - 3.5.2. ALL CAST IRON SOIL PIPE SHALL BE CLASS 4000.
 - 3.5.3. NO PLASTIC, ASBESTOS OR ALUMINUM PIPE WILL BE ACCEPTED UNLESS SPECIFICALLY CALLED FOR.
 - 3.6. WATER PIPING
 - 3.6.1. PIPE - TYPE 'L' THIRD PARTY CERTIFIED HARD COPPER TUBE.
 - 3.6.2. FITTINGS - WROT OR CAST SOLDER JOINT.
 - 3.7. BALL VALVES
 - 3.7.1. TOYO FIG. 5049A.
 - 3.8. CLEANOUTS
 - 3.8.1. CLEANOUTS IN CAST IRON SOIL PIPE SHALL CONSIST OF CAST IRON FERRULE WITH BRASS PLUG HAVING RAISED HEAD.
 - 3.8.2. CLEANOUTS IN COPPER DRAINAGE TUBE SHALL BE BRASS SCREWED PLUGS WITH RAISED HEAD.
 - 3.9. CLEANOUT ACCESS COVER
 - 3.9.1. ZURN ZANB-1460-13-7" DIAM. POLISHED NICKEL BRONZE FRAME AND COVER. CLEANOUT ACCESS COVERS IN AREAS HAVING FLOOR FINISH SUCH AS V.A. TILE, TERRAZZO, OR CARPET, SHALL BE SELECTED TO SUIT FINISH. COOPERATE WITH APPROPRIATE TRADES TO APPLY FINISH TO CLEANOUT COVERS SO THAT THEY WILL BE FLUSH WITH FLOOR, INCONSPICUOUS, AND ACCESSIBLE.
 - 3.9.2. CLEANOUTS IN WALLS SHALL BE LOCATED ADJACENT TO AN ACCESS DOOR, OR SHALL HAVE SUITABLY FINISHED ACCESS COVER FLUSH WITH WALL SO AS TO PRESENT NEAT FINISHED APPEARANCE AND LEAVE CLEANOUT EASILY ACCESSIBLE.
 - 3.10. JOINTING
 - 3.10.1. MAKE ALL JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 3.10.2. BRACE FITTINGS NECESSARY TO PREVENT JOINTS FROM COMING APART UNDER PRESSURE.
 - 3.10.3. MAKE JOINTS IN DOMESTIC WATER AND DRAINAGE SYSTEMS WITH SOLDER CONTAINING NO LEAD. SOLDER MATERIAL SHALL BE SILVERBRITTE 100 OR EQUAL CONSISTING OF COMBINATION OF TIN, COPPER AND SILVER.
 - 3.11. CLEANING AND FLUSHING
 - 3.11.1. ON COMPLETION, FLUSH OUT PIPING SYSTEM TO REMOVE ANY FOREIGN MATERIAL IN PIPING.
 - 3.12. TESTING

- 3.12.1. PRESSURE TEST ALL PIPING SYSTEMS AS FOLLOWS:
 - 3.12.1.1. PLUMBING SYSTEM - IN ACCORDANCE WITH LOCAL REGULATIONS.
 - 3.12.2. WATER SUPPLY PIPING - TEST WITH WATER TO 100 PSIG AT HIGHEST POINT OF SYSTEM. MAINTAIN PRESSURE WITHOUT LOSS FOR 4 HOURS.
 - 3.12.3. CONTRACT ADMINISTRATOR SHALL WITNESS TESTS. GIVE 48 HOURS NOTICE IN ADVANCE OF TESTS.
 - 3.12.4. NATURAL GAS SYSTEM - IN ACCORDANCE WITH LOCAL REGULATIONS.
- 3.13. HANGERS
 - 3.13.1. WATER - GRINNELL CT65 PLATED CLEVIS.
 - 3.13.2. DRAINAGE - GRINNELL 260 CLEVIS.
 - 3.13.3. INSTALL HANGERS 6 FT. ON CENTRE FOR PIPES UP TO 1", 8 FT. ON CENTRE FOR PIPES 1 1/4" AND LARGER.
4. VENTILATION
 - 4.1. DUCTWORK
 - 4.1.1. GALVANIZED IRON SCHEDULE:

MAX. SIDE UP TO 24"	GAUGES (USSG)	BRACING
24	24	NONE
25 TO 30"	24	1" X 1" X 18" ANGLE, 4' FROM JOINT.
31 TO 40"	22	1" X 1" X 18" ANGLE, 4' FROM JOINT.

ROUND DUCT UP TO 19" 26 NONE
 - 4.1.2. WHERE DUCT WIDTH EXCEEDS 18" IN LARGEST DIMENSION, STIFFEN BY BREAKING SHEETS DIAGONALLY.
 - 4.1.3. DUCT SIZES SHOWN ARE INSIDE DIMENSIONS. IF DUCTS ARE ACOUSTICALLY LINED, OUTSIDE DUCT SIZE TO BE INCREASED TO SUIT.
 - 4.1.4. DUCTWORK SHALL BE CONSTRUCTED AS RECOMMENDED IN ASHRAE GUIDE.
 - 4.1.5. SEAL ALL JOINTS (NEW AND EXISTING) AIRTIGHT WITH DURO-DYNE S-2 DUCT SEALER OR EQUAL, IN STRICT ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS. PRIOR TO APPLICATION, DUCTWORK TO BE DRY AND FREE OF GREASE, ETC. USE 1/4" BEAD OF MATERIAL ALONG JOINTS. MATERIAL, WHEN DRY, TO HAVE 1/8" DEPTH EXTENDING 1" ON EACH SIDE OF JOINT OR SEAM.
 - 4.1.6. WHERE DUCTWORK CONFLICTS WITH MECHANICAL PIPING AND IT IS NOT POSSIBLE TO DIVERT DUCTWORK OR PIPING TO STAY WITHIN ALLOWABLE SPACE LIMITATIONS, PROVIDE DUCT EASEMENTS. EASEMENTS NOT REQUIRED ON PIPES 100MM (4") AND SMALLER OUTSIDE DIMENSION, UNLESS THIS EXCEEDS 20% OF DUCT AREA. HANGERS AND STAYS IN DUCTWORK TO BE PARALLEL TO AIR FLOW. IF EASEMENT EXCEEDS 20% OF DUCT AREA, DUCT TO BE SPLIT INTO TWO DUCTS WITH ORIGINAL DUCT AREA BEING MAINTAINED. EASEMENTS TO BE APPROVED BY CONSULTANT BEFORE INSTALLATION.
 - 4.1.7. SIZE ROUND DUCTS, INSTALLED IN PLACE OF RECTANGULAR DUCTS, FROM ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. PRIOR TO FABRICATION OF DUCTWORK, CHECK ALL CEILING SPACES AND HEIGHTS FOR CONFLICTION WITH OTHER TRADES.
 - 4.1.8. DUCT AND EQUIPMENT SUPPORTS, HANGERS AND INSERTS
 - 4.1.8.1. SUPPORT HORIZONTAL DUCTS ON MAXIMUM 8'-0" CENTRES BY NON-PERFORATED GALV. STEEL, RIVETTED STRAP FOR DUCTWORK 36" (EITHER DIMENSION) OR LESS, AND MINIMUM 1" X 1" X 18" GALV. IRON PASSING UNDER DUCTS 37" OR OVER (EITHER DIMENSION) WITH 3/8" DIAM. THREADED RODS SUSPENDING ANGLES FROM STRUCTURE.
 - 4.1.8.2. FOR INSERTS IN EXISTING CONCRETE, USE HILTI H.K.D. STEEL ANCHORS.
 - 4.1.10. MANUAL VOLUME DAMPERS TO BE #16 GA. GALV. STEEL, STIFFENED. DAMPERS HARDWARE TO BE DURO-DYNE KS-145, KS-385 OR KS-12 AS RECOMMENDED BY MANUFACTURER.
 - 4.1.11. FIRE DAMPERS SHALL CONFORM TO MANITOBA FIRE CODE AND LOCAL AUTHORITIES. ALL FIRE DAMPERS TO BE TYPE 'B', I.E. BLADES OUT OF AIR STREAM.
 - 4.1.12. PROVIDE INSULATED ACCESS DOORS AT ALL FIRE DAMPERS, AND WHERE NOTED.
 - 4.1.13. DIFFUSERS, GRILLES AND REGISTERS
 - 4.1.13.1. SEE DIFFUSER SCHEDULE.
 - 4.1.13.2. FLEXIBLE AIR DUCTS SHALL CONFORM TO UL-181, NFPA 90A AND SHALL HAVE A FIRE RATING TO SUIT WALL RATING. USE MAXIMUM OF 18" LENGTH STRAIGHT RUN TO EACH BOOT CONNECTION.

NOTES:

0	ISSUED FOR CONSTRUCTION	JAW	FEB 17 2017
No.	REVISION/DESCRIPTION	BY	DATE

SEAL



DRAWN	JAW	CHECKED	DESIGNED	APPROVED
DATE	2015.12.21	USER	APPROVAL	

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

PROJECT
 FORMER POST OFFICE TOWER
 BUILDING CODES UPGRADES

268 GRAHAM AVENUE

SHEET TITLE

MECHANICAL SPECIFICATIONS
 UNITS 204 & 206 -DEMOLITION, RENOVATION
 & FIRE CODE UPGRADES

SCALE	PROJECT No:	SHEET No:
AS SHOWN	2014-146-02	M2