

## MECHANICAL SPECIFICATION

MECHANICAL SUBCONTRACTOR SHALL SUBMIT PRICE FOR THE COST OF SUPPLY AND INSTALLATION OF EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE AND OPERATING MECHANICAL PACKAGE. MECHANICAL PACKAGE TO CONSIST OF EQUIPMENT AND MATERIALS AS DESCRIBED IN THIS OUTLINE SPECIFICATION. REFER TO MECHANICAL PLANS FOR ACTUAL REQUIREMENTS OF EQUIPMENT.

### SECTION 15005 - MECHANICAL SCOPE OF WORK

- INCLUDE IN MECHANICAL SECTION, PROVISION OF LABOUR, NEW MATERIALS, TOOLS, TRANSPORTATION, SERVICES AND FACILITIES FOR A COMPLETE MECHANICAL INSTALLATION. THE INSTALLATION SHALL BE LEFT COMPLETE IN ALL RESPECTS AND READY FOR OPERATION. FINAL INSTALLATION SHALL BE INSTALLED TO COMPLETE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- THE MECHANICAL SCOPE OF WORK INCLUDES, BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING PROVISION:
  - GENERAL:
    - FAMILIARIZE CREW WITH SITE IN ORDER TO DETERMINE APPROPRIATE LOCATIONS, SITE CONDITIONS, ETC. THAT MAY AFFECT WORK.
    - WORK MAY NEED TO BE PERFORMED AT NON-STANDARD HOURS. DETERMINE SCHEDULE WITH CONTRACT ADMINISTRATOR.
    - OSM MANUALS AND CONTRACT ADMINISTRATOR TRAINING.
    - AS-BUILT DRAWINGS.
  - PLUMBING:
    - PROVISIONS OF ALL PIPING, FIXTURES, PLUMBING BRASS, PIPE FITTINGS, LABOR AND MISCELLANEOUS MATERIALS IS REQUIRE TO COMPLETE THE PROJECT.
    - PROVISIONS OF ALL GAS PIPING AND VENTING FOR SUPPLIED EQUIPMENT.
  - HVAC
    - PROVISIONS OF ALL AIR HANDLING EQUIPMENT, FANS, DUCTWORK, CONTROL/BALANCE FITTINGS, INSULATION, GRILLES/REGISTERS/DIFFUSERS/LOUVERS, FIRE DAMPERS, LABOR AND MISCELLANEOUS MATERIALS AS REQUIRED TO COMPLETE THE PROJECT.
    - PROVISION OF TAB REPORTS INCLUDING FIRE DAMPER TESTING AND CERTIFICATION.
  - CONTROLS
    - PROVISION OF COMPLETE ELECTRONIC CONTROLS AS DESCRIBED.

### SECTION 15010 - GENERAL CONDITIONS

- PROVIDE ALL LABOUR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN ON DRAWINGS AND AS SPECIFIED HEREIN.
- ALL NECESSARY PERMITS SHALL BE OBTAINED AND ALL FEES SHALL BE PAID TO CARRY OUT THE SPECIFIED WORK.
- ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF COMPLETED WORK ACCEPTANCE BY THE CONTRACT ADMINISTRATOR. SUBMIT DOCUMENTATION IDENTIFYING ADDITIONAL EQUIPMENT WARRANTY COVERAGE AND TIME FRAMES.
- ALL WORK SHALL COMPLY IN EVERY RESPECT WITH ALL NATIONAL, PROVINCIAL AND LOCAL CODES AND BY-LAWS, WHICH SHALL BE CONSIDERED PART OF THIS SPECIFICATION. IN THE CASE OF CONFLICTING REQUIREMENTS, BE GOVERNED BY THE MOST STRINGENT REGULATIONS.
- ALL CUTTING, PATCHING, FLASHING FOR WORK AS REQUIRED HEREIN SHALL BE BY THE CONTRACTOR.
- THE MECHANICAL SUBCONTRACTOR SHALL INSTALL PLUMBING, HEATING, VENTILATION, AIR CONDITIONING, AND SPRINKLER SYSTEMS IN COMPLETE ACCORDANCE WITH THE RECOMMENDATIONS OF THE NATIONAL/PROVINCIAL BUILDING CODE, ASHRAE, SMACNA LATEST EDITION DUCT STANDARDS, AND LOCAL PLUMBING CODES, AND N.F.P.A. REQUIREMENTS.
- COORDINATE WORK WITH WORK OF OTHER TRADES TO AVOID CONFLICT.
- ALTER THE LOCATION OF DUCTS OR PIPES AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR WITHOUT CHARGE TO THE CONTRACT ADMINISTRATOR, PROVIDED THE CHANGE IS MADE BEFORE INSTALLATION AND DOES NOT NECESSITATE ADDITIONAL MATERIALS.
- REFER TO SECTION 87 FOR CITY OF WINNIPEG BID OPPORTUNITIES FOR ALL BIDDING INFORMATION.
- THE MECHANICAL SUBCONTRACTOR SHALL PROVIDE SIX (6) SETS OF SHOP DRAWINGS FOR ALL EQUIPMENT FOR REVIEW AND APPROVAL BY CONTRACT ADMINISTRATOR. CONTRACTOR SHALL STAMP SHOP DRAWINGS REVIEWED BY CONTRACTOR PRIOR TO SUBMISSION. FAILURE TO COMPLY WILL RESULT IN SHOP DRAWINGS BEING RETURNED "UNREVIEWED" BY CONTRACT ADMINISTRATOR.
- FURNISH TO THE CONTRACT ADMINISTRATOR THREE (3) HARD-COVERED LOOSE-LEAF BINDERS CONTAINING THEREIN ONE (1) COMPLETE SET OF MANUFACTURERS' OPERATING AND MAINTENANCE INSTRUCTIONS SHOWING ALL MAJOR EQUIPMENT AND APPARATUS REQUIRING MAINTENANCE. INSTRUCTIONS SHALL BE COMPLETE FOR INSTALLATION, OPERATION AND MAINTENANCE AND SHALL INCLUDE PERTINENT INFORMATION SUCH AS DETAILED DRAWINGS AND OPERATION CURVES. SPARE PARTS, SUPPLIER LISTS AND ADDRESSES SHALL BE SUPPLIED. INSTRUCTION SHALL BE REQUIRED WITH THE CONTRACT ADMINISTRATOR'S REPRESENTATIVE TO ENSURE A THOROUGH UNDERSTANDING OF THE EQUIPMENT AND ITS OPERATION.
- ALL WIRING, SUPPLY AND INSTALLATION OF DISCONNECT SWITCHES FOR EQUIPMENT SPECIFIED HEREIN SHALL BE PERFORMED BY THE ELECTRICAL SUBCONTRACTOR, UNLESS OTHERWISE NOTED.
- SUBCONTRACTOR SHALL EXAMINE THE SITE AND CONDITIONS AFFECTING WORK, METHODS OF CONNECTION AND LOCATION OF ALL SERVICES INVOLVED UNDER THIS CONTRACT. FAILURE TO MAKE THIS VISIT IN NO WAY ALLEVIATES THE MECHANICAL SUBCONTRACTOR FROM RESPONSIBILITY FOR COMPLETING THE MECHANICAL WORK OF THIS CONTRACT IN A WORKMANLIKE MANNER. NO ALLOWANCE WILL BE MADE AFTER CONTRACT AWARD FOR ANY EXPENSE INCURRED THROUGH A FAILURE TO MAKE THIS EXAMINATION AND INVESTIGATION.
- SCHEDULING OF ALL WORK SHALL BE ARRANGED WITH THE CITY OF WINNIPEG, AND THE CITY OF WINNIPEG SHALL BE NOTIFIED AND HIS APPROVAL OBTAINED PRIOR TO SHUTTING OFF EXISTING SERVICES FOR PURPOSES OF CONNECTING NEW WORK. WORK WITHIN THE BUILDING MAY HAVE TO BE PERFORMED DURING NON-REGULAR WORKING HOURS AND MUST CONFORM TO WORK RULES OF THE BUILDING AS DIRECTED BY THE CITY OF WINNIPEG.
- AS-BUILT DRAWINGS:
  - OBTAIN SETS OF WHITE PRINTS (ONE FOR EACH SYSTEM IE. PLUMBING, HVAC, FIRE PROTECTION) AND KEEP AT JOB SITE AT ALL TIMES.
  - RECORD ALL ADDITIONS OR DEVIATIONS FROM THE CONTRACT DOCUMENTS INCLUDING ALL CHANGES INCURRED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.
  - MECHANICAL SUB CONTRACTORS SHALL BE RESPONSIBLE FOR THE PRODUCTION OF AS-BUILT RECORD DRAWINGS WHICH SHALL PROVIDE A COMPLETE AND ACCURATE RECORD OF THE ACTUAL MECHANICAL INSTALLATION. ALL DIMENSIONS BELOW GRADE OR INACCESSIBLE PIPING OR DUCT SYSTEMS, ETC. SHALL BE DIMENSIONED AT EACH CHANGE IN DIRECTION. INCLUDE ALL ROUTING OF SERVICES NOT INDICATED ON ORIGINAL DRAWINGS.
  - PROJECT RECORD DRAWINGS SHALL BE TRANSFERRED BY MECHANICAL SUBCONTRACTOR TO REPRODUCIBLE BOND DRAWINGS AND LABELLED "AS-BUILT".
  - SUBMIT REPRODUCIBLE BOND DRAWINGS TO CONTRACT ADMINISTRATOR FOR REVIEW UPON COMPLETION IF CORRECTIVE MEASURES ARE REQUIRED AFTER THE CONTRACT ADMINISTRATION (DUE TO MISSING INFORMATION AND/OR IMPROPER DRAFTING STANDARDS). THE MECHANICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACT ADMINISTRATOR'S TIME COSTS FOR CORRECTIVE MEASURES, COURIER AND PRINTING COSTS.
  - CONTRACTOR SHALL EMPLOY CONTRACT ADMINISTRATOR (OR CAD DRAFTING SERVICE) TO PRODUCE ELECTRONIC COPY AS-BUILT DRAWINGS. MECHANICAL SUBCONTRACTOR SHALL BEAR ALL COSTS OF PRODUCTION.
  - COPY OF FINAL "AS-BUILT" DRAWING SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR.
  - ALL COSTS OF "AS-BUILT" DRAWINGS PRODUCTION SHALL BE BORNE BY MECHANICAL SUBCONTRACTOR.
- THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE TEMPORARY HEATING AND HOARDING AS REQUIRED FOR THE PROPER PROGRESS OF THE WORK.
- VERIFY SIZES, INVERTS AND LOCATIONS OF ALL SERVICES PRIOR TO COMMENCEMENT OF

WORK. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO SANITARY SEWER, STORM SEWER, DOMESTIC WATER MAINS, FORCE MAINS, ETC.

- HOISTING OF ALL MECHANICAL EQUIPMENT SHALL BE BY THE MECHANICAL SUBCONTRACTOR.
- ASSUME FULL RESPONSIBILITY FOR LAYING OUT ALL WORK AND ENSURING THAT NO DAMAGE IS CAUSED TO THE CITY OF WINNIPEG'S EQUIPMENT AND PREMISES DUE TO IMPROPER LOCATION AND EXECUTION OF WORK IN THIS CONTRACT. PROTECT AND MAINTAIN ALL WORK UNTIL WORK HAS BEEN COMPLETED AND ACCEPTED BY THE CITY OF WINNIPEG. STORE ALL MATERIALS AS REQUIRED, AND CLEAN UP REFUSE CAUSED BY ALL WORK.
- IDENTIFY ALL NEW PIPING WITHIN BUILDING INSTALLED IN THIS CONTRACT SHOWING SERVICE, PIPE SIZE, AND FLOW DIRECTION. USE CAPITAL LETTERS USING EITHER FIRE RESISTANT HIGH GLOSS INTERIOR ENAMEL PAINT OR WATERPROOF, HEAT RESISTANT PLASTIC MARKER TAGS (SIMILAR TO: W.H. BRADY IDENTIFICATION TAPES, BANDS, MARKERS.) IDENTIFY AT MAXIMUM OF EVERY 50 FT. AND AT LEAST ONCE IN EACH ROOM. LOCATE AND SIZE LETTERING SUCH THAT IT CAN BE SEEN FROM FLOOR.
- IN THE CASE OF DISCREPANCY BETWEEN ARCHITECTURAL AND MECHANICAL DRAWINGS TO NUMBER, TYPE, OR LOCATION OF HVAC EQUIPMENT AND SYSTEMS COMPONENTS, OBTAIN WRITTEN RULING.
- ALL TIME/DATE SENSITIVE ELECTRONIC EQUIPMENT AND SOFTWARE PROVIDED ON THIS PROJECT SHALL BE 4 DIGIT YEAR INPUT COMPATIBLE AND SHALL BE BASED ON THE USE OF FULL, UNABBREVIATED, UNAMBIGUOUS DISCRETE TIME AND DATE CODES.
- MECHANICAL SUBCONTRACTOR SHALL COORDINATE PROVISION OF POWER TO BUILDING CONTROL TRANSFORMERS WITH DIVISION 16 AND CARRY ALL INCREMENTAL COSTS.
- COORDINATE THE ELECTRICAL REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH DIVISION 16. DIVISION 16 SHALL PROVIDE THE FOLLOWING:
  - ALL POWER WIRING TO EQUIPMENT.
  - ONE 15 AMP 120V/1PH/60HZ FUSED POWER SUPPLY TO EACH MECHANICAL EQUIPMENT AND/OR JANITOR ROOM.
- PROVIDE FIRE STOPPING AT ALL PIPING, CONDUIT (CONTROLS) AND DUCTWORK PENETRATIONS OF ALL REQUIRED FIRE SEPARATIONS WITH APPROVED MATERIAL SYSTEMS. ACCEPTABLE MATERIALS: 3M, DOW, CORNING, AFS.
- MECHANICAL CONTRACT DOCUMENTS ARE DIAGRAMMATIC AND APPROXIMATE TO SCALE; REFER TO ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS, AND SITE VERIFY ALL CRITICAL DIMENSIONS. THE DRAWINGS AND SPECIFICATIONS ESTABLISH SCOPE FOR MATERIAL AND INSTALLATION QUALITY AND ARE NOT DETAILED INSTALLATION INSTRUCTIONS. ANY DISCREPANCIES MUST BE BROUGHT TO THE CONTRACT ADMINISTRATOR'S ATTENTION IN WRITING PRIOR TO THE CLOSE OF BIDS.
- SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS AND SPECIFICATIONS, WHICH LEAVE THE CONTRACTOR IN DOUBT AS TO THE TRUE INTENT AND MEANING OF THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL OBTAIN A WRITTEN RULING FROM THE CONTRACT ADMINISTRATOR PRIOR TO BID SUBMISSION. IF WRITTEN APPROVAL IS NOT PROVIDED, THE MOST EXPENSIVE ALTERNATIVE SHALL BE INCLUDED IN THE BID OPPORTUNITY PRICE.
- FIELD VERIFY ALL BUILDING AND SITE DIMENSIONS AND REVIEW MECHANICAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY FABRICATION OR INSTALLATION OF EQUIPMENT OR MATERIALS. DO NOT ATTEMPT ANY FABRICATION OR INSTALLATION UNTIL SUCH CLARIFICATION IS PROVIDED. NO CONTRACT REVISIONS WILL BE CONSIDERED FOR FAILURE TO VERIFY THESE DIMENSIONS ON SITE.
- DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER, WHAT IS CALLED FOR BY ONE SHALL BE BINDING AS IF CALLED FOR BY BOTH.
- MECHANICAL WORK SHALL BE COMPLETED IN CONFORMANCE WITH, AND SUBJECT TO, ALL CAUTIONARY NOTES AVAILABLE TO THE READER INCLUDING THOSE AVAILABLE ON THE WEBSITES OF THE MANUFACTURERS AND CONTRACT ADMINISTRATORS.

### SECTION 15180 - INSULATION

ALL INSULATING MATERIALS, METHODS, SIZES AND TYPES OF INSULATION FOR ALL PIPING AND DUCT WORK SHALL BE INSTALLED TO THE REQUIREMENTS OF THE ASHRAE STANDARDS 90.1-2010 "ENERGY STANDARD FOR BUILDING EXCEPT LOW-RISE RESIDENTIAL BUILDING", NATIONAL ENERGY CODE OF CANADA FOR BUILDING 2011 AND THERMAL INSULATION ASSOCIATION OF CANADA (TIAC) STANDARDS.

- PROVIDE 1" (25 MM) ON PIPING LESS THAN 2" (50 MM) THICK RIGID PIPE INSULATION ON ALL DOMESTIC WATER PIPES. INSULATION C/W VAPOUR BARRIER.
- PROVIDE 1" (25 MM) THICK PIPE INSULATION ON ALL PLUMBING VENTS PASSING THROUGH ROOF FOR A DISTANCE OF 10'-0" (3 M) INSIDE FROM POINT OF COLD TO WARM SURFACE PENETRATION. INSULATION C/W VAPOUR BARRIER.
- PROVIDE 1 1/2" (38 MM) THICK KNAUF DUCTWRAP, 1.0 PCF DENSITY R6.0 (RSI 1.06) 25% COMPRESSED FLEXIBLE DUCT INSULATION C/W RFRFK FACING ON EXHAUST DUCTWORK. EXHAUST DUCTWORK SHALL BE INSULATED FOR A MINIMUM DISTANCE OF 10'-0" (3 M) FROM PENETRATION OF BUILDING THERMAL ENVELOPE.
- PROVIDE 2" (50 MM) THICK KNAUF DUCTWRAP, 1.6 PCF DENSITY R8.3 (RSI 1.5) 25% COMPRESSED THERMAL FACED INSULATION ON ALL DUCTWORK CONVEYING OUTSIDE AIR COMPLETE WITH RFRFK FACING FACING. DUCTWORK SHALL BE INSULATED OVER ENTIRE RUN FROM PENETRATION OF BUILDING THERMAL ENVELOPE TO UNIT CONNECTION.
- DO NOT EXTERNALLY INSULATE ANY DUCTWORK WHICH IS SPECIFIED OR SHOWN TO BE INTERNALLY INSULATED UNLESS NOTED OTHERWISE.

### SECTION 15400 - PLUMBING

- PROVIDE COMPLETE FUNCTIONAL PLUMBING SYSTEM COMPRISED OF DOMESTIC WATER PIPING, VENTS, SANITARY AND DRAINAGE PIPING ETC.
- ALL WATER PIPING ABOVE GROUND INSIDE BUILDING SHALL BE CORZAN CPVC PIPING CONFORMING TO ASTM D1784, UPONOR AQUAPEX PEX-A (ASTM E84 FLEXUM LISTED WHERE REQUIRED) OR TYPE "L" HARD COPPER; 3RD PARTY CERTIFIED. ALL PIPING BELOW GROUND SHALL BE PVC GRADE 21 OR TYPE "K" SOFT COPPER; 3RD PARTY CERTIFIED.
- DRAINS AND VENT PIPING UNDERGROUND INSIDE BUILDING SHALL BE CAST IRON CLASS 4000, OR PVC PLASTIC. FITTINGS SHALL BE MECHANICAL JOINT FOR CAST IRON OR SOLVENT CEMENT FOR PVC.
- SANITARY WASTE STACKS, HORIZONTAL WASTE AND VENT, ABOVE GROUND INSIDE BUILDING, SHALL BE CAST IRON CLASS 4000. VENT PIPING AND FIXTURE RUN-OUTS MAY ALSO BE DWV COPPER OR PVC PLASTIC. FITTINGS SHALL BE MECHANICAL JOINT FOR CAST IRON, SOLDER FOR DWV COPPER AND SOLVENT CEMENT FOR PVC.
- MECHANICAL SUBCONTRACTOR SHALL INSTALL A TRAP WITH A CLEANOUT IN A HEATED LOCATION ON THE STORM DRAINAGE SYSTEM.
- MECHANICAL SUBCONTRACTOR SHALL VERIFY ON SITE ALL CONNECTION POINTS TO EXISTING BUILDING SERVICES. COORDINATE ALL NEW PIPING RUNS WITH CONTRACT ADMINISTRATOR OR CITY OF WINNIPEG REPRESENTATIVE.
- USE 95% TIN-ANTIMONY LEADED SOLDER ON ALL HOT AND COLD WATER PIPING. USE NON-CORROSIVE NON-BRAZED FLUX.
- ALL VALVES TO BE BY ONE MANUFACTURER. STANDARD OF ACCEPTANCE: JENKINS BROS. LTD.
- MANUFACTURED SHOCK ABSORBERS, AUTOMATIC AIR VENTS, AND PARTITION STOPS SHALL BE INSTALLED AT THE TOP OF ALL RISERS, AND ON ALL FIXTURES OR BATTERY OF FIXTURES.
- MECHANICAL SUBCONTRACTOR SHALL ALLOW FOR IN BID OPPORTUNITY QUOTATION ANY ADDITIONAL LABOUR, MATERIALS, ETC. DEMAED NECESSARY DUE TO EXACT SITE CONDITIONS WHICH HAVE NOT BEEN REFLECTED IN MECHANICAL DRAWING OR IN MECHANICAL SPECIFICATION. NOTIFY CONTRACT ADMINISTRATOR OF ALL DISCREPANCIES PRIOR TO BID CLOSE.
- ON COMPLETION, ALL PIPING SYSTEMS SHALL BE CLEANED & FLUSHED OUT TO REMOVE ANY FOREIGN MATERIAL IN THE PIPING.

- CONTRACTOR SHALL COORDINATE SERVICE INSTALLATIONS AND/OR MODIFICATIONS WITH LOCAL UTILITY PRIOR TO COMMENCEMENT OF WORK. PAY ALL COSTS AND/OR FEES.
- USE THE FOLLOWING ROD DIAMETER AND SPACING SCHEDULE TO ESTABLISH MINIMUM HANGING STANDARDS FOR HORIZONTAL PIPING:

PIPE SIZE	ROD DIA	STEEL	COPPER
UP TO 3/4"	3/8"	6	6'
1" TO 1 1/4"	3/8"	8	6'
1 1/2" & 2"	3/8"	10	8'
- PIPE HANGERS WHERE REQUIRED SHALL BE EQUAL TO FIG.65 FOR STEEL PIPE AND FIG.17 EXPANSION CASE SET IN HOLES DRILLED IN CONCRETE OR ATTACHED TO FIG.225 OR 227 CLAMP ATTACHED TO FLOOR JOIST AND ROOF JOIST. FOR INSULATED PIPING, PROVIDE PROTECTION FIG.167 SADDLES SIZE HANGER TO ACCOMMODATE INSULATION WHERE APPLIED.
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### SECTION 15450 - OUTSIDE SERVICES

- PROVIDE PIPING SYSTEMS INCLUDING ALL NECESSARY CONNECTIONS TO MAINS FOR SANITARY AND DOMESTIC WATER SERVICE.
- CONFIRMATION OF EXACT LOCATION AND INVERT ELEVATIONS OF SERVICES PRIOR TO COMMENCING WORK. IF ANY DISCREPANCIES SHOULD BE DISCOVERED, THEN NOTIFY THE CONTRACT ADMINISTRATOR IMMEDIATELY.
- CONFORM WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATION, THE LOCAL AUTHORITIES HAVING JURISDICTION AND THE CITY OF WINNIPEG CONSTRUCTION SPECIFICATIONS. IN THE CASE OF CONFLICTING REQUIREMENTS, BE GOVERNED BY THE MOST SEVERE REGULATIONS.
- SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH SPECIFICATIONS.
- SECTION 15400 SHALL CONNECT TO SANITARY SEWER 3"-0"(1.0M) OUTSIDE BUILDING.
- PIPE FITTINGS AND JOINTS
  - DOMESTIC WATER 2"(50MM) AND UNDER: TYPE "K" SOFT COPPER, THIRD PARTY CERTIFIED. CONNECT TO SERVICE 3"-0"(1.0M) OUTSIDE BUILDING.
  - SANITARY SEWER PIPING 6" AND OVER IPEX CLASS PVC CLASS 150 TO AWWA C900 AND C905 AND CSA B137.0 AND B137.3. "RIGID POLYCHLORIDE (PVC) PIPING FOR PRESSURE APPLICATIONS.
- EXAMINE AREA WHERE WORK IS TO BE PERFORMED FOR:
  - ANYTHING THAT AFFECTS EXECUTION AND QUALITY OF WORK.
  - PIPING CLEARANCES.
- WHERE, UNDER THIS CONTRACT, IT IS NECESSARY TO CONNECT EXISTING WEAIR MAINS TO THOSE WHICH ARE TO BE LAID, ALL PRECAUTIONARY MEASURES DEEMED NECESSARY BY THE CONTRACT ADMINISTRATOR TO PROTECT EXISTING MAINS, AND TO CAUSE THE LEAST INCONVENIENCE TO USERS OF EXISTING MAINS, SHALL BE CARRIED OUT BY THE OUTSIDE SERVICES CONTRACTOR AT NO ADDITIONAL CHARGE TO THE CITY. THIS CHARGE, IF ANY, TO BE INCLUDED. NO VALVE OR OTHER CONTROL ON THE SYSTEM SHALL BE OPERATED FOR ANY PURPOSE BY THE OUTSIDE SERVICES CONTRACTOR WITHOUT APPROVAL OF THE CONTRACT ADMINISTRATOR, AND ALL CONSUMERS AFFECTED BY SUCH OPERATIONS SHALL BE NOTIFIED BY THE OUTSIDE SERVICE CONTRACTOR, AT LEAST ONE HOUR BEFORE THE OPERATION AND ADVISED OF THE PROBABLE TIME WHEN SERVICE WILL BE RESTORED.
- THE OUTSIDE SERVICE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO ANY UNDERGROUND OR SURFACE UTILITY STRUCTURES, DRAIN, SEWER, WATER SERVICE, VALVE, SERVICE BOX OR OTHER OBSTRUCTION ENCOUNTERED IN THE PROGRESS OF THE WORK. ANY SERVICE OR OTHER UTILITY DAMAGE, SHALL BE REPAIRED OR REPLACED AT THE OUTSIDE SERVICE CONTRACTOR'S EXPENSE TO THE ENTIRE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- THIS CONTRACTOR SHALL MAKE APPLICATION AND PAY FOR ALL PERMITS, ASSESSMENTS, INSPECTION FEES, CONNECTION CHARGES, STREET CUT PERMITS AND ALL OTHER CHARGES PERTAINING TO THE COMPLETION OF INSTALLATION, TO ALL APPROPRIATE GOVERNMENTAL AUTHORITIES.
- SEWER PIPES SHALL BE LAID ACCORDING TO THE GRADE AND ALIGNMENT SHOWN ON THE PLANS, WITHIN A TOLERANCE OF 1 1/2" (38 MM) VERTICAL AND 12" (300 MM) HORIZONTAL. THE OUTSIDE SERVICE CONTRACTOR TO ESTABLISH OWN BATTER BOARDS FOR LINE AND GRADE.
- ALL PIPES SHALL BE LEFT UNCOVERED FOR INSPECTION AND NO PIPES SHALL BE COVERED UNTIL PERMISSION HAS BEEN GIVEN BY THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL ALLOW 48 HRS. NOTIFICATION PRIOR TO COMMENCEMENT OF WORK. SHOULD ANY DAMAGE BE CAUSED BY THE CONTRACTOR BEFORE THE PERMISSION OF THE AUTHORITY HAVING JURISDICTION HAS BEEN OBTAINED, THE TRENCH SHALL BE REOPENED AT THE OUTSIDE CONTRACTOR'S EXPENSE.
- PIPE BEDDING SHALL CONSIST OF A MINIMUM OF 4" (100 MM) SAND SHALL BE SPREAD AND GRADED OVER THE BOTTOM OF THE TRENCH BEFORE PLACING ANY PIPE. AFTER THE PIPE IS PLACED, FREE RUNNING SAND SHALL BE PLACED TO THE TOP OF THE PIPE AND THEN COMPACTED. PARTICULAR CARE SHALL BE TAKEN IN COMPACTING THIS MATERIAL TO GIVE PROPER SUPPORT TO THE PIPE. MORE SAND SHALL THEN BE PLACED AND THOROUGHLY COMPACTED TO 24" (600 MM) ABOVE THE PIPE IN 6" (150 MM) LIFTS. THE REMAINDER OF THE TRENCH WHERE GOING UNDER SIDEWALK PAVING, FLOOR SLABS, ETC. SHALL BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED IN 12" (300 MM) LIFTS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR. WHERE THE TRENCHES RUN THROUGH GRASSED AREAS, OR NON-PAVED AREAS, THE REMAINDER OF THE TRENCH MAY THEN BE BACKFILLED WITH CLEAR EARTH MECHANICALLY COMPACTED IN 12" (300 MM) LIFTS. ALL EXCAVATION SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH ALL GOVERNING CODES AND PROVINCIAL DEPARTMENT OF LABOUR REGULATIONS. ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE OR BE PLACED AS DIRECTED BY THE CONTRACT ADMINISTRATOR AFTER INSTALLATION OF THE BURIED SERVICE.

### PLUMBING FIXTURES AND EQUIPMENT:

- AMERICAN STANDARD CADET RIGHT HEIGHT ELONGATED PRESSURE-ASSISTED 6L TOILET (KOHLER, TOTO), BOLT DOWN TANK LIDS, ELONGATED OPEN FRONT SEAT WITH LID AND STAINLESS STEEL HINGE POSTS WITH CONCEALED CHUCK HINGE. ELONGATED 16-1/2" HIGH UNIVERSAL BOWL WITH 2 BOLT CAPS. WATER SUPPLY TO BE 1/2" ANGLED CLOSET SUPPLY WITH CHROME PLATED FINISH C/W 12" FLEXIBLE TUBING AND SHUT-OFF VALVE WITH ESCUTCHEON PLATE.
- AMERICAN STANDARD WASHBROOK FLOWISE UNIVERSAL URINAL, VITREOUS CHINA, DELTA MODEL #817231 MANUAL FLUSH VALVE (KOHLER, AMERICAN STANDARD), 0.5 GPF LOW CONSUMPTION WASHOUT URINAL (KOHLER, AMERICAN STANDARD, TOTO), INTEGRAL TRAP, 1/4" TOP SPUD INLET, STAINLESS STEEL URINAL DRAIN COVER, WHITE, EXPOSED MANUAL FLUSH VALVE, VACUUM BREAKER AND ANGLE STOP SET, 3/4" ANGLE STOP, 3/4" VACUUM BREAKER, OUTLET TUBE, WEAKE SOLDER KIT, FIXTURE CARRIER, EPOXY COATED TOP AND BOTTOM UNIVERSAL STEEL HANGER PLATES, HEAVY GAUGE EPOXY COATED STEEL OFFSET UPRIGHTS WITH WELDED FEE SUPPORTS. FOR ONE UNIT: 102 MM (4") FOR TWO TO SIX UNITS IN A ROW, WALL ACCESS CLEANOUT, TWO PIECE EXPANDABLE PLUG WITH 102 MM (4") DIAMETER STAINLESS STEEL ACCESS COVER, SECURED WITH VANDAL PROOF STAINLESS STEEL SCREW.

- AMERICAN STANDARD MURRO WITH EVERLECK #0954.004EC BASIN, 540 MM X 520 MM X 165 MM (21-1/4" X 20-1/2" X 6-1/2") HIGH, VITREOUS CHINA, FOR CARRIER WITH CONCEALED ARMS, REAR OVERFLOW, RECESSED SELF-DRAINING FAUCET LEDGE, 0059.020EC ACRYLIC SHROUD. TOTO OBERON S SINGLE HANDLE FAUCET #TL3635D, LOW LEAD FULL-BRASS CHROME POLISHED BODY, 4" COVER PLATE #THP3158#CP, LAWLER #TMM-1070. POINT OF USE MECHANICAL WATER MIXING VALVE, BRONZE BODY, TEMPERATURE ADJUSTING DIAL, 10 MM (3/8") INLETS AND OUTLET COMPRESSION FITTINGS, HIGH TEMPERATURE THERMOSTATIC LIMIT STOP, SHUT-OFF WITH AUTOMATIC RESET WHEN TEMPERATURE EXCEEDS 120F (48.8C), INTEGRAL CHECKS, OFFER TEMPERATURE RANGE FROM FULL COLD THROUGH 46 °C (114.8 °F). PROVIDE TEE, ADAPTORS AND FLEX. COPPER TUBING TO SUIT INSTALLATION. PROVIDE TEMPERED WATER TO HOT SIDE OF FAUCET. MCGUIRE #155AC OPEN GRID DRAIN, CHROME PLATED CAST BRASS ONE PIECE TOP, 17 GA. (1.5 MM) TUBULAR 32 MM (1-1/4") TALLPIECE. MCGUIRE #FH1708VB, FAUCET SUPPLIES, CHROME PLATED POLISHED BRASS, COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE STOPS, 13 MM (1/2") I.D. INLET X 127 MM (5") HORIZONTAL EXTENSION TUBES, COMBINATION V.P. LOOSE KEY HANDLE, ESCUTCHEON AND STAINLESS STEEL BRADED FLEXIBLE RISER. MCGUIRE #8872C P-TRAP, HEAVY CAST BRASS ADJUSTABLE BODY, WITH SLIP NUT, 32 MM (1-1/4") SIZE, SHALLOW WALL FLANGE AND SEAMLESS TUBULAR WALL BEND. PROVIDE INSULATION ON TRAP TO PROTECT AGAINST SCALDS AND BURNS.

SCREWS, HEAVY GAUGE STEEL UPRIGHTS WITH INTEGRAL WELDED FEET. FOR ONE UNIT: 102 MM (4") FOR TWO TO SIX UNITS IN A ROW. 152 MM (6") FINISHED METAL STUD WALL TO BACK OF PIPE SPACE. KOHLER AND TOTO ARE APPROVED EQUALS.

- SMITH SPECIFIED BY ARCHITECT. REFER TO ARCHITECTURAL DRAWINGS. TOTO OBERON S SINGLE HANDLE FAUCET #TL3635D, LOW LEAD FULL-BRASS CHROME POLISHED BODY, 4" COVER PLATE #THP3158#CP, LAWLER #TMM-1070. POINT OF USE MECHANICAL WATER MIXING VALVE, BRONZE BODY, TEMPERATURE ADJUSTING DIAL, 10 MM (3/8") INLETS AND OUTLET COMPRESSION FITTINGS, HIGH TEMPERATURE THERMOSTATIC LIMIT STOP, SHUT-OFF WITH AUTOMATIC RESET WHEN TEMPERATURE EXCEEDS 120F (48.8C), INTEGRAL CHECKS, OFFER TEMPERATURE RANGE FROM FULL COLD THROUGH 46 °C (114.8 °F). PROVIDE TEE, ADAPTORS AND FLEX. COPPER TUBING TO SUIT INSTALLATION. PROVIDE TEMPERED WATER TO HOT SIDE OF FAUCET. MCGUIRE #155AC OPEN GRID DRAIN, CHROME PLATED CAST BRASS ONE PIECE TOP, 17 GA. (1.5 MM) TUBULAR 32 MM (1-1/4") TALLPIECE. MCGUIRE #FH1708VB, FAUCET SUPPLIES, CHROME PLATED POLISHED BRASS, COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE STOPS, 13 MM (1/2") I.D. INLET X 127 MM (5") HORIZONTAL EXTENSION TUBES, COMBINATION V.P. LOOSE KEY HANDLE, ESCUTCHEON AND STAINLESS STEEL BRADED FLEXIBLE RISER. MCGUIRE #8872C P-TRAP, HEAVY CAST BRASS ADJUSTABLE BODY, WITH SLIP NUT, 32 MM (1-1/4") SIZE, SHALLOW WALL FLANGE AND SEAMLESS TUBULAR WALL BEND. PROVIDE INSULATION ON TRAP TO PROTECT AGAINST SCALDS AND BURNS.

MS-1 JANITOR MOP SINK - FLOOR MOUNTED

- FIAT MSB 2424 MOP SINK, 24" X 24" X 10" (610MM X 610MMX 254MM) DEEP, FLOOR MOUNTED, MOLDED STONE, INTEGRAL DRAIN WITH STRAINER AND "BP" S.S. BACK SPLASH PANELS. DELTA MODEL 2802304 WALLMOUNT SERVICE SINK FAUCET, RIGID SPOUT, HEAVY DUTY BRASS 1/4" HANDLE, 6" CENTERS, POLISHED CHROME, INTEGRAL CHECK STOPS, 1/4 TURN CERAMIC STRUCTURES, 1-1/2" SPOUT WITH ADJUSTABLE TOP/BOTTOM BRACE, SPOUT END VACUUM BREAKER WITH HOSE THREAD OUTLET, 6" WRIST HANDLES, SANITARY HOODS, 281911 HOSE AND HOSE BRACKET, KOHLER FAUCET K-8808 APPROVED AS EQUAL.

TP-1 TRAP SEAL

WADE 2402 3" TRAP GUARD.

FD-1 FLOOR DRAINS - FIN. AREAS - SHOWER (MED. DUTY STRAINER)

SMITH SERIES 2005A FLOOR DRAIN, ALL DUCCO COATED CAST IRON BODY, REVERSIBLE FLASHING CLAMP WITH SEEPAE OPENINGS AND ADJUSTABLE 5" (127MM) DIAMETER NICKEL BRONZE 1/4" (6.35MM) THICK STRAINER, SECURED WITH S.S. SCREWS, 4" (100MM) THROAT ON STRAINER. (WHERE REQUIRED BY LOCAL CODE PROVIDE TRAP PRIMER CONNECTION "P".)

NFHB NON-FREEZE WALL HYDRANT - EXTERIOR

SMITH SERIES 5609QT WALL HYDRANT, 1/4 TURN NON-D RIP, CERAMIC CARTRIDGE, 3/4" (19MM) NON-FREEZE WALL TYPE WITH BRONZE FACE, ADJUSTABLE WALL-FLANGE OPERATING KEY AND SELF-DRAINING INTEGRAL VACUUM BREAKER. LENGTH TO SUIT WALL THICKNESS.

HB-1 INTERIOR HOSE BIBB (FOR BLOWOUT OF LINES)

LEAD FREE BRASS HOSE BIBB, T-HANDLE, NPT MALE C/W VACUUM BREAKER.

WH-1 WATER HAMMER ARRESTORS

- SMITH "HYDROTROL" WATER HAMMER ARRESTORS SERIES #5000, STAINLESS STEEL, PRESSURIZED CHAMBERS, BELLOWES, SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS CHART BELOW TO ELIMINATE WATER HAMMER AND SHOCK FROM PIPING SYSTEMS. PROVIDE WATER HAMMER ARRESTORS ON HOT AND COLD WATER SUPPLIES TO ALL QUICK VALVES, SOLENOIDS, AND PLUMBING FIXTURES, AND LOCATE AN UPRIGHT POSITION BETWEEN THE LAST TWO FIXTURES ON A LINE, OR HORIZONTALLY AT THE END OF LINE CLOSEST TO SUPPLY SOURCE.

SIZE	FIXTURE UNITS	MODEL NO.	CONN. SIZE
A	1 - 11	5005	1/2" (12MM)
B	12 - 32	5010	3/4" (19MM)

HWT-1 DOMESTIC HOT WATER TANK

- RHEEM MODEL 82VP30-1 ELECTRIC POINT OF USE WATER HEATER, 30 GALLON, 3 KW AT 240V-1PH, HIGH EFFICIENCY HEATING ELEMENT, OVER-TEMPERATURE PROTECTOR, AUTOMATIC THERMOSTAT, TEMPERATURE AND PRESSURE RELIEF VALVE, GLASS TANK LINING, 3/4" CONNECTIONS.

### SECTION 15800 - HEATING, VENTILATION & AIR CONDITIONING

- PROVIDE EXHAUST AIR DUCT SYSTEM FROM EXHAUST FAN AS SHOWN.
- ALL DUCTWORK INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH ASHRAE, SMACNA LATEST EDITION DUCT STANDARDS.
- THIS CONTRACTOR SHALL SUPPLY AND INSTALL ALL DUCTWORK INCLUDING APPURTENANCES, HANGERS, DAMPERS, ETC.
- DUCT CONSTRUCTION:
  - ROUND AND OVAL DUCTWORK SHALL BE SPIRAL CONDUIT CONSTRUCTION OF ZINC COATED STEEL OF THE FOLLOWING U.S. GAUGES:

CONDUIT SIZE	GAUGE OF METAL
8" AND SMALLER	24
9" TO 22"	26
- BALANCING DAMPERS SHALL BE CONSTRUCTED FROM GALVANIZED STEEL 2 GAUGES HEAVIER THAN THE DUCTWORK IN WHICH THEY ARE INSTALLED C/W LOCKING QUADRANT AND INDICATING DEVICE.
- ALL NEW DUCTWORK SHALL BE SEALED USING DUCT BOND II HIGH PRESSURE, NON-TOXIC, DUCT SEALER THROUGHOUT ALL SEAMS AND JOINTS.
- SUPPORT HORIZONTAL DUCTS ON MAXIMUM 8'-0" (2.4 M)CENTERS BY PERFORATED GALV. STEEL RIVETED STRAP FOR DUCTWORK 36" (915 MM) (EITHER DIMENSION) OR LESS, AND MINIMUM 1" X 1" X 1/8" (25 X 25 X 2 MM) GALV. IRON UNDER DUCTS OVER 36" (915 MM) (EITHER DIMENSION) WITH 3/8" (6 MM) DIAM. THREADED RODS SUSPENDING ANGLES FROM STRUCTURE.
- PROVIDE 4" (100 MM) FLEXIBLE DUCT CONNECTIONS ON BOTH INLET AND OUTLET DISCHARGE SIDES OF EACH FAN.
- PROVIDE VIBRATION ISOLATORS FOR EXHAUST FAN. SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION.
- BACK-DRAFT DAMPERS SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM REQUIREMENTS:
  - 16 GA. GALVANIZED STEEL OR ALUMINUM CHANNEL FRAME; 16 GA. GALVANIZED BLADES C/W STIFFENERS, FULL BLADE-LENGTH SHAFT; BRASS, BALL OR NYLON BUSHING; FELT OR NEOPRENE ANTI-CHATTER BLADE STRIPS; ADJUSTABLE COUNTER-BALANCE.
- ALL AIR SYSTEMS SHALL BE BALANCED AND TESTED BY A CERTIFIED A.A.B.C. INDEPENDENT BALANCING AGENCY TO PROVIDE QUANTITIES AS SHOWN. PROVIDE THREE(3) SETS OF BALANCE REPORTS FOR REVIEW BY THE CONTRACT ADMINISTRATOR. ALL BALANCING REPORTS SHALL INCLUDE FIRE DAMPER TESTING AND CERTIFICATION.

### 15900 - CONTROLS

THE POINTS BELOW DESCRIBE THE CONTROL SEQUENCE OF THE H.V.A.C. EQUIPMENT SPECIFIED IN THE SCHEDULES. ALL CONTROLS TO BE SUPPLIED BY DIV. 15 AND WREED BY DIV.15. CONTROLS CONTRACTOR SHALL BE A SUBCONTRACTOR OF THE MECHANICAL SUBCONTRACTOR. PROVIDE LOCKABLE COVERS FOR ALL THERMOSTATS, NEW OR EXISTING. ALL CONTROL WIRING SHALL BE FLEMUM RATED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE TO MEET THE DEVELOPED SMOKE/FLAME SPREAD RATINGS OF 25/50.

- WASHROOM EXHAUST FAN CONTROL:
  - PROVIDE AN ELECTRONIC, PROGRAMMABLE 7 DAY TIME CLOCK TO CONTROL THE OPERATION OF EXHAUST FAN ON AN OCCUPIED/OCCUPIED SCHEDULE. LOCATE TIME CLOCK WITHIN UTILITY ROOM. TIME CLOCK C/W LOCKING, TAMPERPROOF COVER.

### MECHANICAL EQUIPMENT SCHEDULES:

THE VOLTAGES OF ALL MECHANICAL EQUIPMENT SHALL BE COORDINATED WITH DIVISION 16 PRIOR TO ORDERING EQUIPMENT.

- DIFFUSERS AND GRILLES: (BASED ON PRICE, NAILOR TO BE APPROVED EQUAL)

TAG	TYPE	DESCRIPTION
E1	EXHAUST	80/- /L/B12
T1	TRANSFER	530/F/L/D/A/B12

- LOUVRES (BASED ON RUSKIN, VENTEX, SEIHO TO BE APPROVED EQUAL)

L-1 ELR ROUND STATIONARY LOUVER, EXTRUDED ALUMINUM, 12"ø C/W BIRD SCREEN, GREENHECK OR EQUAL BACK DRAFT DAMPER.

L-2 SEIHO MODEL SFX12-N, 12" DUCT SIZE, ALUMINUM, SCREEN.

L-3 SEIHO MODEL SX12, 12" DUCT SIZE, ALUMINUM.

- EXHAUST FAN

EF-1 COOK GEMINI MODEL GN-542 (GREENHECK TO BE APPROVED EQUAL), 300 CFM AT 0.35" E.S.P., C/W MOTORIZED DAMPER, BIRD SCREEN, GIK ISOLATOR KIT.

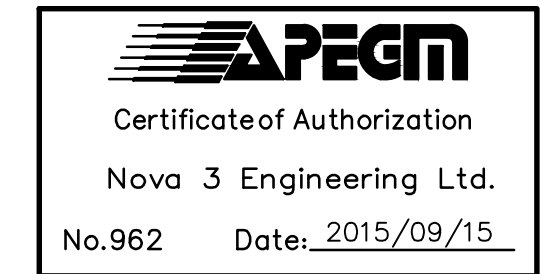
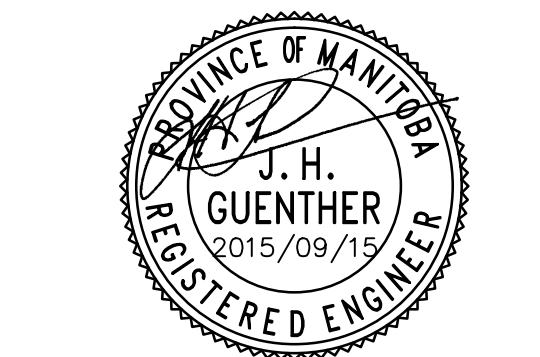
Owner

The City of Winnipeg  
185 King Street, Main Floor Winnipeg,  
MB R3B1J1

No.	Date	Revision Notes
1	2015.09.15	Issued for Construction
2	2015.11.09	Issued for Addendum #2

- EXHAUST FAN

EF-1 COOK GEMINI MODEL GN-542 (GREENHECK TO BE APPROVED EQUAL), 300 CFM AT 0.35" E.S.P., C/W MOTORIZED DAMPER, BIRD SCREEN, GIK ISOLATOR KIT.



**NOVA 3** NOVA 3 ENGINEERING LTD.  
CONSULTING ENGINEERS  
201-120 FORT STREET TEL: (204) 943-6142  
WINNIPEG, MANITOBA R3C 1C7 FAX: (204) 942-1276  
WWW.NOVA3.CA INL: 3505

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Project  
St. Vital Park Washrooms

Drawing

SPECIFICATION