

ADDRESS: 588 ST. MARYS ROAD
 PROJECT No: 2013-047
 SHEET TITLE: MECHANICAL SPECIFICATIONS
 DATE: 2014.07.14
 FILE NAME: 2013047V0.dwgM6

MECHANICAL SPECIFICATION

1.0 GENERAL

1.1 SCOPE OF WORK

1. REPLACE STEAM PIPING, DOMESTIC WATER SUPPLY AND SANITARY PIPING WITH NEW TO ACCOMMODATE MAIN FLOOR REPLACEMENT. RETAIN EXISTING RADIATORS ON MAIN FLOOR. REPLACE DAMAGED AND NON-FUNCTIONING RADIATOR INLET VALVES WITH NEW TO MATCH EXISTING.
2. SUPPLY AND INSTALL NEW STEAM UNIT HEATERS IN BASEMENT.
3. SUPPLY AND INSTALL NEW HEAT RECOVERY VENTILATOR AND ASSOCIATED DUCTING TO VENTILATE NEW ROOM LAYOUT IN BASEMENT. EXTEND EXISTING COMBUSTION AND VENTILATION AIR DUCTING INTO NEW MECHANICAL ROOM.
4. TELEVIEW, FLUSH, AND TEST BELOW BASEMENT SLAB SANITARY PIPING. REFER TO DRAWING S1 FOR APPROXIMATE LOCATION OF PIPING. REPLACE DAMAGED PIPING. COORDINATE WITH STRUCTURAL.
5. PROVIDE CONTROLS AND AIR BALANCING.
6. COMMISSION ALL HVAC AND PLUMBING EQUIPMENT AND CONTROLS.

1.2 SITE COORDINATION

ACCESS TO THE SITE SHALL BE COORDINATED WITH OWNER.

1.3 DESCRIPTION OF WORK

THE CONTRACTOR SHALL INCLUDE THE FURNISHING OF ALL LABOR, NEW MATERIALS, EQUIPMENT AND INSTALLATION OF EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE COMPLETE INSTALLATION OF THE WORK AS SHOWN AND DESCRIBED ON THIS DRAWINGS AND TO THE SATISFACTION OF THE OWNER.

CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR REQUIRED WORK AND PAY ALL FEES.

WORK SHALL BE PERFORMED IN ACCORDANCE TO ALL APPLICABLE LOCAL CODES, STANDARDS, AND REGULATIONS.

CONTRACTOR TO COORDINATE ACCESS TO THE SITE WITH THE OWNER AND FOLLOW HIS INSTRUCTIONS.

1.4 SUBMITTALS

- SUBMIT SHOP DRAWINGS FOR APPROVAL FOR EQUIPMENT SPECIFIED.
- SUBMIT THREE (3) SETS OF O & M MANUALS.
- PROVIDE O & M TRAINING TO OWNER.

1.5 WORKMANSHIP

WORKMANSHIP SHALL BE OF BEST QUALITY, EXECUTED BY WORKERS EXPERIENCED AND SKILLED IN THE SUPPLY AND INSTALLATION OF STEAM, PLUMBING, AND HVAC SYSTEMS, AND IN THEIR RESPECTIVE DUTIES FOR WHICH THEY ARE EMPLOYED.

1.6 EXECUTION

INSTALLATION OF EQUIPMENT
 CONFORM TO NATIONAL PLUMBING CODE AND AUTHORITY HAVING JURISDICTION FOR DESIGN, SUPPLY AND INSTALLATION OF PLUMBING AND VENT SYSTEMS. CONCEAL VENT SYSTEM INSIDE WALLS ACCORDING TO CODE.

INSTALL ALL EQUIPMENT SPECIFIED OR INDICATED ON DRAWINGS IN A MANNER THAT WILL ENSURE ITS SATISFACTORY OPERATION UPON COMPLETION AND ACCORDING TO MANUFACTURER'S INSTRUCTIONS. FOLLOW APPROVED MANUFACTURER'S RECOMMENDATIONS FOR SAFETY, EASY ACCESS FOR INSPECTION, MAINTENANCE AND REPAIRS. BEFORE COMMENCING THE INSTALLATION, THE CONTRACTOR SHALL CONFIRM RECEIPT OF AN APPROVED COPY OF THE MANUFACTURER'S DRAWINGS AND INSTALLATION MANUAL FOR THE INSTALLATION THEREOF.

THE SAFE DELIVERY TO THE SITE OF ALL MATERIALS SHALL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY. MATERIALS AND EQUIPMENT SHALL BE HANDLED AT ALL TIMES WITH CARE TO AVOID DAMAGE.

PERMIT EQUIPMENT MAINTENANCE AND DISASSEMBLY WITH MINIMUM DISTURBANCE TO ADJACENT EQUIPMENT AND WITHOUT INTERFERENCE WITH BUILDING STRUCTURE OR OTHER EQUIPMENT.

DISCREPANCIES OR IRREGULARITIES IN THE WORK OR DEFECTS OR DAMAGES TO THE EQUIPMENT, ATTRIBUTABLE TO FAULTY OR INCORRECT INSTALLATION, SHALL BE RECTIFIED BY THE CONTRACTOR AT HIS OWN EXPENSE.

MAINTAIN ADEQUATE ACCESS TO PROJECT SITE. COORDINATE WORK TO MINIMIZE INTERFERENCE OR DISRUPTION TO OWNERS OPERATIONS. MAINTAIN THE WORK IN TIDY CONDITION, FREE FROM ACCUMULATION OF WASTE PRODUCTS AND DEBRIS. PROTECT EQUIPMENT AND DUCTWORK FROM ACCUMULATION OF DUST ETC. SEAL ALL DUCT OPENINGS DURING DUST PRODUCING ACTIVITIES.

EQUIPMENT LOCATIONS, DUCT, AND PIPE ROUTING INDICATED ON THE DRAWINGS IS APPROXIMATE ONLY. CONFIRM IN THE FIELD. REROUTE DUCTWORK AND PIPING AS REQUIRED TO ELIMINATE FIELD INTERFERENCES WITH BUILDING STRUCTURES, ELECTRICAL, ETC. CONFIRM CHANGES WITH CONSULTANT. COORDINATE WORK WITH ALL SUBTRADES. WHERE DIMENSIONS ARE INDICATED FOR PIPING, DUCTWORK, DUCT SIZES, EQUIPMENT SIZES, ETC. THESE ARE FOR BIDDING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO ORDERING EQUIPMENT AND COMMENCING INSTALLATION WITHOUT EXTRA CHARGES TO THE PROJECT. THE CONTRACTOR IS RESPONSIBLE TO ENSURE ALL EQUIPMENT, DUCTWORK, AND PIPING FITS IN THE SPACE AVAILABLE AND TO MAINTAIN THE GENERAL DESIGN INTENT FOR THE SYSTEMS.

INSTALL STEAM TRAP SETS AND POCKETS AT ALL LOW POINTS OF STEAM SUPPLY PIPING. INSTALL STEAM TRAP SETS AT DISCHARGE OF UNIT HEATERS. STEAM TRAP SET TO BE COMPRISED OF ISOLATING GATE VALVES, STRAINER, STEAM TRAP, AND CHECK VALVE. SEE DETAIL 2 ON DRAWING M2. PIPE DISCHARGE OF STEAM TRAP SET SLOPED TO NEAREST CONDENSATE RETURN PIPING.

INSPECTION AND TESTING
 THE WORK SHALL BE AT ALL TIMES AVAILABLE FOR INSPECTION BY AN OWNER REPRESENTATIVE. ALL WORK SHALL BE IN ACCORDANCE WITH AND SHALL BE INSPECTED TO MEET THE REQUIREMENTS OF THIS SPECIFICATION.

ALL STARTUP AND TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER. NOTICE OF THE DATE OF WHEN TESTS SHALL BE PERFORMED MUST BE RECEIVED BY OWNER. WORK SHALL NOT BE INSULATED OR CONCEALED PRIOR TO BEING TESTED OR APPROVED. OPERATE SYSTEM FOR A SUFFICIENT PERIOD OF TIME TO ENSURE COMPLETE ACCEPTANCE; DEFECTS SHALL BE REMEDIATED AT CONTRACTOR'S EXPENSE.

USE OF NEW HVAC SYSTEMS DURING CONSTRUCTION
 - NEW HVAC SYSTEMS SHALL NOT BE USED DURING CONSTRUCTION UNLESS APPROVED OTHERWISE BY OWNER. (OBTAIN WRITTEN APPROVAL FROM OWNER)

- IF OWNER APPROVES USE OF NEW HVAC SYSTEMS, THE CONTRACTOR SHALL:
 - ENSURE THAT HVAC SYSTEM IS OPERATED AS PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
 - CONTINUOUSLY MONITOR SYSTEM
 - PROTECT DUCTWORK BY INSTALLING MINIMUM 60% FILTERS ON ALL SUPPLY AND EXHAUST POINTS. FILTERS SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION. ALL FILTERS SHALL BE CHANGED EVERY WEEK OR MORE FREQUENTLY AS REQUIRED.
 - PERFORM REGULAR PREVENTATIVE AND OTHER MANUFACTURER'S RECOMMENDED MAINTENANCE ROUTINES AT CONTRACTORS OWN EXPENSE.
 - NOT RELAX WARRANTIES AND GUARANTEES.
 - REFURBISH ENTIRE SYSTEM BEFORE STATIC COMPLETION, CLEAN ALL DUCTWORK AND ALL AIR HANDLING EQUIPMENT INTERNALLY AND EXTERNALLY, RESTORE TO "AS NEW" CONDITION, REPLACE AIR FILTERS.

2.0 HVAC

2.1 PRODUCTS

DUCTWORK
 CONFORM TO SMACNA STANDARDS FOR SUPPLY AND INSTALLATION OF DUCTWORK. PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS. USE TURNING VANES FOR RECTANGULAR ELBOWS. DUCTWORK SHALL BE RATED FOR 2" W.C. SEAL ALL DUCTWORK JOINTS USING "DURO-DYNE" DUCT SEALER. SEAL ALL JOINTS IN DUCT INSULATION VAPOR BARRIER USING TAPE AND DUCT SEALER.

DUCT INSULATION
 ELASTOMERIC NITRILE-RUBBER FOAM INSULATION THAT IS CLOSED CELL, FLEXIBLE, AND HAS A BUILT-IN VAPOUR BARRIER WITH SILVER FINISH.

ACCEPTABLE PRODUCT: "ARMACELL" ARMAFLEX DUCT

BALANCING DAMPERS
 BALANCING DAMPERS TO BE CONSTRUCTED TO SMACNA STANDARDS C/W LOCKING LEVER.

GRILLES
 GRILLES AS PER MECHANICAL EQUIPMENT SCHEDULE (SEE DRAWING M5)

HRV-1 HEAT RECOVERY VENTILATOR
 292 CFM @ 0.2 IN. W.C. CAPABLE HEAT RECOVERY VENTILATOR, 115V/1PH/60HZ, 170W. ALUMINUM CASING, FULLY INSULATED CABINET WITH 1" FOIL FACED FIBERGLASS INSULATION, FILTERED SUPPLY, POLYPROPYLENE HEAT EXCHANGER CORE, TWO FORWARD CURVED DUAL INLET BLOWERS, 8" ROUND DUCT COLLARS. 4" CORDED PLUG, AUTOMATIC DEFROST CAPABILITY USING DEFROST DAMPER. MIN 66% RATED EFFECTIVENESS. PROVIDE DRAIN AND ANTI-VIBRATION KIT.

ACCEPTABLE PRODUCT: "NU-AIR" NU305 C/W DEFROST DAMPER AND COLLAR

UH-1, 2 UNIT HEATERS
 STEAM UNIT HEATER, 13.9MBH, 115V/1PH/60HZ, 1/2" HP, 800 RPM. COMPACT SINGLE-ROW SERPENTINE COIL, ONE PIECE CASING, REAR COIL CONNECTIONS, COMPACT DESIGN TO MAXIMUM HEADROOM, FAN GUARD, TOTALLY ENCLOSED MOTOR WITH BUILT-IN OVERLOAD PROTECTION, WALL-MOUNTED THERMOSTAT, CEILING MOUNTABLE VIA HANGER RODS.

ACCEPTABLE PRODUCT: "TRANE" 18-S C/W WALL-MOUNTED THERMOSTAT

2.2 AIR BALANCING

- SCOPE OF WORK
- CONTACT CONSULTANT PRIOR TO COMMENCEMENT OF AIR BALANCING FOR FINAL INSTRUCTIONS.
 - TEST, ADJUST, AND BALANCE AIR FLOWS BEFORE AND AFTER DUCT MODIFICATION
 - ADJUST DAMPERS ON GRILLES AND/OR BALANCING DAMPERS TO ACHIEVE THE SPECIFIED AIR FLOW RATE

GENERAL
 FOLLOW START-UP PROCEDURES AS RECOMMENDED BY OWNER, UNLESS OTHERWISE SPECIFIED
 INSTALL SHEAVES SUPPLIED BY EQUIPMENT SUPPLIERS IF REQUIRED TO ACHIEVE FINAL AIR BALANCE
 QUALIFICATIONS: PERSONNEL PERFORMING AIR BALANCING TO BE CURRENT MEMBER IN GOOD STANDING OF AABC.
 QUALITY ASSURANCE: PERFORM AIR BALANCE UNDER DIRECTION OF SUPERVISOR QUALIFIED BY AABC.
 REFERENCE STANDARDS: DO TAB OF COMPLETE MECHANICAL SYSTEMS OVER ENTIRE OPERATING RANGE IN ACCORDANCE WITH MOST STRINGENT CONDITIONS OF SELECT STANDARD:
 -AABC (ASSOCIATED AIR BALANCE COUNCIL)
 -SMACNA (SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION)
 ACCURACY: DO TAB TO WITHIN ±5% OF DESIGN VALUES.
 INSTRUMENT CALIBRATION: TO BE IN ACCORDANCE WITH TAB REF. STANDARD, BUT WITHIN 3 MONTHS OF COMMENCEMENT
 REPORT: FORMAT TO BE IN ACCORDANCE WITH TAB SCHEMATICS SHOWN RESULTS OF TAB.
 SUBMIT ONE COPY OF DRAFT TAB REPORT FOR VERIFICATION AND APPROVAL OF THE OWNER. SUBMIT THREE FINAL COPIES WITH REVIEW COMMENTS INCORPORATED.

AIR MOVING SYSTEMS
 GENERAL: MEASUREMENTS AS REQUIRED BY REFERENCED STANDARDS, INCLUDING BUT NOT LIMITED TO FOLLOWING MEASUREMENTS:
 -AIR FLOW
 -STATIC PRESSURE
 -BHP

3.0 STEAM PIPING AND PLUMBING

3.1 PRODUCTS

PIPING
 DOMESTIC WATER - TYPE "L" COPPER, SOLDERED JOINTS
 DRAINAGE AND VENTING - DRAINAGE AND VENT PIPING SHALL BE PVC-DWV OR CAST IRON TO MATCH EXISTING TIE-IN POINT
 STEAM AND CONDENSATE PIPING - SCHEDULE 40 BLACK STEEL. NPS 2 AND SMALLER - THREADED. NPS 2 1/2 AND LARGER - WELDED

PIPING INSULATION
 STEAM AND CONDENSATE PIPING
 1" FIBERGLASS PIPE INSULATION WITH CANVAS OR ASJ
 DOMESTIC WATER PIPING
 1/2" FIBERGLASS PIPE INSULATION WITH CANVAS OR ASJ

CHECK VALVES
 STEAM PIPING
 NPS 3 AND SMALLER - Y-PATTERN BRONZE BODY THREADED ENDS
 ACCEPTABLE PRODUCT: "CRANE" FIGURE 37
 DOMESTIC WATER
 NPS 2 AND SMALLER - Y-PATTERN BRONZE BODY, SOLDERED ENDS
 ACCEPTABLE PRODUCT: "CRANE" FIGURE 1342

GATE VALES
 STEAM PIPING
 NPS 3 AND SMALLER - RISING STEM, SOLID WEDGE DISC, FULL PORT, SCREWED BONNET
 ACCEPTABLE PRODUCT: "CRANE" FIGURE 428

BALL VALVES
 DOMESTIC WATER
 NPS 2 AND SMALLER - FULL PORT, SOLDERED ENDS, NSF APPROVED, 2-PIECE BRASS BODY
 ACCEPTABLE PRODUCT: "CRANE" FIGURE 9201

STRAINERS
 CONDENSATE PIPING
 NPS 2 AND SMALLER - Y-TYPE INLINE STRAINER, THREADED ENDS
 ACCEPTABLE PRODUCT: "TOYO" FIGURE 380A

STEAM TRAPS
 STEAM PIPING
 NPS 2 AND SMALLER - FLOAT AND THERMOSTATIC STEAM TRAP, NPT CONNECTIONS,
 COMBINATION AIR VENT AND STEAM LOCK RELEASE,
 ACCEPTABLE PRODUCT: "SPIRAX SARCO" FT14C

BACKFLOW PREVENTER
 DOMESTIC WATER PIPING
 DOUBLE CHECK VALVE TYPE. LEAD FREE CAST COPPER SILICON ALLOY BODY. REPLACEABLE SEATS AND SEAT DISCS, UNION CONNECTIONS, ISOLATION VALVES, TOP MOUNTED BALL VALVE TEST COCKS.
 ACCEPTABLE PRODUCT: "WATTS" LF007

3.2 PLUMBING FIXTURES

FD-1 FLOOR DRAIN
 AS PER PLUMBING EQUIPMENT SCHEDULE (SEE DRAWING M4)

4.0 FIRE PROTECTION

4.1 PRODUCTS

FIRE STOPPING
 INTUMESCENT-TYPE FIRESTOP SEALANT, -40°F TO 212°F CURED TEMPERATURE RESISTANCE, 0 FLAME SPREAD AND 5 SMOKE DEVELOPMENT RATINGS, 5% MOVEMENT CAPABILITY. HALOGEN, SOLVENT, ASBESTOS FREE. ULC LISTED.

ACCEPTABLE PRODUCT: "HILTI" INTUMESCENT FIRESTOP SEALANT

FIRE DAMPERS
 FIRE DAMPERS TO BE DYNAMIC CURTAIN TYPE C/W 74°C FUSIBLE LINK. ULC LISTED. MOUNTING AND COLLAR TYPE TO MATCH DESTINATION DUCT. PROVIDE MULTIPLE SECTION DAMPER WHERE NECESSARY. FIRE DAMPER RATING TO MATCH FIRE BARRIER RATING OF DUCT PENETRATION.

ACCEPTABLE PRODUCT: "NAILOR" CURTAIN FIRE DAMPERS

FIRE EXTINGUISHERS
 10 LB. 3-A-40-B-C RED ABC-TYPE FIRE EXTINGUISHER, C/W WALL MOUNTING HARDWARE AND NOZZLE. ULC LISTED.

ACCEPTABLE PRODUCT: "PYRO-CHEM" 10 LB. ABC

NOTES:

0	ISSUED FOR CONSTRUCTION	DJ	AUG 18 2014
No.	REVISION/DESCRIPTION	BY	DATE

SEAL

DRAWN: JAWRCP
 CHECKED: JAWRCP
 DESIGNED: DJ
 APPROVED: [Signature]

DATE: 2014.07.14
 USER APPROVAL

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

PROJECT
 AMBULANCE STATION # 3
 STRUCTURAL & OCCUPANCY UPGRADES
 DESIGN OF STRUCTURAL UPGRADES
 588 ST. MARYS ROAD

SHEET TITLE
 MECHANICAL SPECIFICATIONS

Certificate of Authorization
 KGS GROUP
 No. 245

SCALE	PROJECT No:	SHEET No:
AS SHOWN	2013-047	M6