ADDRESS: 55 WATT STREET | PROJECT No: 2016-007 | DATE: 2017.11.15 | FILE NAME: 20160007MN0.dwg\M3 | SHEET TITLE: MECHANICAL SPECIFICATION

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 AND LOCAL AUTHORITIES. APPLY FOR, OBTAIN AND PAY FOR ALL NECESSARY PERMITS.
- 1.3. COORDINATE INSTALLATION WITH ALL RELATED TRADES, 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 CONTRACTOR. MECHANICAL SUBCONTRACTOR TO CO-ORDINATE ON SITE.
- 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 6:00 P.M. AND 8:00 A.M.
- 1.12. BID QUOTATIONS SHALL BE BASED ON THE USE OF SPECIFIED EQUIPMENT, UNLESS ACCEPTANCE FOR THE USE OF EQUAL MANUFACTURERS IS OBTAINED FROM THE ENGINEER PRIOR TO SUBMISSION OF TENDERS. ALTERNATE MANUFACTURERS MAY BE QUOTED AS AN INCREASE OR DECREASE AMOUNT TO THE TENDER PRICE, WITHOUT PRIOR ACCEPTANCE OF THE ENGINEER.
- 1.13. FURNISH TO THE OWNER THREE (3) COMPLETE SETS OF MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT REQUIRING MAINTENANCE. REVIEW INSTRUCTIONS WITH OWNER'S REPRESENTATIVE TO ENSURE A THOROUGH UNDERSTANDING OF THE EQUIPMENT AND ITS OPERATION.
- 1.14. PROVIDE A MARK-UP OF THE CONTRACT DRAWINGS FOR RECORD "AS-BUILT" DRAWINGS, REVISED AS REQUIRED TO SHOW ANY CHANGES FROM THAT ORIGINALLY SHOWN.
- 1.15. PROVIDE AS-BUILT DRAWING IN AUTOCAD FORMAT, COMPLETE WITH DISK PAID FOR BY MECHANICAL SUBCONTRACTOR.
- 1.16. ALL DUCTWORK AND PIPING TO BE INSTALLED STRAIGHT, PARALLEL TO THE BUILDING WALLS.
- 1.17. PIPE HANGERS SHALL BE GRINNELL FIG. 65 FOR STEEL PIPE AND FIG. CT65 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.
- 1.18. ALL EXTRANEOUS MATERIAL IN CEILING SPACE UNRELATED TO NEW AND REVISED WORK SHOWN, INCLUDING PIPING, CONTROL TUBING, DUCTWORK, ETC. SHALL BE REMOVED.
- 1.19. 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.
- 1.20. INSTALLATION OF WORK SHALL BE COORDINATED WITH THE CONTRACTOR AND SHALL BE SCHEDULED SO AS NOT TO ENDANGER OR DISTURB THE USERS OF THE BUILDING. SHUTDOWN OF EXISTING BUILDING SYSTEMS SHALL BE COORDINATED WITH THE CONTRACT ADMINISTRATOR.
- 1.21. ALL WIRING FOR EQUIPMENT SPECIFIED HEREIN SHALL BE BY THE ELECTRICAL SUBCONTRACTOR, UNLESS OTHERWISE NOTED.
- 1.22. 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.
- 1.23. PRIOR TO INSTALLATION OF THE CEILING, NOTIFY THE CONTRACT ADMINISTRATOR AND ARRANGE FOR A FINAL REVIEW OF THE WORK. FOR UNDERTAKING THIS REVIEW, THE FOLLOWING SHALL BE COMPLETED:
  - 1.23.1. 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 CONSULTANTS PRIOR TO REVIEWS BEING UNDERTAKEN.
  - 1.23.2. 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 OWNER AND THE COSTS DEDUCTED FROM FINAL PAYMENT.
- 1.24. WHERE MECHANICAL SERVICES ARE CONCEALED WITHIN WALLS, FLOORS OR CEILINGS AND CANNOT BE VISUALLY IDENTIFIED, PROVIDE ELECTRONIC SCANNING DEVICES OR OTHER APPROVED MEANS TO LOCATE AND IDENTIFY CONCEALED SERVICES PRIOR TO WORK START. MAKE GOOD ANY DAMAGE TO EXISTING MECHANICAL SERVICES AT NO COST TO THE CONTRACT.
- 1.25. SILICONE ALL FIXTURES TO ADJACENT WALLS, FLOORS OR COUNTERTOPS ETC.

2. INSULATION
- 2.1. INSULATE ALL DOMESTIC WATER 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. INSULATE ALL HEATING PIPING AND ALL CHILLED WATER PIPING WITH 1" FIBERGLAS 5 1/2 LB. DENSITY PIPING INSULATION WITH ASJ AS PER MANF. RECOMMENDATIONS. SEAL ALL BREAKS, JOINTS WITH ASJ TAPE.
- 2.3. ALL COLD PIPING INSULATION SHALL BE C/W WITH VAPOUR BARRIER.
- 2.4. ACOUSTIC INSULATION ON SUPPLY DUCTWORK, WHERE SHOWN ON THE DRAWINGS, SHALL BE 1" THICK FIBREGLASS RIGID COATED DUCT LINER. THE DUCT SIZES SHOWN ON THE DRAWING REPRESENTS THE FINAL INTERNAL SIZE REQUIRED. IMPALE ON WELDED STUDS SPACED 16" O.C. PAINT BREAKS AND JOINTS WITH BF-60-30N FIRE RETARDANT MASTIC. COAT EXPOSED EDGES WITH ADHESIVE. PROJECTING FASTENERS AND ENDS CUT OFF VERTICALLY FLUSH.
- 2.5. INSULATION ON PIPING IN FINISHED AREAS TO BE RECANVASSED OR COVERED WITH WHITE P.V.C. INSULATION COVER.
- 2.6. INSULATE CONDITIONED AIR DUCTWORK WITH 1" FIBERGLAS RFFRK 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
  - 3.1.3. VENT 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.
  - 3.2.2. ALL DRAINAGE PIPING TO W.C.'S SHALL BE 4" DIAM. MIN.
  - 3.2.3. CLEANOUTS:
    - 3.2.3.1. 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 CONSULTANT 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. GAS PIPING
  - 3.8.1. THE MECHANICAL CONTRACTOR SHALL ARRANGE WITH MANITOBA HYDRO GAS DIVISION FOR REVISION TO GAS SERVICE INCLUDING PRESSURE REGULATOR. THE COST OF THIS SERVICE SHALL BE INCLUDED IN THE COST OF THIS CONTRACT.
  - 3.8.2. GAS PIPING SHALL BE BLACK STEEL PIPE, EQUAL TO ASTM A-53 SCHEDULE 40 WITH 150 LB STANDARD BLACK MALLEABLE IRON SCREWED FITTINGS. ALL WORK SHALL COMPLY WITH CANICSA, A NATIONAL STANDARD OF CANADA, NATURAL GAS AND PROPANE INSTALLATION CODE B149.1-05, COMPLETE WITH MANITOBA DEPARTMENT OF LABOUR GAS NOTICES, AND SHALL BE PERFORMED BY FULLY QUALIFIED GAS FITTERS AND/OR WELDERS LICENSED TO PRACTICE IN THE PROVINCE OF MANITOBA.
- 3.9. CLEANOUTS
  - 3.9.1. CLEANOUTS IN CAST IRON SOIL PIPE SHALL CONSIST OF CAST IRON FERRULE WITH BRASS PLUG HAVING RAISED HEAD.
  - 3.9.2. CLEANOUTS IN COPPER DRAINAGE TUBE SHALL BE BRASS SCREWED PLUGS WITH RAISED HEAD.
- 3.10. CLEANOUT ACCESS COVER
  - 3.10.1. 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.
  - 3.10.2. 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.
- 3.11. JOINTING
  - 3.11.1. MAKE ALL JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - 3.11.2. BRACE FITTINGS NECESSARY TO PREVENT JOINTS FROM COMING APART UNDER PRESSURE.
  - 3.11.3. MAKE JOINTS IN DOMESTIC WATER AND DRAINAGE SYSTEMS WITH SOLDER CONTAINING NO LEAD. SOLDER MATERIAL SHALL BE SILVERBRITE 100 OR EQUAL CONSISTING OF COMBINATION OF TIN, COPPER AND SILVER.
- 3.12. CLEANING AND FLUSHING
  - 3.12.1. ON COMPLETION, FLUSH OUT PIPING SYSTEM TO REMOVE ANY FOREIGN MATERIAL IN PIPING.
- 3.13. TESTING
  - 3.13.1. PRESSURE TEST ALL PIPING SYSTEMS AS FOLLOWS:
    - 3.13.1.1. PLUMBING SYSTEM - IN ACCORDANCE WITH LOCAL REGULATIONS.
    - 3.13.1.2. WATER SUPPLY PIPING - TEST WITH WATER TO 100 PSIG AT HIGHEST POINT OF SYSTEM. MAINTAIN PRESSURE WITHOUT LOSS FOR 4 HOURS.
    - 3.13.1.3. CONSULTANT'S REPRESENTATIVE SHALL WITNESS TESTS. GIVE 48 HOURS NOTICE IN ADVANCE OF TESTS.
    - 3.13.1.4. NATURAL GAS SYSTEM - IN ACCORDANCE WITH LOCAL REGULATIONS.
- 3.14. HANGERS
  - 3.14.1. WATER - GRINNELL CT65 PLATED CLEVIS.
  - 3.14.2. DRAINAGE - GRINNELL 260 CLEVIS.
  - 3.14.3. INSTALL HANGERS 6 FT. ON CENTRE FOR PIPES UP TO 1", 8 FT. ON CENTRE FOR PIPES 1 1/4" AND LARGER.
- 3.15. FIXTURES
  - 3.15.1. SK-1 SINK AND FAUCET PROVIDED BY KITCHEN STAINLESS STEEL FABRICATOR. REFER TO ARCHITECTURAL.
  - 3.15.2. OI-1 GREASE INTERCEPTOR: ZURN GREASE INTERCEPTOR MODEL GT2700-10, 10 GPM FLOW RATE, 2" INLET AND OUTLET. RECOMMENDED FOR REMOVING AND RETAINING GREASE FROM WASTEWATER IN KITCHEN AND RESTAURANT AREAS WHERE FOOD IS PREPARED. GREASE TRAP IS CORROSION-RESISTANT COATED FABRICATED STEEL WITH NO-HUB CONNECTIONS, FLOW DIFFUSING BAFFLE, INTEGRAL TRAP, AND VENTED INLET FLOW CONTROL DEVICE.

4. VENTILATION
- 4.1. DUCTWORK
  - 4.1.1. GALVANIZED IRON SCHEDULE:

MAX. SIDE	GAUGES (USSG)	BRACING
UP TO 24"	24	NONE
25 TO 30"	24	1" X 1" X 1/8" ANGLE, 4' FROM JOINT.
31 TO 40"	22	1" X 1" X 1/8" 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. SIZE ROUND DUCTS, INSTALLED IN PLACE OF RECTANGULAR DUCTS, FROM ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS.
  - 4.1.7. 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 1/8" 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.
  - 4.1.9. 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.
  - 4.1.10. 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.
  - 4.1.11. PROVIDE INSULATED ACCESS DOORS AT ALL FIRE DAMPERS, COILS, AIR VALVES AND WHERE NOTED.
  - 4.1.12. DIFFUSERS, GRILLES AND REGISTERS
    - 4.1.12.1. REFER TO SCHEDULE.
  - 4.1.13. PROVIDE FOR TEMPORARY FILTERS AT EXISTING MAIN RETURN AIR DUCTS DURING CONSTRUCTION ON EACH FLOOR BEING RENOVATED. REPLACE FILTERS REGULARLY DURING THE CONSTRUCTION PERIOD. REMOVE TEMPORARY FILTERS AT END OF CONSTRUCTION AND PRIOR TO AIR BALANCING.
  - 4.1.14. 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.
  - 4.1.15. FN-1, HIGH EFFICIENCY UP FLOW GAS-FIRED FURNACE, CARRIER MODEL 59SC, FURNACE EFFICIENCY +95 AFUE, MAX. HEAT INPUT 140,000BTU/H, 1490CFM SUPPLY AIR, MAX. HEAT OUTPUT 135,000BTU/H, FILTER RACK. CU-1, OUTDOOR CONDENSING UNIT, MODEL 24AAA, 4 TONS, REFRIGERANT TYPE, PURON. INDOOR DX COOLING COIL, MODEL CAPM, SIZE 4 TONS, REFRIGERANT TYPE, PURON, PAINTED. ACCESSORIES, COMFORT PROGRAMMABLE AIR CONDITIONER CONTROL.
  - 4.1.16. FN-2, HIGH EFFICIENCY UP FLOW GAS-FIRED FURNACE, CARRIER MODEL 59SC, FURNACE EFFICIENCY +95 AFUE, MAX. HEAT INPUT 140,000BTU/H, 1490CFM SUPPLY AIR, MAX. HEAT OUTPUT 135,000BTU/H, FILTER RACK. CU-2, OUTDOOR CONDENSING UNIT, MODEL 24AAA, 4 TONS, REFRIGERANT TYPE, PURON. INDOOR DX COOLING COIL, MODEL CAPM, SIZE 4 TONS, REFRIGERANT TYPE, PURON, PAINTED. ACCESSORIES, COMFORT PROGRAMMABLE AIR CONDITIONER CONTROL.
  - 4.1.17. MAU-1, MINI MAKE UP AIR UNIT: CSA/UL APPROVED MINI MAKE UP AIR UNIT, MANUFACTURED BY THERMOLEC LTD. C/W FILTER AND ELECTRONIC CONTROLLER.
    - 4.1.17.1. CONSTRUCTION: FRAME SHALL BE CORROSION-RESISTANT AND MADE OF GALVANIZED STEEL OF SUITABLE GAUGE AS REQUIRED BY CSA/UL
    - 4.1.17.2. HEATER: HEATING COILS SHALL BE OF HIGH GRADE NICKEL CHROMIUM ALLOY AND SHALL BE INSULATED BY FLOATING CERAMIC BUSHINGS FROM THE GALVANIZED STEEL FRAME. COIL TERMINALS SHALL BE STAINLESS STEEL, INSULATED BY MEANS OF NON -ROTATING CERAMIC BUSHINGS
- 4.2. SAFETY CONTROLS:
  - 4.2.15. HI-LIMIT WITH DAMPER SHUTDOWN AND ALARM
  - 4.2.16. LOW-LIMIT WITH DAMPER SHUTDOWN AND ALARM
  - 4.2.17. HIGH TEMPERATURE AUTOMATIC RESET THERMAL CUTOUT THAT WILL RESET AUTOMATICALLY AFTER COOL OFF
  - 4.2.18. MANUAL RESET
    - 4.2.18.1. STANDARD BUILT IN COMPONENTS:
      - 4.2.18.1.1. FAN SPEED CONTROLLER
      - 4.2.18.1.2. DUCT TEMPERATURE SENSOR
      - 4.2.18.1.3. FAN
      - 4.2.18.1.4. DAMPER
      - 4.2.18.1.5. WASHABLE FILTER
      - 4.2.18.1.6. BUILT IN ELECTRONIC CONTROLLER (SCR) - ON/OFF COMPONENTS WILL NOT BE ACCEPTED
      - 4.2.18.1.7. CURRENT SENSOR AVAILABLE ON ALL UNITS
  - 4.2.19. AIR FLOW
    - 4.2.19.1. BUILT IN TEMPERATURE SENSOR CONTROLS THE HEATER PROPORTIONALLY TO MAINTAIN THE PRE-SET AIR TEMPERATURE IN THE DUCT
    - 4.2.19.2. REVERSIBLE MOUNTING AIR FLOW CAPABILITY
  - 4.2.20. SIZE AND CAPACITY: THERMOLEC MODEL FER-10-10, 300CFM, 10KW.
  - 4.2.21. INTERNAL WIRING:
    - 4.2.21.1. ALL INTERNAL WIRING SHALL TERMINATE ON CLEARLY IDENTIFIED TERMINAL BLOCKS.
    - 4.2.21.2. A WIRING DIAGRAM SHALL BE INSTALLED ON THE CONTROL BOX COVER
    - 4.2.21.3. PRIOR TO SHIPPING, ALL UNITS SHALL WITHSTAND TESTS AS REQUIRED BY CSA/UL.
  - 4.2.22. MOUNTING METHOD:
    - 4.2.22.1. UNIT MUST HAVE INLET/OUTLET COLLARS TO ACCOMMODATE JOB REQUIREMENT
    - 4.2.22.2. THE UNIT SHALL HAVE HANGER BRACKETS DESIGNED TO BE USED WITH THREADED RODS (BY OTHERS),SPRING ISOLATORS OR OTHER MEANS, MAY BE ADDED TO THE RODS AS AN OPTION TO REDUCE VIBRATION (BY OTHERS)

NOTES:

No.	REVISION/DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	JAW	NOV 15 2017

SEAL

PROVINCE OF MANITOBA
2017-11-15
X. WU
Member
REGISTERED PROFESSIONAL ENGINEER

DRAWN	CHECKED	DESIGNED	APPROVED
JAW	XYW	XYW	XYW

DATE 2017.11.15 | USER APPROVAL

Winnipeg

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

PROJECT
WINNIPEG FORE PARAMEDIC SERVICES
FIRE STATION #2

55 WATT STREET — BID OPP: 1013-2017

SHEET TITLE
MECHANICAL SPECIFICATION

SCALE	PROJECT No:	SHEET No:
AS SHOWN	2016-007	M3

DRAWING SHEET SIZE: A1 (841mm x 594mm) PLOT 1:1