DO NOT SCALE DRAWINGS.

#### SECTION 15010 GENERAL CONDITIONS

- PROVIDE ALL LABOUR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THESE SPECIFICATIONS.
- 2. CONTRACT DOCUMENTS
- a. IN THE EVENT OF A DISCREPANCY IN THE DRAWINGS AND SPECIFICATIONS THE CONTRACTOR SHALL NOTIFY THE CONTRACT ADMINISTRATOR IN WRITING PRIOR TO TENDER CLOSING SO THAT CLARIFICATION CAN BE ISSUED BY ADDENDUM. NO EXTRAS WILL BE ALLOWED AS A RESULT OF THE CONTRACTORS FAILURE TO NOTIFY THE CONTRACT ADMINISTRATOR OF DISCREPANCIES DURING THE TENDER PERIOD.
- b. IN THE EVENT THAT AN ITEM IS SHOWN ON THE DRAWINGS BUT NOT SPECIFIED OR SPECIFIED AND NOT SHOWN ON THE DRAWING THE ITEM SHALL BE INCLUDED AS IF IT WERE SHOWN IN BOTH LOCATIONS.
- 3. ALL NECESSARY PERMITS SHALL BE OBTAINED AND ALL FEES SHALL BE PAID TO CARRY OUT THE SPECIFIED WORK.
- 4. 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.
- 5. ALL WORK SHALL COMPLY IN EVERY RESPECT WITH ALL NATIONAL, PROVINCIAL, AND LOCAL BY-LAWS AND CODES, WHICH SHALL BE CONSIDERED PART OF THIS SPECIFICATION.
- 6. ALL CUTTING, PATCHING, FLASHING FOR WORK AS REQUIRED HEREIN SHALL BE BY THE GENERAL CONTRACTOR.
- 7. THE MECHANICAL SUBCONTRACTOR SHALL INSTALL THE SYSTEM IN COMPLETE ACCORDANCE WITH THE RECOMMENDATIONS OF THE ASHRAE, AND SMACNA-LATEST EDITION DUCT STANDARDS, TIAC BEST PRACTICES MANUAL AND LOCAL CODES.
- 8. CO-ORDINATE WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS.
- 9. ALTER THE LOCATION OF DUCTS OR PIPES AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR WITHOUT CHARGE TO THE CITY, PROVIDED THE CHANGE IS MADE BEFORE INSTALLATION AND DOES NOT NECESSITATE ADDITIONAL MATERIALS.
- 10. TENDER PRICE SHALL BE BASED ON THE USE OF SPECIFIED MANUFACTURERS. REQUESTS FOR EQUALS WILL NOT BE ACCEPTED.
- 11. FURNISH TO CONTRACT ADMINISTRATOR ONE (1) HARD-COVERED 3-RING BINDER 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. SUPPLIER PARTS, SUPPLIER LISTS AND ADDRESSES SHALL BE PROVIDED. INSTRUCTIONS SHALL BE PROVIDED FOR THE CITY REPRESENTATIVE TO ENSURE A THOROUGH UNDERSTANDING OF THE EQUIPMENT AND ITS OPERATION.
- 12. ALL WIRING, SUPPLY AND INSTALLATION OF DISCONNECT SWITCHES FOR EQUIPMENT SPECIFIED HEREIN SHALL BE PERFORMED BY THE ELECTRICAL SUBCONTRACTOR, UNLESS OTHERWISE NOTED.
- 13. ALL CONTROL WIRING SHALL BE BY THE MECHANICAL SUBCONTRACTOR.
- 14. PRIOR TO SUBMITTING TENDER PRICE, BIDDERS 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.
- 15. PROVIDE ONE SET OF SPECIAL TOOLS REQUIRED TO SERVICE EQUIPMENT AS RECOMMENDED BY MANUFACTURERS.
- 16. PROVIDE DIELECTRIC COUPLINGS WHEREVER PIPES OF DISSIMILAR METALS ARE JOINED.
- 17. THE MECHANICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS VIA E-MAIL IN PDF FORMAT. HARD COPIES WILL NOT BE ACCEPTED. FOR ALL EQUIPMENT FOR REVIEW BY THE ENGINEER. NOT WITHSTANDING ANY COMMENTS CONTAINED WITHIN THE CONTRACT ADMINISTRATORS REVIEW OF THE SHOP DRAWINGS, THE MECHANICAL SUBCONTRACTOR AND/OR EQUIPMENT SUPPLIER REMAIN FULLY RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF ALL MATERIALS EQUIPMENT IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE MECHANICAL SUBCONTRACTOR AND/OR EQUIPMENT SUPPLIER SHALL BE FULLY RESPONSIBLE FOR ANY CHANGES TO EQUIPMENT DELIVERED TO THE JOB SITE INCLUDING BUT NOT LIMITED TO COMPLETE REPLACEMENT OF MATERIALS AND EQUIPMENT AFTER THE FACT IF EQUIPMENT DELIVERED IS FOUND NOT TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS IN EVERY RESPECT AT A LATER DATE EVEN IF THE MATERIALS AND EQUIPMENT DELIVERED TO THE JOB SITE ARE IDENTICAL TO THAT SHOWN ON THE REVIEWED SHOP DRAWINGS. IT SHALL BE MUTUALLY UNDERSTOOD THAT THE CONTRACT ADMINISTRATORS REVIEW OF THE SHOP DRAWINGS IS A GENERAL REVIEW OF THE EQUIPMENT SUPPLIED BY THE CONTRACTOR WITH RESPECT TO GENERAL DESIGN CONCEPTS ONLY. THE CONTRACT ADMINISTRATORS REVIEW IN NO WAY RELIEVES THE MECHANICAL SUBCONTRACTOR OF THE RESPONSIBILITY OF VERIFYING THAT THE EQUIPMENT MEETS ALL SPECIFIED REQUIREMENTS. THE MECHANICAL SUBCONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH ERRORS OR OMISSIONS IN THE SHOP DRAWINGS.
- 18. MECHANICAL SUBCONTRACTOR TO CONFIRM ALL DIMENSIONS AND LOCATIONS OF ALL EQUIPMENT, LAYOUTS, AND SERVICES ETC. PRIOR TO COMMENCEMENT OF WORK.
- 19. HOISTING OF ALL MECHANICAL EQUIPMENT SHALL BE BY THE MECHANICAL SUBCONTRACTOR.
- 20. ASSUME FULL RESPONSIBILITY FOR LAYING OUT ALL WORK AND ENSURING THAT NO DAMAGE IS CAUSED TO THE EXISTING EQUIPMENT AND PREMISES DUE TO IMPROPER LOCATION AND EXECUTION OF WORK UNTIL WORK HAS BEEN COMPLETED AND ACCEPTED BY THE CITY. STORE ALL MATERIALS AS REQUIRED FOR PROTECTION AND CLEAN UP REFUSE CAUSED BY ALL WORK.
- 21. APPLY EXISTING PIPE IDENTIFICATION SYSTEMS TO ALL NEW PIPING IN THIS CONTRACT, SHOWING SERVICE, PIPE SIZE, AND FLOW DIRECTION.
- 22. PROVIDE, AT COMPLETION OF CONSTRUCTION, ALL NECESSARY CERTIFICATIONS, REPORTS, ETC. REQUIRED TO CONFIRM CONSTRUCTION HAS BEEN INSPECTED AND INSTALLATIONS PERFORMED IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS, CODES AND REGULATIONS, AND REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION ARE MET.

#### SECTION 15180

# **INSULATION**

- 1. INSTALLATION OF INSULATION SHALL COMPLY WITH TIAC BEST PRACTICES GUIDELINES.
- 2. PROVIDE 2" (50mm) THICK FLEXIBLE DUCT INSULATION C/W RFFRK REINFORCED FOIL-FACED VAPOUR SEAL DUCT INSULATION PF335 (3/4 LB./CU/FT) DENSITY ON ALL DUCTWORK PENETRATING EXTERIOR WALL OR ROOF FOR 10FT INTO BUILDING.
- 3. PROVIDE 1" (25mm) THICK FLEXIBLE DUCT INSULATION C/W RFFRK REINFORCED FOIL-FACED VAPOUR SEAL DUCT INSULATION PF335 (3/4 LB./CU/FT) ON ALL SUPPLY AIR DUCTWORK.
- 4. USE WELDED PINS TO SECURE INSULATION TO BOTTOM AND SIDES OF ALL DUCTWORK UNLESS NOTED OTHERWISE. DO NOT USE STAPLES OR ADHESIVE PINS TO SECURE INSULATION TO

#### SECTION 15400 **PLUMBING**

#### COMPRESSED AIR PIPING:

- 1. PIPE TO BE SCHEDULE 40 CARBON STEEL PIPE TO ASTM A120.
- 2. SYSTEMS OPERATING UP TO 340 kPa (49 PSIG) TO BE THREADED. SYSTEMS OPERATING AT 345 kPa (50 PSIG) AND ABOVE TO BE WELDED. SOCKET WELD UP TO 50mm (2") AND BUTT WELD 65mm (2½") AND ABOVE.
- 3. FITTINGS TO BE 1035 kPa (150 PSIG) MALLEABLE IRON.
- 4. WELDING MATERIALS, FABRICATION STANDARDS AND LABOUR QUALIFICATIONS MUST CONFORM TO ANSI/ASME B31-1, ANSI B16.25, ASME SECTION 17C, AND THE PROVINCIAL DEPARTMENT OF LABOUR REGULATIONS.
- 5. THE MECHANICAL SUBCONTRACTOR SHALL HAVE APPROVAL OF THE DEPARTMENT OF LABOUR TO WORK ON HIGH-PRESSURE COMPRESSED AIR SYSTEMS. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY DEPARTMENT OF LABOUR PERMITS AND APPROVAL OF THE DESIGN OF THE COMPRESSED AIR SYSTEM PRIOR TO CONSTRUCTION.
- 6. ALL WELDS SHALL HAVE 100% PENETRATION TO THE ROOT OF THE JOINTS. PROJECTION OF METAL INTO THE PIPE SHALL NOT EXCEED 1.5mm. WELDS HAVING A LACK OF PENETRATION OR EXCESSIVE PROJECTION SHALL BE CUT OUT AND RE-WELDED.
- 7. ALL BRANCH PIPING SHALL BE TAKEN FROM THE TOP OF THE MAIN PIPE. BOTTOM OR SIDE CONNECTIONS ARE NOT PERMITTED.
- 8. COMPRESSED AIR PIPING SHALL BE SLOPED DOWN IN THE DIRECTION OF FLOW A MINIMUM OF 1" PER 40 FEET.
- 9. PROVIDE 300mm (12") DRIP LEG AT END OF RUN AND AT ALL LOW POINTS WITH A PRESSURE RATED 20mm (3/2") BALL VALVE INSTALLED A MAXIMUM OF 2m (6'-0") ABOVE THE FLOOR. PROVIDE THREADED END AND CAP ON VALVE.
- 10. FOR SYSTEMS OPERATING BELOW 345 kPa (50 PSIG), COPPER PIPING MAY BE USED UP TO 100mm (4"). LARGER SIZES MUST BE STEEL PIPE. COPPER PIPING TO BE TYPE L HARD DRAWN. ASTM B 88 WITH WROUGHT COPPER FITTINGS TO ANSI B16.22. JOINTS TO BE SOLDERED THROUGH 50mm (2") AND BRAZED FOR 65mm (2½") THROUGH 100mm (4").
- 11. ALL PIPING IN AREAS SUBJECTED TO PHYSICAL ABUSE SHALL BE BLACK STEEL. 12. SITE FABRICATED WELD FITTINGS AND TAKE-OFFS ARE NOT ACCEPTABLE.

#### GAS FIRED HEATING MAKE UP AIR UNIT (RTU-1) SECTION 15600

1. UNIT CASING SHALL BE OF MINIMUM 18 (1.3mm) GAUGE SATIN COAT GALVANIZED SHEET METAL. ALL UNITS SHALL BE INTERNALLY INSULATED WITH 1" (25mm) THICK 1 1/2 LB./CU.FT. (24 KG./CU.M.) DENSITY, NEOPRENE COATED FIBRE GLASS THERMAL INSULATION, PROVIDE HINGED ACCESS DOORS WITH A MINIMUM OF TWO LEVERLOK FASTENERS. COOLING COIL CAVITY DRAIN PANS SHALL BE STAINLESS STEEL WITH A 1" (25mm) M.P.T. DRAIN CONNECTION (TRAPS BY OTHERS). PROVIDE FULL PERIMETER ROOF MOUNTING CURB MINIMUM OF 12 INCHES HIGH.

#### 2. FANS

- a. FORWARD CURVED FANS SHALL BE EQUIPPED WITH GREASEABLE PILLOW BLOCK BEARINGS, SUPPORTED ON A RIGID STRUCTURAL STEEL FRAME. FAN-MOTOR ASSEMBLIES SHALL BE PROVIDED WITH VIBRATION ISOLATORS.
- b. AMCA 'A' SPARK RESISTANT CONSTRUCTION.

## 3. GAS HEAT SECTION

- a. HEATING UNITS SHALL HAVE AN INDIRECT NATURAL GAS FIRED HEATING SECTION THAT IS
- C-ETL APPROVED FOR BOTH SEA LEVEL AND HIGH ALTITUDE AREAS. b. HEAT EXCHANGER SHALL BE A PRIMARY DRUM AND MULTI-TUBE SECONDARY ASSEMBLY
- CONSTRUCTED OF TITANIUM STAINLESS STEEL WITH MULTI-PLANE METAL TURBULATORS, AND SHALL BE OF A FLOATING STRESS RELIEVED DESIGN. CLAM-SHELL TYPE HEAT EXCHANGERS NOT ACCEPTABLE. HEAT EXCHANGER SHALL BE PROVIDED WITH CONDENSATE DRAIN CONNECTION.
- c. THE BURNER ASSEMBLY SHALL BE A BLOW THROUGH POSITIVE PRESSURE TYPE WITH AN INTERMITTENT PILOT IGNITION SYSTEM TO PROVIDE A HIGH SEASONAL EFFICIENCY. FLAME SURVEILLANCE SHALL BE WITH A SOLID STATE PROGRAMMED FLAME RELAY C/W FLAME ROD. THE BURNER AND GAS TRAIN SHALL BE IN A CABINET ENCLOSURE. INSULATION IN THE BURNER SECTION SHALL BE COVERED BY A HEAT REFLECTIVE GALVANIZED STEEL LINER. ATMOSPHERIC BURNERS, OR BURNERS REQUIRING POWER ASSISTED VENTING ARE NOT ACCEPTABLE.
- d. UNITS SHALL INCLUDE 15:1 TURNDOWN (HT BURNER).

## 4. FILTERS

a. FILTER SECTIONS SHALL BE PROVIDED WITH ADEQUATELY SIZED ACCESS DOORS TO ALLOW EASY REMOVAL OF FILTERS. FILTER REMOVAL SHALL BE FROM ONE SIDE AS NOTED ON THE DRAWINGS. PROVIDE 2", 30% EFFICIENT PLEATED FILTER. MAXIMUM FACE VELOCITY ALLOWABLE IS 500 FT/MIN. PROVIDE SUMMER AND WINTER FILTER SECTIONS ON ALL MAKE UP AIR UNITS.

## DAMPERS

- a. DAMPERS CONSTRUCTION SHALL INCLUDE BLADE ENDS SEALED WITH AN ADHESIVE BACKED FOAMED POLYURETHANE GASKETTING. OUTDOOR AIR DAMPERS ALSO INCLUDE AN ALL WEATHER PVC SEAL.
- 6. PACKAGED COOLING
- a. PACKAGED DX COOLING WITH SLOPED CONDENSING COIL TO PROVIDE EVEN AIR DISTRIBUTION ACROSS COIL FACE AND WEATHER PROTECTION (VERTICAL TYPE WITH GUARD NOT ACCEPTABLE). PROVIDE A DIGITAL SCROLL COMPRESSOR FOR CAPACITY CONTROL.
- 7. ELECTRICAL
  - a. PROVIDE A UNIT MOUNTED NON-FUSED DISCONNECT SWITCH.

## 8. CONTROLS

- a. PROVIDE JOHNSON METASYS UNT CONTROLLER AND DJM DISCHARGE AIR CONTROLLERS TO PROVIDE HEATING, ECONOMIZER AND MECHANICAL COOLING WITH SPACE RESET THROUGH THE DDC SYSTEM. UNIT TO COME COMPLETE WITH LOW LIMIT AUTO BYPASS CONTROLS. UNIT SHALL BE COMPLETELY FACTORY WIRED & TESTED.
- MAKE/MODEL
- a. ACCEPTABLE MAKE SHALL BE AN ENGINEERED AIR UNIT, DJ SERIES.

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

- 7. PROVIDE SUPPLY AIR, RETURN AIR, AND EXHAUST AIR DUCT SYSTEMS AS SHOWN
- 8. PROVIDE 4" FLEXIBLE DUCT CONNECTIONS ON BOTH INLET AND OUTLET DISCHARGE SIDES OF EACH FAN. AIR HANDLING ROOFTOP UNIT. ETC.
- 9. ALL DUCTWORK INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH SMACNA LATEST
- 10. ALL OUTDOOR DUCTWORK SHALL BE TWO GAUGES HEAVIER THAN INDOOR DUCTWORK OF EQUAL
- 11. THE MECHANICAL SUBCONTRACTOR SHALL SUPPLY AND INSTALL ALL DUCTWORK INCLUDING APPURTENANCES, HANGERS, DAMPERS, ETC.
- a. ALL EXPOSED ROUND DUCTWORK SHALL BE ROUND SPIRAL CONDUIT CONSTRUCTED OF ZINC COATED STEEL: ACCEPTABLE PRODUCT: UNITED SHEET METAL CO. SHOP FABRICATED DUCTWORK AND FITTINGS CONSTRUCTED IN A MANNER SIMILAR TO THE FACTORY TYPE SPECIFIED WILL BE ACCEPTED.

CONDUIT SIZE GAUGE OF METAL 8" AND SMALLER 9 " TO 22 " 24

EDITION DUCT STANDARDS.

b. RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED FROM GALVANIZED SHEET METAL OF THE FOLLOWING U.S. STANDARD GAUGES:

DUCTS UP TO 12" ON LONGEST DIMENSION 26 GA. DUCTS 13" TO 28" ON LONGEST DIMENSION 24 GA.

- 6. BALANCING DAMPERS SHALL BE CONSTRUCTED FROM GALVANIZED STEEL TWO GAUGES HEAVIER THAN THE DUCTWORK IN WHICH THEY ARE INSTALLED C/W LOCKING QUADRANT AND INDICATING DEVICE. INSTALL ON ALL TAKE-OFFS AT MAIN SUPPLY AND EXHAUST DUCTING AND/OR WHERE REQUIRED TO PROVIDE AN ADJUSTABLE, PROPERLY BALANCED SYSTEM. LOCATE DAMPERS TO ENSURE EASY ACCESS TO FINISHED SYSTEM.
- 7. ALL DUCTWORK SHALL BE SEALED USING DURO-DYNE S-2 DUCT SEALER THROUGHOUT ALL SEAMS AND JOINTS.
- 8. PROVIDE ACCESS DOORS WHERE REQUIRED FOR SERVICING OR OPERATING OF MECHANICAL EQUIPMENT.
- 9. ELECTRIC DUCT HEATERS CONSTANT VOLUME SYSTEM
- a. SUPPLY AND INSTALL CSA APPROVED PM WRIGHT OPEN COIL ELECTRIC DUCT HEATERS AS PER PLANS, AND COIL SCHEDULES.
- b. FRAME SHALL BE OF GALVANIZED COLD ROLLED STEEL C/W INTEGRAL CONTROL CABINET
- c. OPEN-COIL NICKEL-CHROMIUM RESISTANCE WIRE ELEMENTS, DESIGNED FOR MINIMUM AIR FLOW, SHALL BE SUPPORTED ON CERAMIC BUSHINGS HELD IN RIGID SUPPORT BRACKETS. d. DUCT HEATERS SHALL BE EITHER FLANGE TYPE (WXF) FOR ATTACHMENT TO EXTERNAL
- DUCT FLANGES OR INSERT TYPE FOR INSERTION INTO SIDE OF DUCT. e. BUILT-IN PRIMARY, AUTOMATIC RECYCLING CUTOUTS SHALL BE SUPPLIED IN ALL HEATERS. HEATERS BELOW 30KW AND BELOW 300 VOLTS SHALL BE SUPPLIED WITH BUILT-IN SECONDARY MANUAL RESET CUTOUTS. THEY SHALL BE OF DISC TYPE FOR HORIZONTAL AIRFLOW INSTALLATION AND LINEAR IN ALL HEATERS OVER 20 SQ.FT. ON IN VERTICAL AIR
- 10. THE FOLLOWING DEVICES SHALL BE SUPPLIED WITH THE UNITS AND PRE-WIRED BY THE MANUFACTURER.
- a. PRIMARY AUTOMATIC AND SECONDARY MANUAL THERMAL HIGH LIMIT SAFETY CUTOUTS.
- b. SAFETY INLET SCREEN

FLOW APPLICATIONS.

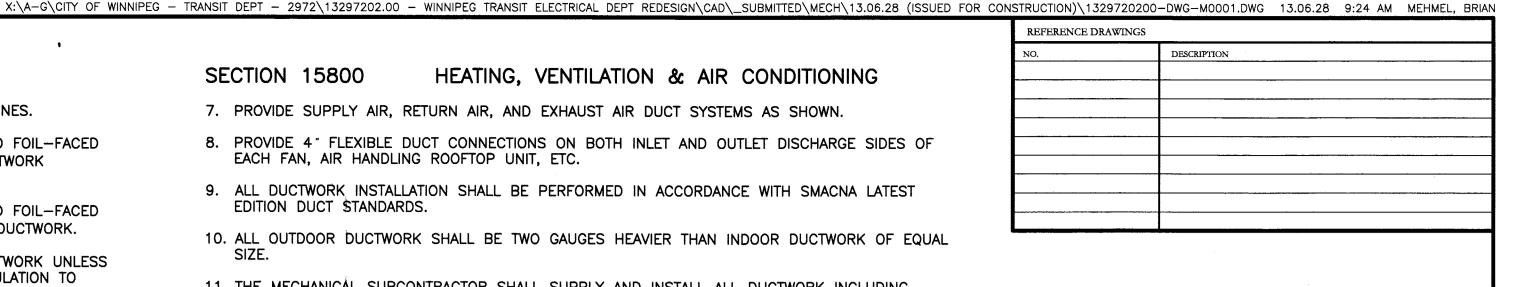
- c. FUSED 24V CONTROL TRANSFORMER d. MAGNET CONTACTORS
- e. DUCT PRESSURE DIFFERENTIAL SWITCH
- SCR C/W MODULATING OUTPUT CONTROLLED BY SPACE THERMOSTAT. q. ALL NECESSARY PNEUMATIC/ELECTRIC TRANSDUCERS, RELAYS AND SWITCHES AS REQUIRED TO INTERFACE WITH NEW OR EXISTING BUILDING CONTROL SYSTEMS.
- CONTRACTOR/EQUIUPMENT SUPPLIER SHALL COORDINATE WITH CONTROLS CONTRACTOR PRIOR TO SUBMITTING SHOP DRAWINGS. h. C/W NON-FUSED DISCONNECT SWITCH.

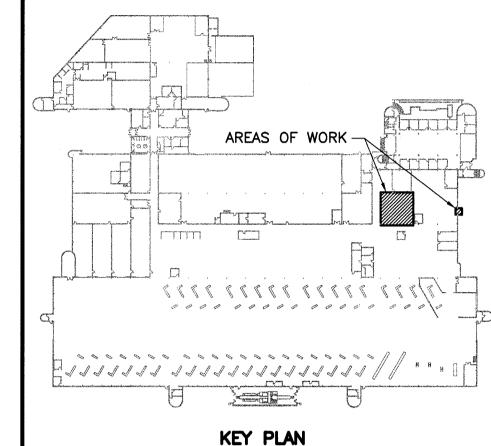
#### SECTION 15900 CONTROLS AND SEQUENCES

- 1. ALL CONTROLS SHALL BE SUPPLIED AND INSTALLED BY MECHANICAL SUBCONTRACTOR. ALL WIRING 50 VOLTS AND ABOVE FOR MECHANICAL EQUIPMENT SHALL BE PERFORMED BY ELECTRICAL SUBCONTRACTOR. MECHANICAL SUBCONTRACTOR TO PROVIDE WIRING DIAGRAMS.
- 2. ALL THERMOSTATS SHALL BE PROGRAMMABLE TYPE DIGITAL READOUT AND DISPLAY C/W LOCKABLE TAMPERPROOF METAL COVERS, NIGHT-SETBACK, AND SUB-BASE.
- 3. PROVIDE ALL TRANSFORMERS, SOLENOIDS, WIRING, AND ANY OTHER HARDWARE (SPECIFICALLY INDICATED OR NOT) AS REQUIRED IN ORDER TO COMPLETE A FULLY FUNCTIONING CONTROL SYSTEM COMPATIBLE WITH THE NEW AND EXISTING SYSTEMS AND EQUIPMENT RELATED TO THIS PROJECT.

# SECTION 15990 TESTING AND BALANCING OF MECHANICAL SYSTEMS

- 1. INDEPENDENT RECOGNIZED AIR BALANCE CONTRACTOR SHALL BE AABC CERTIFIED.
- 2. TEST AND BALANCE RTU-1 AND F-1 AIR SYSTEMS. TEST ALL NEW AND FIRE DAMPERS. INCLUDE FIRE DAMPER VERIFICATION REPORT IN TAB REPORT.





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CITY OF WINNIPEG TRANSIT DEPARTMENT



# **TETRA TECH**

ELECTRICAL SECTION RENOVATION AT THE WINNIPEG TRANSIT GARAGE, 421 OSBORNE STREET

MECHANICAL SPECIFICATIONS

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3D MODEL REF No

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