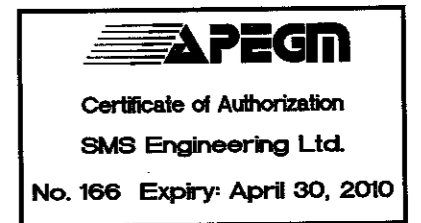


- .5 SEAL ALL JOINTS (NEW AND EXISTING) AIRTIGHT WITH DURO-DYNE S-2 DUCT SEALER OR EQUAL, IN STRICT ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS. PRIOR TO APPLICATION, DUCTWORK TO BE DRY AND FREE OF GREASE, ETC. USE 1/4" BEAD OF MATERIAL ALONG JOINTS. MATERIAL, WHEN DRY, TO HAVE 1/8" DEPTH EXTENDING 1" ON EACH SIDE OF JOINT OR SEAM.
- .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 CONTRACT ADMINISTRATOR BEFORE INSTALLATION.
- .7 SIZE ROUND DUCTS, INSTALLED IN PLACE OF RECTANGULAR DUCTS, FROM ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS.
- .8 PRIOR TO FABRICATION OF DUCTWORK, CHECK ALL CEILING SPACES AND HEIGHTS FOR CONFLICTION WITH OTHER TRADES.
- .9 DUCT AND EQUIPMENT SUPPORTS, HANGERS AND INSERTS
 - .1 SUPPORT HORIZONTAL DUCTS ON MAXIMUM 8'-0" CENTRES BY NON-PERFORATED GALV. STEEL, RIVETED 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" DIA. THREADED RODS SUSPENDING ANGLES FROM STRUCTURE.
 - .2 FOR INSERTS IN EXISTING CONCRETE, USE HILTI H.K.D. STEEL ANCHORS.
- .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.
- .11 PROVIDE INSULATED ACCESS DOORS AT ALL AIR VALVES AND WHERE NOTED.
- .12 DIFFUSERS, GRILLES AND REGISTERS AS NOTED ON PLANS.
 - .1 NEW AND EXISTING VAV BOXES SHALL BE SET FOR MAXIMUM CFM QUANTITY OF CONNECTED DIFFUSERS. MINIMUM CFM QUANTITY FOR INTERIOR ZONE BOXES SHALL BE SET AT 10% AND FOR EXTERIOR ZONE BOXES SHALL BE SET AT 30% OF MAXIMUM CFM QUANTITY. REFURBISH EXISTING VAV BOXES TO A NEW CONDITION, IF REQUIRED, OR REPLACE WITH NEW VAV BOXES.

- 4.0 TESTING AND BALANCING
 - .1 AIR SYSTEMS SHALL BE BALANCED AND TESTED BY AN INDEPENDENT AIR BALANCE AGENCY (AABC) TO PROVIDE AIR QUANTITIES AS SHOWN. PROVIDE AIR BALANCE REPORT FOR REVIEW BY THE CONTRACT ADMINISTRATOR. SUBMIT TWO COPIES FOR REVIEW UPON COMPLETION. PROVIDE DAMPER STICKER UPON FINAL BALANCING COMPLETION.
- 5.0 CONTROLS
 - .1 PROVIDE THREE HARD COVER COPIES OF INFORMATION PERTAINING TO TEMPERATURE CONTROL SYSTEM FOR CITY'S PERMANENT RECORD. INCLUDE SCHEMATIC DRAWINGS AND CONTROL SEQUENCE WRITE-UPS OF ALL CONTROL SYSTEMS.
 - .2 PROVIDE ALL LABOUR, MATERIAL, PLANT, TOOLS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO COMPLETION OF TEMPERATURE CONTROLS SYSTEMS AS NOTED HEREIN AND/OR SHOWN ON DRAWINGS.
 - .3 ALL NEW WORK RELATED TO NEW AND EXISTING CONTROLS SHALL BE PERFORMED BY A QUALIFIED CONTROLS SUBCONTRACTOR.
 - .4 REFURBISH EXISTING DEFECTIVE THERMOSTATS TO AS NEW CONDITION, OR REPLACE WITH NEW THERMOSTATS.
 - .5 PROVIDE NEW THERMOSTAT TO MATCH EXISTING AS INDICATED.
 - .6 PROVIDE COMPLETE SYSTEM OF JOHNSON AUTOMATIC CONTROLS FOR SYSTEMS INDICATED.
 - .7 PROVIDE ALL NECESSARY DAMPERS, DAMPER OPERATORS, THERMOSTATS, VALVES, VALVE OPERATORS, CONTROLLERS, INDICATION, RELAYS, CUMULATORS, POSITIONERS, PNEUMATIC ELECTRIC SWITCHES, SOLENOID VALVES, SWITCHES, CLOCKS, TRANSFORMERS, ETC., TO MAKE COMPLETE AND OPERABLE SYSTEM.
 - .8 MECHANICAL SUB-CONTRACTOR TO DISTRIBUTE AND MOUNT ALL PIPE CONNECTED EQUIPMENT.
 - .9 ELECTRICAL TO SUPPLY AND INSTALL ALL CONDUIT, WIRE AND CONNECTIONS FROM DISTRIBUTION PANELS TO LINE SIDE OF MAGNETIC STARTERS AND THERMAL OVERLOAD SWITCHES, AND FROM LOAD SIDE OF STARTERS AND SWITCHES TO MOTORS.
 - .10 CONTROL SUBCONTRACTOR SHALL SUPPLY AND INSTALL ALL CONDUIT, WIRE, ELECTRIC RELAYS, CONNECTIONS AND OTHER DEVICES REQUIRED FOR CONTROL CIRCUIT WIRING FOR SYSTEMS AS SPECIFIED HEREIN WHETHER LINE OR LOW VOLTAGE. ELECTRICAL WIRING SHALL BE INSTALLED IN CONFORMANCE WITH CSA, ULC, MANITOBA BUILDING CODE AND DIVISION 16 ELECTRICAL REQUIREMENTS.
 - .1 IN CONCEALED AREAS INCLUDING CEILING SPACE. INDIVIDUAL TUBING TO BE FIXED TO BUILDING STRUCTURE.

- .11 SEQUENCES OF OPERATION
 - .1 ROOM THERMOSTAT TO MODULATE VAV TO MAINTAIN SPACE TEMPERATURE SETPOINT.



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Project Title
RENOVATIONS TO ENGINEERING AND RECORD STORAGE AREAS - WATER AND WASTE OFFICES
 1199 PACIFIC AVE, WINNIPEG MB

Drawing Title
MECHANICAL SPECIFICATIONS (CONTINUATION)

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