GENERAL SPECIFICATIONS

THE SCOPE OF WORK SHALL INCLUDE ALL LABOUR, MATERIALS, EQUIPMENT, AND TOOLS REQUIRED FOR A COMPLETE AND WORKING INSTALLATION AS DETAILED WITHIN THESE DRAWINGS AND SPECIFICATIONS TO THE SATISFACTION OF THE ENGINEER.

SECTIONS OF THESE MECHANICAL SPECIFICATIONS ARE NOT INTENDED TO DELEGATE FUNCTIONS OR TO DELEGATE WORK AND SUPPLY TO ANY SPECIFIC TRADE.

THE DRAWINGS AND SPECIFICATIONS SHALL BE READ IN CONJUNCTION WITH BASE BUILDING DRAWINGS AND SPECIFICATIONS. THE BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION.

PROVIDE ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, AND LOCAL BY-LAWS.

CONFORM TO THE BEST MODERN PRACTICES OF WORKMANSHIP AND INSTALLATION METHODS AND EMPLOY ONLY SKILLED TRADESPEOPLE WORKING UNDER THE DIRECTION OF FULLY QUALIFIED PERSONNEL.

APPLY FOR, OBTAIN, AND PAY FOR ALL PERMITS, LICENCES, INSPECTIONS, EXAMINATIONS AND FEES REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

VISIT AND INSPECT THE SITE OF THE WORK TO VERIFY LOCATION AND ELEVATION OF EXISTING SERVICES, INCLUDING LOCATIONS OF EXISTING CAPPED SERVICES, WHICH MAY AFFECT THE TENDER AND WORK OF THIS DIVISION (WATER, SANITARY, DUCTWORK ETC.) BEFORE SUBMISSION OF TENDER AND PROCEEDING WITH WORK. ALLOW FOR ANY RE-ROUTING OF EXISTING AND/OR NEW SERVICES AND EQUIPMENT AS REQUIRED TO AVOID INTERFERENCES IN TENDER PRICE.

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 RULING FROM THE ENGINEER IN WRITING BEFORE SUBMITTING A TENDER. REPORT TO THE ENGINEER ALL AMBIGUITIES, DISCREPANCIES, OMISSIONS, ERRORS, DEPARTURES FROM BUILDING BYLAWS AND/OR FROM GOOD PRACTICE. IF THIS IS NOT DONE IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATIVE HAS BEEN INCLUDED IN THE TENDER PRICE. FOR ANY RULING TO BECOME BINDING, THE ENGINEER MUST ISSUE THE NEW DIRECTION IN A PUBLISHED FORM.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED SCHEDULE TO MEET THE PROJECT COMPLETION DATE AND ALL SPECIFIED INTERIM SCHEDULES.

ALL SHUTDOWNS OF ANY PORTION OF THE EXISTING BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE OWNER'S BUILDINGS OPERATIONS STAFF AND/OR COORDINATED WITH THE OWNER FOR THE TIME AND DURATION OF INTERRUPTIONS AND ADHERE TO THE OWNER'S INSTRUCTIONS IN THIS REGARD. CAREFULLY SCHEDULE DISRUPTIONS TO KEEP "DOWN TIME" TO A MINIMUM. COST FOR SHUTDOWNS, DRAINING AND REFILLING OF BASE BUILDING SYSTEMS SHALL BE INCLUDED IN THE TENDER PRICE.

IN ALL AREAS REQUIRING CORE DRILLING THROUGH EXISTING FLOOR SLAB FOR MECHANICAL SERVICES, ETC. ALLOW FOR ALL NECESSARY RADIOGRAPHY TO LOCATE HIDDEN ELECTRICAL SERVICES, STRUCTURAL REINFORCING, ETC., AND INCLUDE ALL COSTS IN TENDER PRICE. COORDINATE THIS WORK WITH OWNER FOR TIME, DURATION AND LOCATIONS REQUIRED, AND ADHERE TO THE OWNER'S REQUIREMENTS. SUBMIT CORE DRILLING PLAN TO BASE BUILDING STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.

CHECK AND VERIFY LOCATION OF EXISTING MECHANICAL AND ELECTRICAL INTERFERENCES IN CEILING SPACE OF FLOOR BELOW AND/OR BELOW FLOOR SLAB IN ALL AREAS REQUIRING CORE DRILLING AND/OR CUTTING OF FLOOR SLAB ON GRADE AND ENSURE COMPATIBILITY OF AREA BELOW TO THE SATISFACTION OF THE LANDLORD.

FIRE STOP ALL PIPE AND DUCT PENETRATIONS THROUGH ALL RATED SEPARATIONS. FIRE STOPPING MATERIALS TO MEET ULC CAN 2S115 AND BE ULC LISTED. PROVIDE FIRESTOPPING FOR ALL OPENINGS IN FIRE SEPARATIONS FOR PASSAGE OF PIPES, DUCTS, ETC. TO MAINTAIN INTEGRITY OF FIRE SEPARATIONS. INSTALLATIONS TO CONFORM TO APPROVED ULC DETAILS AND STANDARDS. REFER TO ARCH DRAWINGS
FOR FIRE STOP DETAILS.

SEAL AIR TIGHT ALL AROUND DUCTWORK AND PIPING PENETRATIONS THROUGH PARTITIONS AND BAFFLES ABOVE CEILING.

INCLUDE COST OF PREMIUM TIME IN TENDER PRICE FOR WORK DURING NIGHTS, WEEKENDS, OR OTHER TIME OUTSIDE NORMAL WORKING HOURS NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATION, AND TO COMPLETE THE WORK.

CUTTING, CORING, DRILLING, PATCHING, FLASHING, REPAIRS AND CLEAN-UP OF EXISTING SURFACES REQUIRED AS A RESULT OF THE REMOVAL AND/OR RELOCATION OF EXISTING EQUIPMENT AND PIPING, AND/OR INSTALLATION OF NEW EQUIPMENT AND PIPING TO BE INCLUDED IN TENDER PRICE. EMPLOY AND PAY APPROPRIATE SUB-TRADE WHOSE WORK IS INVOLVED, FOR CARRYING OUT WORK DESCRIBED ABOVE.

SUBMIT SHOP DRAWINGS FOR ALL ITEMS SPECIFIED. FOR EQUIPMENT, PROVIDE PERFORMANCE, PHYSICAL AND OPERATING DATA AS DESCRIBED IN THE SPECIFICATIONS AND LISTED IN EQUIPMENT SCHEDULES. PROVIDE PERFORMANCE CURVES FOR ALL PUMPS AND FANS. INCLUDE SOUND AND VIBRATION DATA FOR ALL EQUIPMENT SUCH AS FANS, VAV TERMINALS AND CHILLERS.

DURING PROGRESS OF WORK, SUBSTITUTE PRODUCTS WILL ONLY BE CONSIDERED WHEN TENDERED PRODUCTS BECOME UNOBTAINABLE AND WRITTEN PROOF IS SUBMITTED. ALL ALTERNATE ITEMS SUBMITTED FOR CONSIDERATION MUST NOT EXCEED AVAILABLE SPACE LIMITATIONS.

EQUIPMENT LISTED AS “EQUAL” IN SPECIFICATIONS OR SUBMITTED AS EQUAL BY THE CONTRACTOR MUST MEET ALL SPACE REQUIREMENTS, SPECIFIED CAPACITIES AND MUST HAVE EQUIPMENT CHARACTERISTICS OF SPECIFIED EQUIPMENT AS INTERPRETED BY ENGINEER. INSTALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS.

THE ARCHITECT/INTERIOR DESIGNER AND ENGINEER MUST PROVIDE ACCEPTANCE OF ANY PRODUCT AS EQUAL BEFORE IT IS ALLOWED TO BE USED ON THIS PROJECT.

ALL ADDITIONAL COSTS FOR MECHANICAL, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL REVISIONS REQUIRED TO INCORPORATE MATERIALS SUBSTITUTED BY CONTRACTOR SHALL BE RESPONSIBILITY OF THIS CONTRACTOR. MAKE REVISIONS TO RECORD DRAWINGS INCORPORATING ALL ALTERNATES AND/OR SUBSTITUTIONS AND ALL RELATED CHANGES.

INSTALL ALL CONCEALED MECHANICAL EQUIPMENT REQUIRING ADJUSTMENT OR MAINTENANCE IN LOCATIONS EASILY ACCESSIBLE THROUGH ACCESS PANELS AND DOORS. INSTALL SYSTEMS AND COMPONENTS TO RESULT IN A MINIMUM NUMBER OF ACCESS PANELS.

PROVIDE ALL ACCESS DOORS IN CEILINGS OR WALLS WHERE SHOWN AND/OR REQUIRED FOR PROPER SERVICING OF EQUIPMENT. SIZE, FINISH, TYPE, AND FINAL LOCATION TO COMPLY WITH ARCHITECT/INTERIOR DESIGNER'S APPROVAL. ACCESS DOORS IN RATED CEILINGS OR WALLS SHALL BE ULC APPROVED FOR THE APPLICATION.

PROVIDE THE OWNER WITH A WRITTEN WARRANTY, FOR ALL LABOUR, MATERIALS, AND EQUIPMENT IN THIS CONTRACT, FOR A PERIOD OF ONE YEAR COMMENCING AT SUCH TIME AS THE OWNER, OR THEIR REPRESENTATIVE, DEEMS THE WORK ACCEPTABLE.

A CLEAN, UNDAMAGED SET OF CONTRACT DRAWINGS INCLUDING COORDINATION DRAWINGS AND SHOP DRAWINGS SHALL BE KEPT AT THE JOB SITE AS AS-BUILT RECORD DOCUMENTS. MARK RECORD SETS IN A CLEAR, LEGIBLE MANNER, USING RED INK (NO PENCILS); TO SHOW THE ACTUAL INSTALLATION, WHERE THE INSTALLATION VARIES FROM THE WORK AS ORIGINALLY SHOWN. MARK ALL DRAWINGS NECESSARY TO SHOW CONDITIONS FULLY AND ACCURATELY. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.

ASSEMBLE FOUR (4) MANUALS, EACH CONTAINING DATA SHEETS, BROCHURES, OPERATING, MAINTENANCE, RECOMMENDED SPARE PARTS, LUBRICATING INSTRUCTIONS, WRITTEN WARRANTY, REVIEWED AIR AND WATER BALANCING REPORTS, AND A COMPLETE SET OF REVIEWED SHOP DRAWINGS AND BIND IN HARD COVER. IDENTIFY COVER “OPERATION AND MAINTENANCE MANUAL”. MANUALS SHALL BE SEPARATED WITH DIVIDERS IN LOGICAL SECTIONS AND VOLUMES.

PROVIDE A COMPLETE COST BREAKDOWN OF ALL MATERIALS, EQUIPMENT AND LABOUR COSTS ASSOCIATED WITH EACH SUBMISSION FOR EXTRA OR DELETED WORK.

IDENTIFY EACH PIPED AND DUCTED SERVICE SHOWING NAME AND SERVICE, INCLUDING TEMPERATURE AND PRESSURE WHERE RELEVANT, AND WITH DIRECTIONAL ARROWS TO INDICATE FLOW. LOCATE IDENTIFICATION AND FLOW ARROWS NOT MORE THAN 3M (10 FEET) AND AT EACH CHANGE IN THE DIRECTION OF THE PIPE AND AT TAKE-OFFS. USE WORDING INDICATED ON THE MECHANICAL LEGEND. USE 50MM (2”) HIGH STENCIL LETTERS.

PROTECT ALL EXISTING RETURN AIR OPENINGS BY MOUNTING TEMPORARY DISPOSABLE MERV 8 AIR FILTERS USING DUCT TAPE TO KEEP RETURN AIR SYSTEM CLEAN OF DUST AND DIRT. INSPECT ALL FILTERS EVERY TWO (2) WEEKS DURING DEMOLITION/CONSTRUCTION AND REPLACE AS NECESSARY. ENSURE ALL TEMPORARY AIR FILTERS ARE REMOVED AT COMPLETION OF CONSTRUCTION.

REUSE EXISTING MATERIALS AND EQUIPMENT WHEREVER POSSIBLE AND PROVIDE NEW ONLY WHERE REQUIRED AND AS SPECIFIED TO ENSURE A COMPLETE INSTALLATION. ALL EQUIPMENT, MATERIALS AND ASSOCIATED CONTROLS NOT USED IN THIS CONTRACT SHALL BE RETURNED TO THE LANDLORD/OWNER.

TESTING AND COMPLETION OF CONTRACT

THE CONTRACTOR SHALL BE RESPONSIBLE TO TEST AND RUN AND COMMISSION ALL EQUIPMENT. HIRE AND PAY FOR THE EQUIPMENT MANUFACTURER'S REPRESENTATIVE TO START-UP ALL EQUIPMENT AND CHECK OUT ALL ASSOCIATED CONTROLS AND SAFETY CUTOUTS, THIS INCLUDES, THERMOSTATS, OUTDOOR AIR DAMPERS, FIRE STATS, EXHAUST FAN INTERLOCKS, ETC. THIS WORK SHALL BE COMPLETE AND ANY DEFICIENCIES RECTIFIED PRIOR TO NOTIFYING THE BALANCING COMPANY THAT THE SYSTEMS ARE READY TO BE BALANCED.

TEST, BALANCE AND ADJUST ALL AIR TO OBTAIN THE DESIGN AIR QUANTITIES AND TEMPERATURE RISES/DROPS ACROSS TERMINAL HEATING/COOLING ELEMENTS. MARK THE FINAL BALANCE POSITION ON ALL BALANCING DAMPERS AND ADJUSTABLE AIR TURNING DEVICES AND BALANCE FITTINGS. SUBMIT AIR SYSTEM TEST AND BALANCE REPORT IN TRIPLICATE TO THE ENGINEER AND OWNER. INDICATE ALL TEST RESULTS INCLUDING COIL ENTERING AND LEAVING AIR TEMPERATURES, CLOSEST AND FURTHEST OUTLET SUPPLY AIR TEMPERATURES AND AVERAGE ROOM TEMPERATURES FOR ALL AIR SYSTEMS. THIS WORK SHALL BE PERFORMED BY A TESTING AND BALANCING CONTRACTOR WHO IS A MEMBER OF AABC OR NEBB AND APPROVED BY THE OWNER, OR WHEN REQUIRED, BY THE OWNER'S TESTING AND BALANCING CONTRACTOR. IN AREAS WITH DRYWALL CEILINGS, THIS WORK SHALL BE DONE PRIOR TO ENCLOSING OF
CEILING SPACE.

INCLUDE EXTENDED SERVICE OF 90 DAYS, AFTER COMPLETION OF TEST AND BALANCE WORK, DURING WHICH TIME THE ENGINEER, AT HIS DISCRETION, MAY REQUEST RE-CHECKING OR RE-SETTING OF ANY SYSTEMS AND/OR EQUIPMENT IN THE TEST REPORT FOR A MAXIMUM PERIOD OF EIGHT (8) HOURS OF SITE TIME.

ADJUST AND/OR REPLACE AIR HANDLING UNIT FAN BELTS, AND SHEAVES AS REQUIRED TO OBTAIN THE REQUIRED DESIGN SUPPLY AIR QUANTITIES INDICATED ON PLANS.

ALL SYSTEMS SHALL BE COMPLETE, TESTED AND READY FOR USE, WITH ALL EQUIPMENT AND CONTROLS FUNCTIONING CORRECTLY.

SUBMIT ALL CERTIFICATES OF INSPECTION AND TEST RESULTS TO THE OWNER FOR REVIEW.

INSULATION - HVAC DUCTWORK
ALL SUPPLY AIR DUCTING IN UNCONDITIONED SPACES SHALL BE INSULATED UNLESS OTHERWISE INDICATED ON DRAWINGS.

EXHAUST DUCTS, RETURN DUCTS, AND RETURN PLENUMS WITHIN CONDITIONED SPACES DO NOT REQUIRE INSULATION UNLESS OTHERWISE INDICATED ON DRAWINGS.

PROVIDE INSULATION WITH A MINIMUM THERMAL RESISTANCE OF 0.58M²·°C/W (MINIMUM R-VALUE = R3.5)

MINIMUM R VALUE = R12 IN WEATHER EXPOSED AREAS AND UNHEATED SPACES.

APPLY VAPOUR BARRIER OVER INSULATION ON COLD TEMPERATURE DUCTWORK.

ON ALL EXTERIOR DUCTWORK PROVIDE WEATHERPROOF JACKETING.

EXPOSED DUCTWORK: RIGID BOARD INSULATION
OWENS CORNING RIGID DUCT INSULATION, JOHNS MANVILLE 814 SPIN-GLAS, MANSON 800 SERIES SPIN-GLAS RIGID INSULATION BOARD OR KNAUF RIGID INSULATION BOARD, NOT LESS THAN {48KG/CUBICMETRE} [3LBS./CU.FT.] DENSITY. IMPALE RIGID BOARD ON WELD PINS AND SPEED WASHERS 300MM (12") OC WITH A MINIMUM OF TWO ROWS PER SIDE ON
ANY SIDE GREATER THAN 300MM (12"). CUT PINS FLUSH WITH SURFACE OF INSULATION AND COVER WITH FOIL FACED TAPE. COVER ALL JOINTS WITH FOIL FACED SELF-ADHESIVE TAPE. FINISH WITH CANVAS AND LAGGING TO MANUFACTURER'S SPECIFICATIONS.

CONCEALED DUCTWORK: BLANKET TYPE INSULATION
ACCEPTABLE MANUFACTURERS: OWENS CORNING FLEXIBLE DUCT INSULATION, JOHNS MANVILLE MICROLITE TYPE 75 DUCT WRAP, MANSON MICROLITE DUCT WRAP OR KNAUF DUCT WRAP, {12KG/CUBIC METRE} [3/4LBS./CU.FT.] DENSITY. APPLY FLEXIBLE BLANKET INSULATION WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE BRUSHED ON IN 150MM (6") WIDE STRIPS 300MM (12") OC AND AT ALL JOINTS. SEAL ALL JOINTS AND PERFORATIONS WITH FOIL FACED SELF-ADHESIVE TAPE. LAP ALL EDGES AT LEAST {50MM} [2"] AND SECURE INSULATION WITH FIRE RESISTANT TYING CORD, SIMILAR TO FIBERGLAS
EC9-4-T. TAKE CARE THAT INSULATION IS NOT COMPRESSED TO LESS THAN SPECIFIED THICKNESS. IT IS RECOGNIZED THAT SOME COMPRESSION OF INSULATION WILL TAKE PLACE IMMEDIATELY UNDER TYING CORD, BUT IN NO CASE SHALL THE THICKNESS OF THE COMPRESSED MATERIAL BE LESS THAN 75% OF ORIGINAL SPECIFIED THICKNESS.

PROVIDE INSULATED ROUND FLEXIBLE DUCTWORK EQUAL TO FLEXMASTER TYPE 'M' TRIPLE LOCK THERMAL FLEXIBLE DUCTING WITH 25MM (1”) GLASS OR MINERAL WOOL INSULATING BLANKET, OR PROVIDE 25MM (1”) THICK FIBERGLASS 16.02 KG/M3 (1 LB DENSITY) REINFORCED FOIL FACED FLEXIBLE VAPOUR SEAL DUCT INSULATION ON EXTERIOR OF FLEXIBLE DUCTWORK.

COVER INSULATION IN EXPOSED AREAS (MECHANICAL/FAN ROOMS, AREAS WITHOUT CEILINGS) WITH CLOSE WEAVE, SMOOTH FINISH, 205 G/SQ.M. (6 OZ/SQ.YD.) CANVAS. FASTEN CANVAS COVERING TO INSULATION WITH FIRE RESISTIVE LAGGING
ADHESIVE. COAT ALL SURFACES WITH TWO (2) HEAVY BRUSH COATS OF UNDILUTED LAGGING ADHESIVE. COVER INSULATED FLEXIBLE DUCTS WITH FIRE RESISTIVE REINFORCED KRAFT PAPER WITH ALUMINUM FOIL VAPOUR BARRIER.

ACOUSTIC DUCT LINING
ACOUSTIC DUCT LINING SHALL BE PROVIDED WHEREVER SHOWN AND/OR SPECIFIED ON THE DRAWINGS AND ON ALL SUPPLY DUCTWORK DOWNSTREAM OF FAN POWERED BOXES AND/OR HEAT PUMPS FOR A DISTANCE OF 4.57M [15 FT.] MEASURED ALONG THE DUCT AND OUTWARD IN ALL DIRECTIONS, AND ON ALL TRANSFER AIR DUCTS.

ALL ACOUSTIC DUCT LINER MUST BE CONSTRUCTED OF 25 MM [1 IN.] THICK CLOSED-CELL, POLYMER SHEET INSULATION MATERIALS. THE USE OF FIBERGLASS LINER IS NOT ALLOWED. PRODUCT MUST BE CLEANABLE AND HAVE A ZERO PERM RATING AND ZERO WATER ABSORPTION. INSTALLATION SHALL NOT INCLUDE ANY TAPES, FABRICS, CEMENTS OR OTHER MATERIALS WHICH ARE NOT CLEANABLE OR WHICH OFFER OPPORTUNITY FOR MOLD GROWTH. INSTALLATION SHALL BE TO MANUFACTURER'S STANDARDS AND SHALL WITHSTAND AIR VELOCITIES OF 12.7 M/S (2500 FEET PER MINUTE).

NOTE THAT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHERE ACOUSTIC INSULATION IS INSTALLED, INCREASE DIMENSIONS ACCORDINGLY.

PLENUM REQUIREMENTS

ALL MATERIALS WITHIN RETURN AIR PLENUMS MUST HAVE A FLAME-SPREAD RATING NOT MORE THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50, EXCEPT FOR:

a. TUBING FOR PNEUMATIC CONTROLS
b. OPTICAL FIBRE CABLES AND ELECTRICAL WIRES AND CABLES THAT EXHIBIT A FLAME SPREAD NOT MORE THAN 1.5 M, A SMOKE DENSITY NOT MORE THAN 0.5 AT PEAK OPTICAL DENSITY AND A SMOKE DENSITY NOT MORE THAN 0.15 AT AVERAGE OPTICAL DENSITY WHEN TESTED IN CONFORMANCE WITH THE FLAME AND SMOKE TEST IN THE APPENDIX TO CSA C22.2 NO. 0.3, “TEST METHODS FOR ELECTRICAL WIRES AND CABLES”, (FT6 RATING),
c. OPTICAL FIBRE CABLES AND ELECTRICAL WIRES AND CABLES THAT ARE LOCATED IN TOTALLY ENCLOSED NONCOMBUSTIBLE RACEWAYS,
d. TOTALLY ENCLOSED NONMETALLIC RACEWAYS THAT EXHIBIT A HORIZONTAL FLAME DISTANCE OF NOT MORE THAN 1.5 M, AN AVERAGE OPTICAL SMOKE DENSITY OF NOT MORE THAN 0.15 AND A PEAK OPTICAL SMOKE DENSITY OF NOT MORE THAN 0.5 WHEN TESTED IN CONFORMANCE WITH CAN/ULC-S102.4, “FIRE AND SMOKE CHARACTERISTICS OF ELECTRICAL WIRING AND CABLES”, (FT6 RATING), AND
e. SINGLE CONDUCTOR ELECTRICAL WIRES AND CABLES THAT EXHIBIT A VERTICAL CHAR OF NOT MORE THAN 1.5 M WHEN TESTED IN CONFORMANCE WITH THE VERTICAL FLAME TEST --CABLES IN CABLETROUGH IN CLAUSE OF CSA C22.2 NO. 0.3, “TEST METHODS FOR ELECTRICAL WIRES AND CABLES”, (FT4 RATING)

HVAC DUCTWORK AND FITTINGS

ALL DUCTWORK AND HANGERS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA RECOMMENDATIONS.

EXHAUST DUCTWORK HANDLING FLAMMABLE VAPOURS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA-91.

NOTE THAT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHERE ACOUSTIC INSULATION IS INSTALLED, INCREASE DIMENSIONS ACCORDINGLY.

PROVIDE DUCT ACCESS DOORS WITH SASH LOCKS, MINIMUM 400MM X 300MM (16” X 12”) SIZE FOR EQUIPMENT SUCH AS COILS (BOTH SIDES OF COIL), FIRE AND/OR SMOKE DAMPERS, CONTROL AND/OR BALANCING DAMPERS, HEAT AND/OR SMOKE DETECTORS, BACKDRAFT DAMPERS, ETC. AS REQUIRED FOR PROPER SERVICING.

PROVIDE FLEXIBLE CONNECTORS BETWEEN ALL AIR HANDLING EQUIPMENT AND ADJACENT DUCTWORK. FLEXIBLE CONNECTIONS SHALL CONSIST OF A PREASSEMBLED UNIT COMPLETE WITH 75MM (3”) LONG GALVANIZED DUCT CONNECTOR AND 150MM (6”) WIDE NEOPRENE FLEXIBLE CONNECTOR EQUAL TO DURO DYNE NEOPRENE.

FLEXIBLE DUCTS SHALL BE FLEXMASTER TRIPLE LOCK MODEL #T/L OR APPROVED EQUAL, SPIRAL WOUND ALUMINUM STRIP WITH AIR TIGHT AND LEAK-PROOF TRIPLE LOCK SEAM. DUCTING SHALL CONFORM TO NFPA 80A AND UL-181. FLEXIBLE DUCTS SHALL BE OF SIZE EQUAL TO DIFFUSER NECK SIZE. DO NOT RESTRICT DUCT FREE AREA. USE GEAR CLAMPS FOR SECURING FLEXIBLE DUCTS TO RIGID DUCT CONNECTIONS SUCH AS SPIN-IN FITTINGS, ETC. AND NECKS OF DIFFUSERS AND SEAL AIR TIGHT WITH DURO-DYNE DUCT SEALER. ROUND FLEXIBLE DUCTS SHALL BE INSTALLED AS ONE CONTINUOUS PIECE, MAXIMUM 1.5M (5') LONG. REMAINDER SHALL BE ROUND RIGID DUCT. JOINING OF FLEXIBLE DUCTS IS NOT PERMITTED.

SEAL ALL TRANSVERSE JOINTS IN SUPPLY, RETURN AND EXHAUST DUCTWORK WITH DURO-DYNE WATER-BASED HIGH VELOCITY DUCT SEALER OR EQUIVALENT MEETING REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND SMACNA SEAL CLASS C, MAXIMUM LEAKAGE 5%.

WHERE INTERIOR OF DUCT IS VISIBLE THROUGH GRILLES, REGISTERS OR DIFFUSERS, PAINT INTERIOR OF DUCT WITH FLAT BLACK TREMCO PAINT FORMULATED FOR GALVANIZED SURFACES.

FINAL LOCATION OF NEW SUPPLY AIR DIFFUSERS, BOOTS, LIGHT TROFFERS, REGISTERS, RETURN AND EXHAUST AIR GRILLES SHALL BE COORDINATED WITH THE LATEST ARCHITECTURAL AND ELECTRICAL REFLECTED CEILING PLANS.

PROVIDE FIRE DAMPERS WHERE SHOWN ON DRAWING AND/OR WHERE REQUIRED BY LOCAL AUTHORITIES AND/OR APPLICABLE CODES IN DUCT SECTIONS COMPLETE WITH APPROVED ACCESS DOORS.

WHERE TRANSFER AND/OR RETURN AIR OPENINGS ARE NOTED ON THE DRAWINGS (WITHOUT DUCTWORK/DIFFUSERS), THE MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LAYOUT TO THE GENERAL TRADES. THIS CONTRACTOR SHALL CO-ORDINATE AND VERIFY THAT THE REQUIRED NUMBER AND SIZE OF OPENINGS HAVE BEEN PROVIDED.

PROVIDE NEW BALANCING DAMPERS FOR ALL DUCT BRANCHES, AND IN ALL LOCATIONS NECESSARY FOR BALANCING THE AIR SYSTEMS, WITH SUITABLE MEANS OF CEILING ACCESS. PROVIDE VOLUME DAMPERS FOR ALL NEW SUPPLY AIR DIFFUSERS AND REGISTERS.

MODIFY HVAC DUCTWORK TO SUIT SITE CONDITIONS. MAINTAIN EQUAL CROSS SECTIONAL AREA AT ALL SECTIONS TO ENSURE DESIRED AIR FLOWS.

HVAC CONTROLS
ALL CONTROLS SHALL BE DESIGNED, SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR AND APPROVED BY OWNER.

PROVIDE AND INSTALL CONDUIT, WIRE, ELECTRIC RELAYS, CONNECTIONS AND OTHER DEVICES REQUIRED FOR CONTROL CIRCUIT WIRING, WHETHER LINE OR LOW VOLTAGE, FOR A COMPLETE AND OPERATING CONTROL SYSTEM. THE CONTROLS CONTRACTORS SHALL EITHER USE THEIR OWN ELECTRICIANS, OR USE AN ELECTRICAL SUB-TRADE ACCEPTABLE TO ENGINEER TO SUPPLY AND INSTALL ALL CONDUIT AND WIRING FOR SYSTEMS AS SPECIFIED.

LOCATIONS OF TEMPERATURE SENSORS ARE INDICATED ON THE DRAWINGS. MOUNTING HEIGHT OF OCCUPANT ADJUSTABLE THERMOSTATS SHALL BE 1400mm TO 1500mm FROM FINISHED FLOOR. MOUNTING HEIGHT OF NON-ADJUSTABLE THERMOSTATS SHALL BE 1500 MM [5 FT. 0 IN.] FROM FINISHED FLOOR. CONFIRM FINAL LOCATIONS WITH THE ARCHITECT/INTERIOR DESIGNER BEFORE INSTALLATION. AVOID DRAFTS, STAGNANT AIR, EFFECTS OF OTHER SYSTEMS, OBSTRUCTED LOCATION, AND LOCATION EXPOSED TO DAMAGE.

SHOP DRAWINGS SHALL INCLUDE A CONTROL DIAGRAM INDICATING HOW CONTROLS ARE ELECTRICALLY CONNECTED FOR EACH SYSTEM, AND EQUIPMENT LIST AND MANUFACTURERS DATA SHEETS AND A DESCRIPTION OF THE CONTROL SEQUENCE FOR EACH SYSTEM.

THE OPERATING AND MAINTENANCE MANUAL SHALL CONTAIN AS BUILT SHOP DRAWINGS AND OPERATING AND MAINTENANCE INSTRUCTIONS FOR CONTROL EQUIPMENT.

PLUMBING

INSTALL ALL PIPING IN THE BEST WORKMANLIKE MANNER AND IN ACCORDANCE WITH OBC SEC. 7 AND THE BEST PRACTICES OF THE TRADE.

PROVIDE ALL BRONZE BALL TYPE ISOLATING VALVES ON MAIN AND/OR BRANCH LINES AND FOR EACH INDIVIDUAL PIECE OF EQUIPMENT SERVED WITH HOT AND COLD WATER LINES. ALL VALVES SHALL BE SUITABLE FOR THE OPERATING PRESSURE OF THE SYSTEM IN WHICH THEY ARE INSTALLED.

PROVIDE DI-ELECTRIC COUPLINGS/UNIONS WHERE COPPER PIPING CONNECTS TO FERROUS METAL EQUIPMENT SUCH AS STEEL STORAGE TANKS, PRV'S, ETC. AND STEEL, BLACK IRON, CAST IRON OR GALVANIZED IRON PIPING.

FINAL LOCATION OF ALL NEW PLUMBING FIXTURES SHALL BE COORDINATED ON SITE WITH ALL TRADES. REFER TO ARCHITECTURAL/INTERIOR DESIGNER DRAWINGS AND DETAILS FOR EXACT LOCATION OF PLUMBING FIXTURES.

PROVIDE NEW PLUMBING FIXTURES WHERE INDICATED ON PLAN. ALL FIXTURES SHALL BE OF FIRST QUALITY, BEST GRADE OBTAINABLE, CLEANED AND IN PERFECT CONDITION FOR THE OWNER TAKEOVER. FIXTURES SHALL BE PIPED COMPLETE IN A FIRST CLASS MANNER WITH ALL NECESSARY APPURTENANCES FOR A COMPLETE FIXTURE IN EVERY RESPECT. INSTALL ALL COMPONENTS IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PROVIDE A TRAP SEAL PRIMER ON ALL NEW FLOOR DRAINS, FUNNEL FLOOR DRAINS AND HUB DRAINS. FOR INDIVIDUAL OR REMOTE DRAINS, PROVIDE PRECISION PLUMBING PRODUCTS INC. MODEL PO-500 AUTOMATIC TRAP SEAL PRIMER VALVE, WITH 12MM (½") NPT (M TO F) CONNECTIONS WITH STRAINER AND INTEGRAL BACK FLOW PREVENTER AND VACUUM BREAKER. COMPLETE WITH YS-8 SUPPLY TUBE. FOR INSTALLATIONS WITH LARGE NUMBERS OF TRAPS IN CLOSE PROXIMITY, PROVIDE ELECTRONIC TRAP PRIMING SYSTEMS EQUIVALENT TO P.P.P. INC. PRIME-TIME™ ELECTRONIC TRAP PRIMER.

EXPOSED PIPING AND FITTINGS WITHIN WASHROOMS SHALL BE CHROME PLATED. PROVIDE CHROME PLATED ESCUTCHEONS WHERE PIPING PENETRATES WALLS AND MILLWORK.

PROVIDE WATER HAMMER ARRESTORS ON BRANCH LINES TO FLUSH VALVES, SOLENOID VALVES, SELF-CLOSING AND/OR QUICK CLOSING VALVES, GROUPS OF FIXTURES AND INDIVIDUAL FIXTURES. ARRESTORS SHALL BE EQUAL TO ZURN SHOKTROL Z1700 WITH NESTING TYPE BELLOWS CONTAINED WITHIN A CASING HAVING SUFFICIENT DISPLACEMENT VOLUME TO DISSIPATE THE CALCULATED KINETIC ENERGY GENERATED, IN THE PIPING SYSTEM. BOTH CASING AND BELLOWS CONSTRUCTED OF TYPE 304 STAINLESS STEEL. SIZE AND LOCATION SHALL BE DETERMINED IN ACCORDANCE WITH PD1-WH201 STANDARD.

DISCONNECT AND CAP ALL EXISTING DRAIN, VENT, HOT AND COLD WATER PIPES NOT USED IN THIS CONTRACT AT FLOOR, WALL OR CEILING. PROVIDE NEW PIPING ONLY WHERE NECESSARY AND REUSE EXISTING WHEREVER POSSIBLE AND WHERE CONDITIONS PERMIT.

INSULATION - PLUMBING SERVICES

PROVIDE INSULATION MATERIALS WITH A MAXIMUM THERMAL CONDUCTIVITY OF {0.036 W/M.ºC} [0.25 BTU.IN/(HR.FT2ºF] AT {38ºC} [100ºF] MEAN TEMPERATURE.

COVER ALL DOMESTIC HOT AND COLD WATER, CONDENSATE AND STORM DRAIN PIPING WITH PRE-MOLDED LOW PRESSURE GLASS FIBER INSULATION. FOR DOMESTIC COLD WATER, CONDENSATE, AND STORM DRAIN PIPING USE FACTORY APPLIED PAPER FREE ASJ VAPOUR BARRIER JACKET.
ACCEPTABLE MANUFACTURERS: OWENS CORNING PIPE INSULATION, JOHNS MANVILLE FIBERGLAS PIPE INSULATION, MANSON FIBERGLAS PIPE INSULATION OR KNAUF PIPE INSULATION.
INSULATION THICKNESS SHALL BE AS FOLLOWS;
DOMESTIC COLD WATER: ALL PIPE SIZES - 25MM (1”) INSULATION
DOMESTIC HOT WATER: UP TO 1” - 25MM (1”) INSULATION
1” AND LARGER - 40MM (1-1/2”) INSULATION

COVER ALL FITTINGS, VALVES, WATER METERS AND APPURTENANCES CONNECTED TO HOT AND COLD WATER PIPING AND CONDENSATE DRAIN PIPING WITH FABRICATED MITERED OR PREFORMED SECTIONS OF SPECIFIED INSULATION OR ARMAFLEX WITH THICKNESS SHOWN ABOVE. SEAL INSULATION FOR COLD WATER FITTINGS WITH A VAPOUR BARRIER ADHESIVE AND REINFORCE WITH GLASS OPEN WEAVE FIBER TAPE AND FINISH SMOOTH WITH A COAT OF MASTIC.

WHERE INSULATED PIPING IS EXPOSED (AREAS WITHOUT CEILINGS, MECHANICAL/COMPUTER ROOMS, ETC.) PROVIDE PVC JACKET AND FITTING COVERS INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS, AND CONFORMING TO THE SPECIFIED FLAME SPREAD/SMOKE DEVELOPED RATING.

WASTE AND VENT PIPING SYSTEMS

CAST IRON SOIL PIPE COMPONENTS:
PIPE: CAST IRON SOIL PIPE TO CAN/CSA-B70.
MECHANICAL JOINT COMPONENTS: HUBLESS FITTINGS, ELASTOMERIC GASKETS AND STAINLESS STEEL MECHANICAL JOINT COUPLINGS TO CAN/CSA-B70.

COPPER TUBE COMPONENTS.
PIPE: DWV COPPER TUBE: TO ASTM B306.
JOINT AND FITTING COMPONENTS.
1. WROUGHT COPPER FITTINGS: TO ANSI B16.29.
2. CAST COPPER, BRASS AND BRONZE FITTINGS: TO ANSI B16.23.
3. SOLDER JOINTS: TO ASTM B32.
4. BRAZED JOINTS: TO ASTM B664.

ABS PIPE COMPONENTS.
PIPE: ABS PLASTIC PIPE: TO CAN/CSA-B181.1.
JOINT AND FITTING COMPONENTS:
1. FITTINGS: ABS FITTINGS TO CAN/CSA-B181.1.
2. ABS SOLVENT CEMENT: TO ASTM D2235.
3. ABS - PVC SOLVENT CEMENT: TO ASTM D3138.

PVC PIPE COMPONENTS:
PIPE: PVC PLASTIC PIPE TO CAN/CSA-B181.2.
JOINT AND FITTING COMPONENTS:
1. FITTINGS: PVC FITTINGS TO CAN/CSA-B181.2.
2. PVC SOLVENT CEMENT: TO ASTM D2564.
3. ABS-PVC SOLVENT CEMENT: TO ASTM D3138.

PROCESS DRAIN PIPE COMPONENTS:
4”-10” PIPE: SCH 40 STAINLESS STEEL PER ASTM A312 GR 304 OR 316
JOINT AND FITTING COMPONENTS:
1. FLANGED FITTINGS: TO MEET ASME B16.5 – SA182 #300
2. BUTT WELD FITTINGS: TO MEET ASME B16.9 – SA234 WPB SCH 40

ALL DOMESTIC WATER PIPE, JOINTS, AND FITTINGS
1. ALL PIPES PENETRATING FIRE RATED WALL ASSEMBLIES TO BE MINIMUM REGULAR COPPER PIPE OR TYPE L COPPER TUBING. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED ASSEMBLY LOCATIONS.
2. COPPER PIPE: ASTM B42 WITH ASME B16.22 WROUGHT COPPER OR ASME B16.18 CAST COPPER, BRASS AND BRONZE FITTINGS, ASTM B32 SOLDER.
3. COPPER TUBE: ASTM B88 WITH ASME B16.22 WROUGHT COPPER OR ASME B16.18 CAST COPPER, BRASS AND BRONZE FITTINGS, ASTM B32 SOLDER.
4. CPVC SCHEDULE 40 PIPE: ASTM F441/F441M WITH ASTM F438 SOCKET, ASTM F439 SOCKET, OR ASTM F437 THREADED TYPE FITTINGS.
5. CPVC SYSTEM: ASTM D2846/D2846M, SDR 11, PIPE OR TUBE AND SOCKET FITTINGS.
6. PEX DISTRIBUTION SYSTEM: ASTM F877, SDR 9 TUBING ASTM F1807, METAL-INSERT TYPE WITH COPPER CRIMP RINGS AND MATCHING PEX TUBE DIMENSIONS.
7. ACR COPPER: ASTM B280.
8. DWV COPPER: ASTM B306.

JOINTS AND FITTINGS:

.1 WROUGHT COPPER FITTINGS: ASME B16.22.
.2 CAST COPPER, BRASS AND BRONZE FITTINGS: ASME B16.18.
.3 SOLDER JOINTS: ASTM B32.

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2026-05-29
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100570532
PROVINCE OF ONTARIO

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PROJECT

BARN INSULATING AND HEATING

DRAWING

MECHANICAL SPECIFCATIONS

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|---|---|---|
| | B.V | G.G |
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## HVAC LEGEND

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|
| TYPE / NECK SIZE / A-8 / 350 / CFM | SUPPLY AIR DIFFUSER TAG | | RETURN AIR DUCT UP |
| | | | SUPPLY AIR GRILLE |
| TYPE / B / 250 / CFM | SUPPY, RETURN, EXHAUST AIR GRILLE TAG | | RETURN AIR GRILLE |
| | | | CONTROL WIRING |
| | NEW DUCTWORK | T | CONTROL THERMOSTAT |
| BD | BALANCING DAMPER | H | HUMIDISTAT |
| | DUCT w/ EXTERNAL THERMAL INSULATION | | |
| | NEW INTERNAL ACOUSTIC INSULATION | | |
| | SUPPLY AIR DUCT UP | | |

## PLUMBING LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| | NEW DOMESTIC COLD WATER SUPPLY |
| | NEW DOMESTIC HOT WATER SUPPLY |
| | NEW SANITARY |
| | EXISTING DOMESTIC COLD WATER SUPPLY |
| | EXISTING DOMESTIC HOT WATER SUPPLY |
| | EXISTING SANITARY |
| | PIPE TURN DOWN |
| | PIPE TURN UP |

HVAC SEQUENCE OF OPERATIONS

1. SS-1.0/SS-1.1 TO BE CONTROLLED BY LOCAL PROGRAMMABLE THERMOSTAT TO MAINTAIN ROOM TEMPERATURE SETPOINT.
2. HUM-1 TO BE CONTROLLED BY LOCAL HUMIDISTAT TO MAINTAIN ROOM HUMIDITY SETPOINT.
3. SS-1.1 SUPPLY FAN TO BE INTERLOCKED WITH HUM-1 TO RUN ON SIGNAL FROM HUMIDISTAT.
4. HUM-1 OPERATION TO BE INTERLOCKED WITH AIR PROVING SWITCH SIGNAL.
5. ERV-1 TO BE CONTROLLED BY LOCAL CONTROLLER SET TO RUN DURING OCCUPIED HOURS. SS-1.1 FAN TO BE INTERLOCKED WITH ERV-1.

## HEAT PUMP SCHEDULE

| TAG ID | DESCRIPTION | MAKE | MODEL | AIR FLOW (CFM) | OUTSIDE AIR (CFM) | HEATING OUTPUT (MBH) | GROSS COOLING CAPACITY (MBH) | VOLTAGE | MCA (AMPS) | MOP (AMPS) | UNIT WEIGHT kg (lbs) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-1.0 | NEW HEAT PUMP - OUTDOOR UNIT | CARRIER | 37MURAQ24AA3 | - | - | - | - | 230/1/60 | 19 | 20 | 46.4 (102.29) | PAD MOUNT, COORDINATE WITH STRUCTURAL DRAWINGS. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. |
| SS-1.1 | NEW HEAT PUMP - INDOOR UNIT w/8KW AUXILIARY ELECTRIC HEATER | CARRIER | 45MUAAQ24XX3 | 629 - 824 | - | 26 | 24 | 120/1/60 | 4 | - | 47.9 (105.6) | SUSPEND FROM EX. BEAMS - COORDINATE WITH STRUCTURAL DRAWINGS. INDOOR UNIT POWERED SEPARATELY FROM OUTDOOR UNIT. 8KW AUXILIARY ELECTRIC HEATER P#EHKMC08KN POWERED SEPARATELY. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. |

REMARKS: ALTERNATE EQUIPMENT OF EQUAL PERFORMANCE IS ACCEPTABLE. EQUIPMENT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO SUPPLY LOCAL POWER.

## ENERGY RECOVERY VENTILATOR SCHEDULE

| TAG ID | DESCRIPTION | MAKE | MODEL | AIR FLOW (CFM) | OUTSIDE AIR (CFM) | VOLTAGE | MCA (AMPS) | MOCP (AMPS) | UNIT WEIGHT kg (lbs) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| ERV-1 | NEW ERV | LIFEBREATH | 330 ERV-ECM | 260 | 260 | 120/60/1 | 9.5 | 15 | 54 (120) | INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS |

REMARKS:
ALTERNATE EQUIPMENT OF EQUAL PERFORMANCE IS ACCEPTABLE. EQUIPMENT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO SUPPLY LOCAL POWER.

## DEHUMIDIFIER SCHEDULE

| TAG ID | DESCRIPTION | MAKE | MODEL | TOTAL AIRFLOW (CFM) | WATER REMOVAL @ 80F and 60%RH | RATED POWER | VOLTAGE | FLA | MOCP (AMPS) | UNIT WEIGHT kg (lbs) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DH-1a/b | NEW DEHUMIDIFIER | SANTA FE | ULTRAMD33 | 150 | 4.6 USG | 260W | 120/1/60 | 2.2 | - | ~18 (39) | c/w SURFACE MOUNT KIT. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. |

REMARKS: ALTERNATE EQUIPMENT OF EQUIVALENT PERFORMANCE IS ACCEPTABLE. EQUIPMENT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO SUPPLY LOCAL POWER.

## HUMIDIFIER SCHEDULE

| TAG ID | DESCRIPTION | MAKE | MODEL | HUMIDIFICATION LOAD (USG/DAY) | RATED POWER (KW) | VOLTAGE | MCA (AMPS) | MOCP (AMPS) | UNIT WEIGHT kg (lbs) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| HUM-1 | NEW HUMIDIFIER | HONEYWELL | HM750A1000 | 22 | 3 | 240/1/60 | 12 | 15 | 8.4 (18.5) | c/w HUMIDISTAT, DRAIN/FILL VALVE KIT, DUCT NOZZLE KIT, AND DIFFERENTIAL AIR PROVING SWITCH. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. |

REMARKS: ALTERNATE EQUIPMENT OF EQUIVALENT PERFORMANCE IS ACCEPTABLE. EQUIPMENT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO SUPPLY LOCAL POWER.

## DIFFUSER AND GRILLE SCHEDULE

| TAG | DESCRIPTION | SIZE | CFM | MAKE | MODEL |
|---|---|---|---|---|---|
| A | SPIRAL DUCT SUPPLY GRILLE w/ AIR SCOOP, OPPOSED BLADE DAMPER | 12"X4" | 200 | E.H. PRICE | SDG VCS3 AS |
| B | RETURN GRILLE | 14"X18" | 800 | E.H. PRICE | 510Z |

NOTE: ALTERNATE EQUIPMENT OF EQUAL PERFORMANCE IS ACCEPTABLE.

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PROJECT

BARN INSULATING AND HEATING

DRAWING

MECHANICAL SCHEDULES

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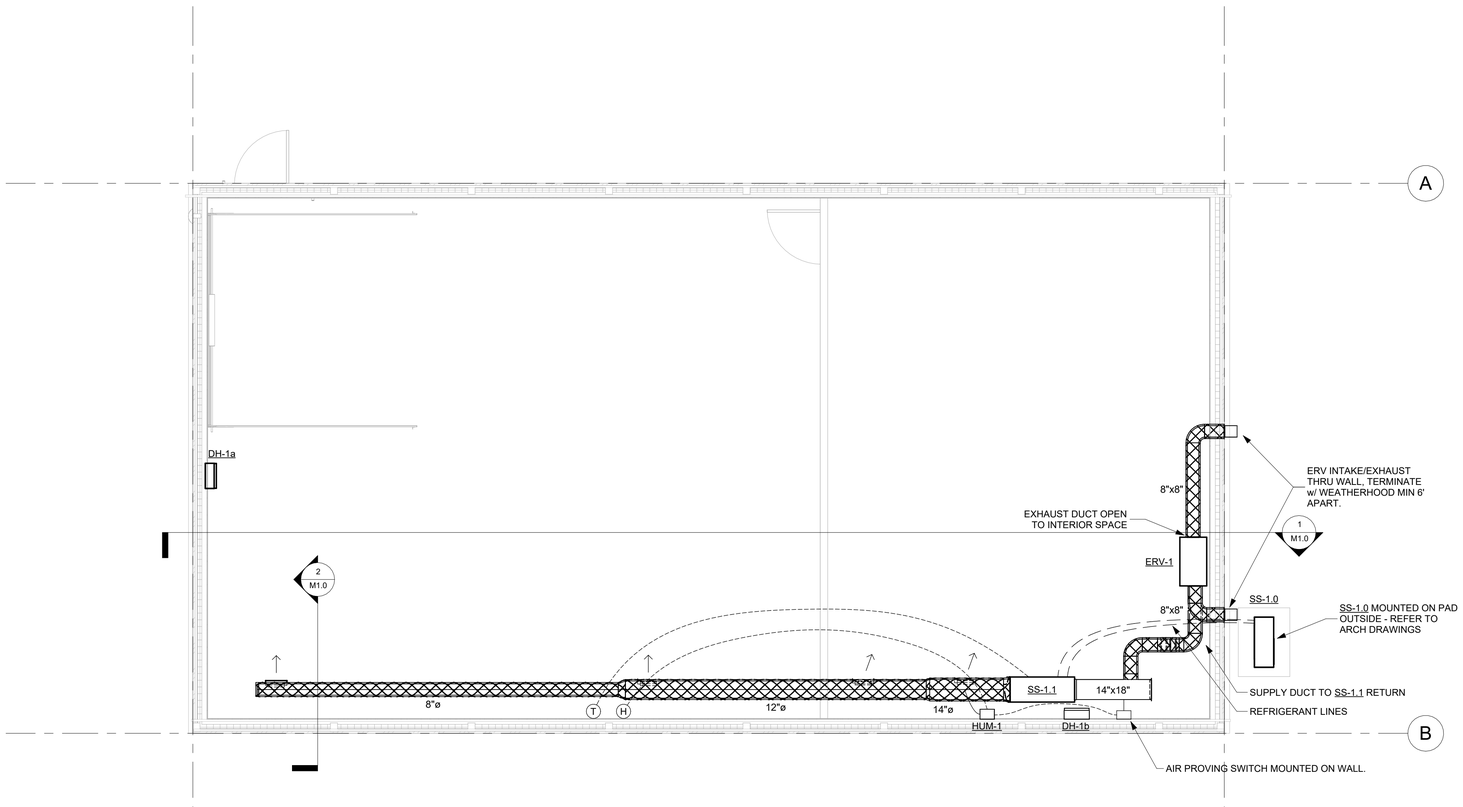
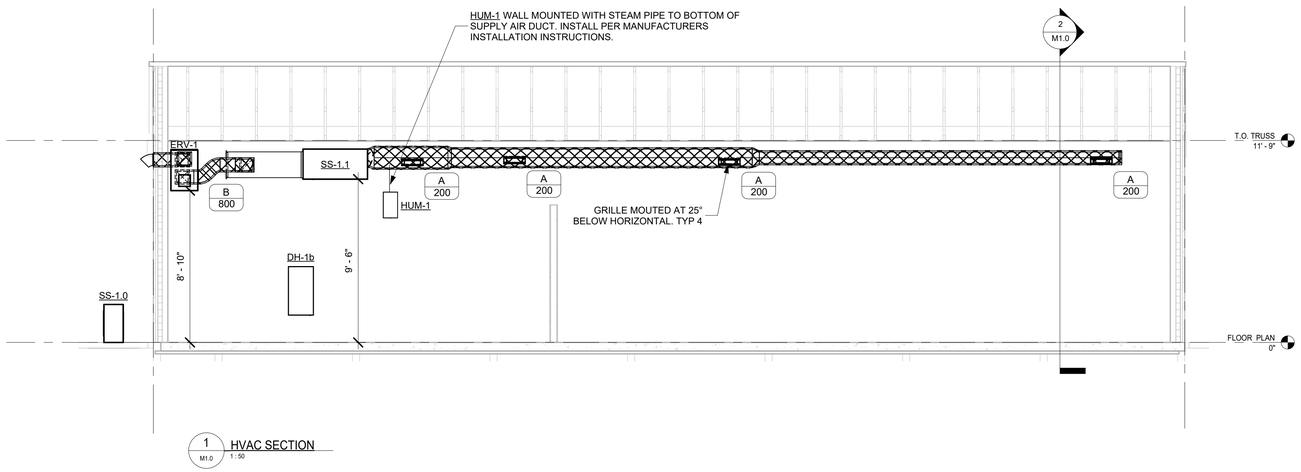



1 HVAC LAYOUT
1 : 50




1 HVAC SECTION
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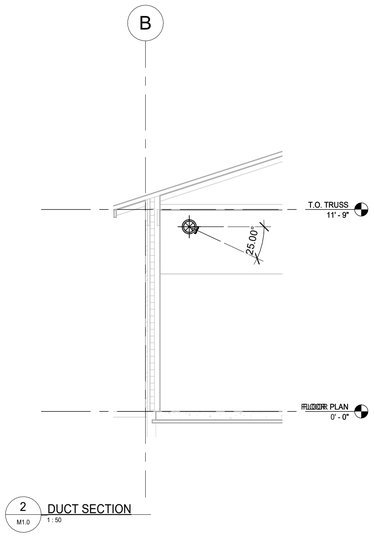


2 DUCT SECTION
M1.0 1 : 50

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HVAC LAYOUT

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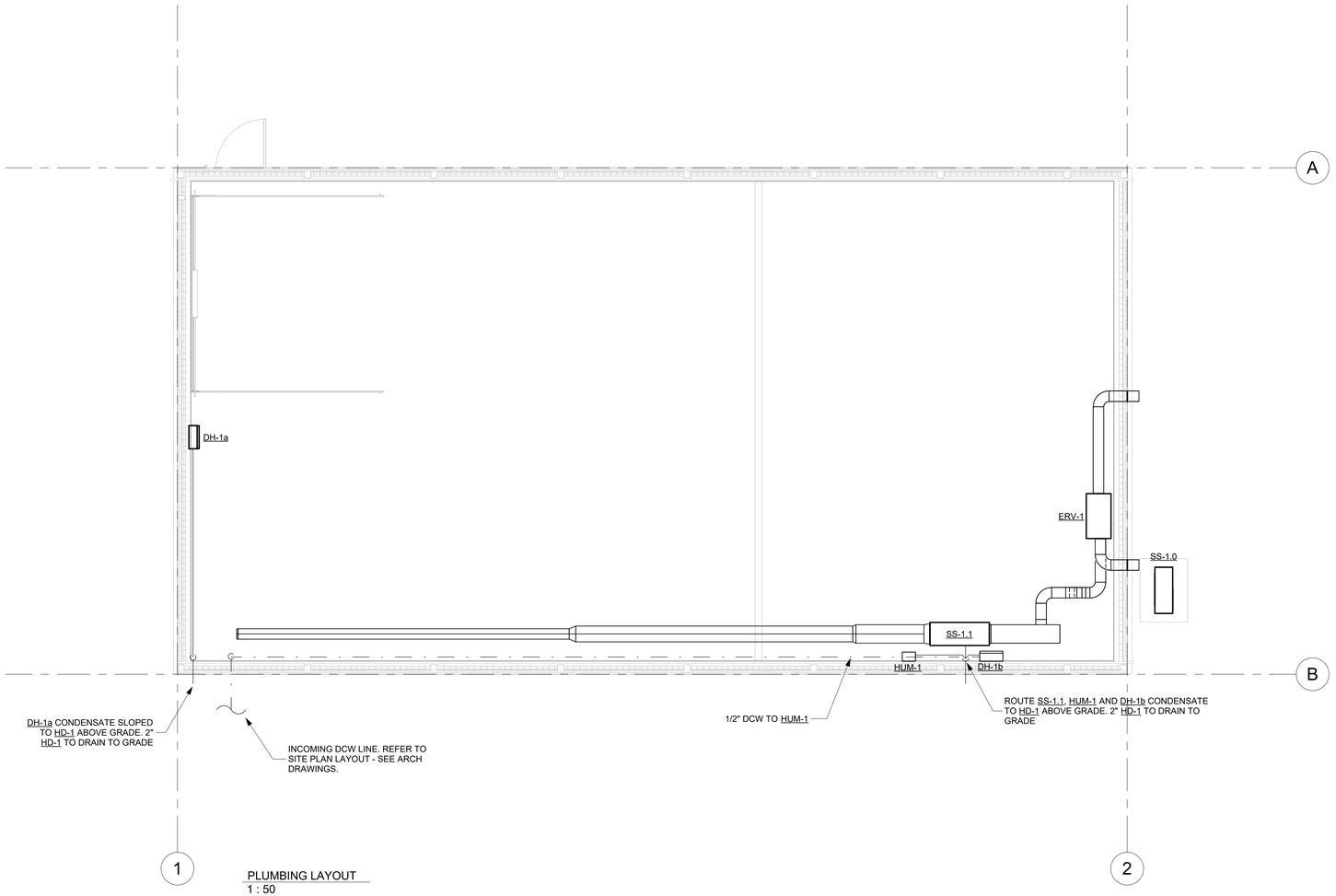
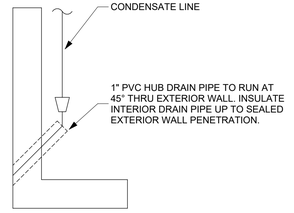



PLUMBING LAYOUT
1 : 50




HUB DRAIN DETAIL
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