



MECHANICAL RENOVATION

465 DAVIS DRIVE SUITE 301, NEWMARKET, ON L3Y 7T9

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MECHANICAL

ISSUED FOR TENDER

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GENERAL REQUIREMENTS FOR MECHANICAL WORK

PERFORM ALL MECHANICAL WORK DETAILED ON THESE DRAWINGS TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL OPERATING SYSTEM TO THE SATISFACTION OF THE MECHANICAL CONSULTANT.

SPECIFIED WORK DESCRIBED OR INDICATED ON DRAWINGS DOES NOT DELEGATE FUNCTION TO ANY SPECIFIED SUBCONTRACTOR OR IDENTIFY ABSOLUTE CONTRACTUAL LIMITS BETWEEN MECHANICAL OR SUBCONTRACTORS.

ENGINEERS FINAL INSPECTION IS IMPERATIVE. PRIOR TO INSTALLATION OF ALL CEILINGS, THIS CONTRACTOR SHALL CONTACT BGIS ENGINEERING SERVICES OR BGIS DIRECT AND THE LANDLORD TO PERFORM A FINAL INSPECTION. WHEN CEILING TILES HAVE BEEN INSTALLED IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE PORTIONS FOR INSPECTION.

BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION. COMPLY WITH LANDLORDS REQUIREMENTS FOR SYSTEM SHUTDOWN AND CONNECTION.

CODES AND BYLAWS SHALL BE STRICTLY ADHERED TO. OBTAIN NECESSARY PERMITS, APPROVALS AND INSPECTIONS FROM THE AUTHORITIES HAVING JURISDICTION.

PERMITS AND FEES REQUIRED BY THE AUTHORITIES HAVING JURISDICTION SHALL BE OBTAINED AND PAID FOR BY THIS CONTRACTOR. INCLUDE ALL APPLICABLE TAXES.

EXISTING SITE CONDITIONS AFFECTING THE WORK OF THIS TRADE SHALL BE REVIEWED PRIOR TO TENDER SUBMISSION. FAILURE TO DO SO SHALL NOT RELIEVE CONTRACTOR OF FULL CONTRACT RESPONSIBILITY.

CUTTING, PATCHING AND CORE DRILLING REQUIRED BY THIS TRADE SHALL BE PAID FOR BY THIS CONTRACTOR. X-RAY CONCRETE STRUCTURE IN ACCORDANCE WITH OWNER/LANDLORD STRUCTURAL ENGINEER'S REQUIREMENTS. PROVIDE DETAILS OF NEW OPENING THROUGH STRUCTURAL COMPONENTS FOR ENGINEERS APPROVAL. INCUR ALL COSTS RELATED FOR STRUCTURAL APPROVAL.

FIRE STOP SHALL BE ULC LISTED FOR THE REQUIRED SEPARATION AND PROVIDED AT ALL PIPE PENETRATIONS THROUGH RATED ASSEMBLIES.

PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS.

FLASHING AND CONTER FLASHING FOR EXTERIOR PENETRATIONS OR WATER-PROOFED FLOORS SHALL BE PROVIDED UNDER THIS CONTRACT.

SHOP DRAWINGS SHALL BE COMPLETE WITH CONTRACTORS REVIEWED STAMP. SUBMIT 6 COPIES. ALLOW ONE (1) WEEK FOR ENGINEERS REVIEW.

EQUIPMENT SUBSTITUTIONS AFTER AWARD OF CONTRACT WILL NOT BE CONSIDERED WITHOUT WRITTEN EXPLANATION AND CONSULTANTS WRITTEN AUTHORIZATION. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTED PRODUCT SHALL BE EQUIVALENT TO THE SPECIFIED PRODUCT. ALL SUBSTITUTE PRODUCTS SHALL BE APPROVED BY CONSULTANTS. ANY ADDITIONAL COSTS INCURRED BY ALL TRADES FOR SUBSTITUTED EQUIPMENT INSTALLATION MUST BE INCURRED BY THIS CONTRACTOR.

CONTROL WIRING AND DEVICES SHALL BE PROVIDED UNDER THIS CONTRACT. WHEN REQUIRED, CONTROL WORK SHALL BE COMPLETED BY OWNERS/LANDLORDS APPROVED CONTRACTOR AND PAID FOR UNDER THIS CONTRACT.

ELECTRICAL DEVICES SHALL BE PROVIDED FOR ALL LOAD SIDES INCLUDING WIRING, STARTERS, DISCONNECT, ETC. VERIFY AND COORDINATE VOLTAGE AND PHASE WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

ACCESS DOORS SHALL BE PROVIDED FOR ALL INACCESSIBLE MECHANICAL EQUIPMENT, VALVES AND SERVICES REQUIRING INSPECTION OR SERVICE. FINISH SHALL SUIT ARCHITECT/DESIGNERS REQUIREMENTS. ACCESS DOORS SHALL BE RECESSED AS REQUIRED TO SUIT WALL FINISH (E.G. TILE).

ARCHITECT/DESIGNER APPROVAL OF AIR TERMINAL, THERMOSTAT, AND ACCESS DOOR LOCATIONS MUST BE OBTAINED PRIOR TO INSTALLATION.

ONE YEAR WRITTEN WARRANTY SHALL BE PROVIDED FOR THE COMPLETE MECHANICAL INSTALLATION FROM DATE OF ACCEPTANCE.

CAD AS-BUILT DRAWINGS SHALL BE COMPLETED UTILIZING AUTOCAD. OBTAIN AND PAY FOR DRAWING DISKETTE (\$50.00 PER DRAWING). RECORD ACCURATELY INSTALLED WORK ON WHITE PRINTS TRANSFERRING TO AUTOCAD. SUBMIT BOTH COPIES.

OPERATING AND MAINTENANCE MANUALS CONTAINING APPROVED SHOP DRAWINGS, AIR AND WATER (HYDRONIC) BALANCING REPORTS, EQUIPMENT DATA SHEETS, WRITTEN WARRANTY, OPERATING INSTRUCTIONS AND MAINTENANCE PROCEDURES SHALL BE SUBMITTED TO CONSULTANT FOR REVIEW. MANUALS SHALL BE SEPARATED WITH DIVIDERS IN APPROPRIATE SECTIONS. MAKE ALL CORRECTIONS REQUESTED BY CONSULTANT AND RESUBMIT FOR REVIEW.

CHANGE NOTICE QUOTATIONS SHALL BE SUBMITTED COMPLETE WITH COST BREAKDOWN OF LABOUR AND MATERIALS. FAILURE TO PROVIDE WILL RESULT IN REJECTION. ALL MECHANICAL CHANGE NOTICES SHALL BE PRICED IN ACCORDANCE WITH MECHANICAL CONTRACTORS ASSOCIATION (MCA) LABOUR UNITS STRICTLY FOR LABOUR AND FOR MATERIAL. COST USE "ALL PRICER" LESS DISCOUNT, TYPICALLY 20%-30%.

TEMPORARY FILTERS 25MM (1 IN.) SHALL BE PROVIDED AT ALL BASE BUILDING RETURN AIR OPENINGS WHICH REMAIN OPERATIONAL DURING CONSTRUCTION. FILTERS TO BE REPLACED WEEKLY. REMOVE UPON CONSTRUCTION COMPLETION.

BASE BUILDING HVAC COMPONENTS REMOVED: IE. LIGHT TROFFERS, DIFFUSERS, VAV BOXES ETC. SHALL BE TURNED OVER TO THE LANDLORD/OWNER AT THEIR DIRECTIONS.

COMPLY WITH THE GENERAL CONTRACTORS CONSTRUCTION SCHEDULE.

COORDINATION

1. COORDINATE AND SCHEDULE THE WORK OF THIS DIVISION WITH OTHER WORK TO FACILITATE MUTUAL PROGRESS.

2. IDENTIFY AND RESOLVE INTERFERENCE PROBLEMS PRIOR TO PREFABRICATION AND INSTALLATION OF EQUIPMENT. SUBMIT INTERFERENCE DRAWINGS FOR REVIEW PRIOR TO INSTALLING ANYTHING ON SITE. DO NOT PROCEED UNTIL DRAWINGS HAVE BEEN REVIEWED.

3. EXAMINE THE SITE AND ALL CONTRACT DOCUMENTS PRIOR TO BID SUBMISSION. NO ALLOWANCE WILL BE MADE FOR ANY DIFFICULTIES ENCOUNTERED DUE TO ANY FEATURES OF THE BUILDING, METHODS OF CONSTRUCTION, SITE OR SURROUNDING PUBLIC AND PRIVATE PROPERTY WHICH EXISTED UP TO THE BID CLOSE.

DUCTWORK

NEW MATERIAL AND EQUIPMENT SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH BASE BUILDING STANDARDS.

DUCTWORK AND HANGERS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS.

PROVIDE SPRING HANGERS FOR DUCT SUPPORT LOCATIONS ON INLET AND OUTLET SIDES OF MECHANICAL EQUIPMENT.

FLEXIBLE DUCTWORK SHALL BE FLEXMASTER TRIPLE LOC OR EQUIVALENT. RIGID TO RIGID DUCT USING GEAR CLAMPS. AT THE INLET OF EACH VAV TERMINAL, CONTROL UNIT, PROVIDE A MINIMUM OF 3 DIAMETERS OF STRAIGHT FLEX DUCT. MAXIMUM LENGTH 1200 MM (4 FT. 0 IN.). FLEXIBLE DUCTS SERVING DIFFUSERS SHALL BE INSTALLED AS ONE CONTINUOUS PIECE AND SHALL NOT EXCEED 10' OF LENGTHS.

FIRE DAMPER SHALL BE OUT OF STREAM ULC LABELED. PROVIDE FIRE DAMPERS AS REQUIRED IN NEW AND EXISTING DUCTWORK CIV ACCESS SYSTEMS.

ACOUSTIC DUCT LINING SHALL BE PROVIDED WHERE WHEREVER SHOWN AND/OR SPECIFIED ON THE DRAWINGS IN ADDITION TO ALL SUPPLY DUCTWORK DOWNSTREAM OF FAN POWERED BOXES AND/OR HEAT PUMPS FOR A DISTANCE OF 4.3M [15 FT.] MEASURED ALONG THE DUCT AND OUTWARD IN ALL DIRECTIONS. ALL TRANSFER AIR DUCTS: MINIMUM 25 MM (1 IN.) THICK ACOUSTIC LINING MATERIAL. MEETING ASTM C1071 AND NFPA 90A REQUIREMENTS AND FLAME SPREAD AND SMOKE DEVELOPED FIRE HAZARD RATINGS OF CANULC-S102. RIGID PREFORMED FOR ROUND DUCTS AND BOARD TYPE FOR RECTANGULAR DUCTS CONSISTING OF A BONDED FIBERGLASS MAT COATED ON THE INSIDE (ARISED) FACE WITH ACRYLIC COATING TREATED WITH EPA REGISTERED ANTIMICROBIAL AGENT PROVEN TO RESIST MICROBIAL GROWTH AS DETERMINED BY ASTM G21 AND G22. SECURE WITH MECHANICAL FASTENERS AND ADHESIVE (MEETING ASTM D1916) IN ACCORDANCE WITH THE REQUIREMENTS OF ANSISMACMA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE. SEAL RAW EDGES: AT LEADING AND TRAILING EDGES OF DUCT LINER SECTIONS. PROVIDE GALVANIZED STEEL HOUSING CHANNEL AS PER THE DETAIL. ENTITLED FLEXIBLE DUCT LINER INSTALLATION FOUND IN THE ANSISMACMA MANUAL REFERRED TO ABOVE. NOTE DUCT DIMENSIONS ARE CLEAR INSIDE. NOISE REDUCTION COEFFICIENT OF .70 AS PER ASTM C423. (TYPE A MOUNTING)

THERMAL INSULATION WITH VAPOUR BARRIER SHALL BE PROVIDED ON ALL NEW SUPPLY AIR DUCTWORK TO MATCH BASE BUILDING STANDARDS OR REFER TO INSULATION SECTION.

FLEXIBLE DUCT CONNECTIONS SHALL BE DYNODYNE NEOPRENE AND INSTALLED BETWEEN ALL AIR HANDLING EQUIPMENT AND SYSTEM DUCTWORK.

AIR TRANSFER OPENINGS INDICATED WITHOUT DUCT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO ADVISE AND CONFIRM PROVISION BY GENERAL TRADES.

BALANCING AND VOLUME CONTROL DAMPERS SHALL BE PROVIDED IN NEW OR EXISTING DUCTWORK TO PROVIDE A COMPLETE AND BALANCED SYSTEM. BALANCING CONTRACTOR SHALL BE A MEMBER OF ABC OR NEBC. SUBMIT BALANCING REPORT IN TRIPLICATE TO THE CONSULTANT AND THE LANDLORD INDICATING TERMINAL DESIGN AND MEASURED FLOW RATES. WHEN REQUIRED, BALANCING WORK SHALL BE COMPLETED BY OWNERS/LANDLORDS APPROVED CONTRACTOR AND PAID FOR UNDER THIS CONTRACT. PROVIDE SIX (6) ADDITIONAL HOURS OF BALANCING WORK. THIS WORK SHALL BE PERFORMED AFTER THE TENANT HAS MOVED IN, AS MAY BE REQUIRED FOR COMFORT BALANCING.

FAN SHEAVERS SHALL BE ADJUSTED OR REPLACED AS REQUIRED TO OBTAIN DESIGN AIR QUANTITIES. COORDINATE THIS WORK WITH OWNERS/LANDLORD.

HVAC PIPING SYSTEMS

PRIOR TO START CONSTRUCTION AND ORDERING ANY EQUIPMENT CONTRACTOR MUST PROVIDE PRESSURE TESTING READINGS ON THE PIPING SYSTEM THAT WILL NEED TO BE MODIFIED/EXTENDED AS PART OF THIS PROJECT. PROVIDE A COMPLETE REPORT WHICH INCLUDES THE RESULT OF TESTING INCLUDING MAXIMUM OPERATION PRESSURE RATING AND DIFFERENTIAL PRESSURE FOR BOTH SUPPLY AND RETURN PIPING. SUBMIT THE REPORT TO ENGINEERS IMMEDIATELY FOR REVIEW.

PIPING MATERIAL FOR HEATING, CHILLED AND HEAT PUMP CIRCUITS SHALL BE:

PIPE: (12 MM) [1/2"] TO [50 MM] [2"] ASTM A53, STANDARD WALL STEEL. ELECTRIC RESISTANCE WELD FOR INTERNAL PRESSURE UP TO (4100 KPA) [600 PSI] AND ASTM A106 WHERE PRESSURE EXCEEDS (4100 KPA) [600PSI]. FITTINGS AND COUPLINGS SHALL BE THREADED MALLEABLE IRON MEETING ASA B16.3 FOR PRESSURE CLASSES: (1035 KPA) [150 PSI] AND (2068KPA) [300PSI]. USE CAST IRON MEETING ASA B16.4 FOR PRESSURES CLASSES OF (1206 KPA) [175 PSI] OR (2758 KPA) [400PSI]. COPPER CONNECTIONS TO STEEL MUST BE ACCOMPANIED WITH DIELECTRIC UNIONS.

PIPE: (6.5 MM) [2-1/2"] AND LARGER PIPE AS ABOVE. ENDS BEVELLED FOR WELDING. FITTINGS AND LINE JOINTS: WROUGHT STEEL MEETING ASA B16.9 FOR WELDING, OR FLANGED FITTINGS AND SLIP ON FLANGES MEETING ASA B16.5. SELECT PRESSURE CLASSIFICATION TO MEET SYSTEM WORKING PRESSURES.

PRIOR TO ORDERING ANY MATERIAL, OR CONNECTING TO AN EXISTING HYDRONIC SYSTEM, THE MECHANICAL CONTRACTOR SHALL CONFIRM THE EXISTING WORKING PRESSURE OF THE SYSTEM AND PROVIDE MATERIAL SUITABLE FOR THE SYSTEMS WORKING PRESSURE. WHERE THE WORKING PRESSURE IS UNKNOWN DURING TENDER THE CONTRACTOR SHALL BASE THEIR TENDER PRICE ON THREADED MALLEABLE IRON RATED FOR 300PSI.

CONDENSATE DRAINS SHALL BE DWV COPPER DRAINAGE TUBE WITH CAST BRASS FITTINGS AND 50/50 SOLDERED JOINTS.

ALL THE VALVES SIZE SHALL MATCH THE PIPE SIZE AS SHOWN ON THE DRAWINGS.

ALLOW FOR FREEZING HVAC PIPING WHERE THERE IS NO EXISTING SHUT OFF VALVE OR THE EXISTING VALVE IS FAULTY.

VALVES CRANE OR JENKINS (JENKINS FIGURE NUMBER LISTED BELOW)

1. TO 1379 KPA [200 PSi] WORKING PRESSURE:

Table with 4 columns: GATE, GLOBE, BALL, and a numerical value. Rows for 50 MM [2 IN.] AND SMALLER, 65 MM [2-1/2 IN.] AND LARGER.

2. TO 2068 KPA [300 PSi] WORKING PRESSURE:

Table with 4 columns: GATE, GLOBE, BALL, and a numerical value. Rows for 50 MM [2 IN.] AND SMALLER, 65 MM [2-1/2 IN.] AND LARGER.

3. PROVIDE BALL OR BUTTERFLY VALVES FOR ALL SHUT-OFF REQUIREMENTS. GATE VALVES WILL NOT BE APPROVED.

4. PROVIDE 20 MM [3/4" IN.] HOSE END DRAIN VALVES WITH CAP AND CHAIN AT ALL SYSTEM LOW POINTS.

5. PROVIDE DIELECTRIC COUPLINGS FOR CONNECTION OF DISSIMILAR PIPING MATERIALS.

6. GLOBE VALVES TO BE USED ONLY IF IDENTIFIED SPECIFICALLY ON DRAWINGS. CLARIFY WITH ENGINEER PRIOR TO PURCHASE DUE TO LARGE PRESSURE DROP.

INSULATION SHALL BE PROVIDED TO MATCH BASE BUILDING STANDARDS OR REFER TO INSULATION SECTION.

FLUSH CLEAN AND PRESSURE TEST ALL HVAC PIPING SYSTEMS. CHEMICALLY CLEAN ALL PIPING SYSTEMS UTILIZING LOW FOAMING CHEMICAL DETERGENTS WHICH SHALL NOT ADVERSELY AFFECT SYSTEM COMPONENTS.

PERFORM PRESSURE TESTING ON ALL NEW AND MODIFIED PIPES TO ENSURE TIGHTNESS OF ALL NEW JOINTS USING HYDROSTATIC TEST AT 150% OF DESIGN WORKING PRESSURE BUT NOT LESS THAN 70KPA (100 PSI). TEST WITHOUT PRESSURE DROP FOR MIN. 4 HOURS AND REMOVE AND REPLACE DEFECTIVE PARTS AND COMPONENTS THAT WILL NOT WITHSTAND PRESSURE.

CONNECTIONS TO EXISTING SYSTEMS REQUIRE CONTRACTOR TO ALLOW FOR DRAINDOWN OF EXISTING SYSTEM. METER DRAINDOWN. PROVIDE NEW CONNECTION. CHEMICALLY TREAT AND REFILL SYSTEM. REFILL THE SYSTEM TO MATCH THE EXISTING FLUID TYPE (EG 40% GLYCOL). CONTRACTOR TO CARRY COST OF WATER AND GLYCOL ETC.. CONTRACTOR TO COORDINATE WITH BASE BUILDING OPERATOR PRIOR TO DRAINDOWN OF SYSTEM. HOT TAPS MAY BE ALLOWED, ONLY IF SPECIFICALLY APPROVED BY MECHANICAL ENGINEER.

INSULATION

COMPLY WITH ASHRAE 90.1 2010 INSULATION REQUIREMENTS.

FLUSH CLEAN AND PRESSURE TEST ALL HVAC PIPING SYSTEMS. CHEMICALLY CLEAN ALL PIPING SYSTEMS UTILIZING LOW FOAMING CHEMICAL DETERGENTS WHICH SHALL NOT ADVERSELY AFFECT SYSTEM COMPONENTS.

PERFORM PRESSURE TESTING ON ALL NEW AND MODIFIED PIPES TO ENSURE TIGHTNESS OF ALL NEW JOINTS USING HYDROSTATIC TEST AT 150% OF DESIGN WORKING PRESSURE BUT NOT LESS THAN 70KPA (100 PSI). TEST WITHOUT PRESSURE DROP FOR MIN. 4 HOURS AND REMOVE AND REPLACE DEFECTIVE PARTS AND COMPONENTS THAT WILL NOT WITHSTAND PRESSURE.

CONNECTIONS TO EXISTING SYSTEMS REQUIRE CONTRACTOR TO ALLOW FOR DRAINDOWN OF EXISTING SYSTEM. METER DRAINDOWN. PROVIDE NEW CONNECTION. CHEMICALLY TREAT AND REFILL SYSTEM. REFILL THE SYSTEM TO MATCH THE EXISTING FLUID TYPE (EG 40% GLYCOL). CONTRACTOR TO CARRY COST OF WATER AND GLYCOL ETC.. CONTRACTOR TO COORDINATE WITH BASE BUILDING OPERATOR PRIOR TO DRAINDOWN OF SYSTEM. HOT TAPS MAY BE ALLOWED, ONLY IF SPECIFICALLY APPROVED BY MECHANICAL ENGINEER.

INSULATION

COMPLY WITH ASHRAE 90.1 2010 INSULATION REQUIREMENTS.

ACCEPTABLE INSULATION MANUFACTURERS ARE OWENS CORNING CANADA, JOHNS MANVILLE, MANSON INSULATION INC. KNAUF FIBER GLASS AND CERTAINEED.

PROVIDE INSULATION AND COVERS IN STRICT ACCORDANCE WITH AUTHORITIES GOVERNING COMBUSTIBILITY AND FIREPROOFING OF MATERIALS AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

PROVIDE NON-COMBUSTIBLE INSULATION, JACKETS AND FINISHES HAVING A FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/00 OR LESS, MEETING CANULC S-102 REQUIREMENTS.

ATTAIN A COMPLETE AND CONTINUOUS VAPOUR BARRIER OVER INSULATION APPLIED TO COLD AND DUAL TEMPERATURE PIPING. SHEET METAL AND EQUIPMENT. USE EITHER FACTORY APPLIED VAPOUR BARRIER JACKET OF FIELD APPLIED REINFORCED FOLIC FLAME RESISTANT KRAFT VAPOUR BARRIER JACKET. APPLY TO PIPING FITTINGS, VALVES AND INLINE COMPONENTS. SHEET METAL AND FITTINGS AND EQUIPMENT. SEAL LONGITUDINAL AND CIRCUMFERENTIAL LAPS WITH CHILDERS CP82 OR BAKOR 230-39 ADHESIVE. IF VAPOUR BARRIER JACKET IS NOT LAPPED, SEAL JOINTS WITH SELF-ADHERING 4" WIDE PLAIN ALUMINUM FOL TAPE, OR ADHERE 4" WIDE ALUMINUM FOL TAPE WITH CHILDERS CP82 OR BAKOR 230-39 ADHESIVE. JACKETING WITH SELF-ADHESIVE LAPS AND SELF-ADHESIVE BARRIER TAPE WILL BE AN ACCEPTABLE ALTERNATIVE CLOSURE SYSTEM.

PROVIDE INSULATION MATERIALS WITH A MINIMUM THERMAL CONDUCTIVITY OF 0.25 BTU/(HR. SQ.FT.F) AT 125°F MEAN TEMPERATURE.

ON HOT PIPING APPLICATIONS, HOLD INSULATION IN PLACE WITH FLARE TYPE STAPLES (OUTWARD CLINCH).

ON COLD PIPING APPLICATIONS, APPLY VAPOUR BARRIER JACKET OVER INSULATION AND SEAL LONGITUDINAL AND CIRCUMFERENTIAL LAPS WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE. SEAL ALL PIPE TERMINATIONS, INCLUDING FITTINGS, WALL PENETRATIONS AND PIPE SUPPORTS WITH VAPOUR BARRIER MASTIC. FOR CHILLED WATER SYSTEMS PROVIDE VAPOUR SEAL PIPE TERMINATIONS EVERY FOUR PIPE SECTIONS.

APPLY PIPE INSULATION OVER 1-1/2" THICKNESS IN TWO LAYERS WITH JOINTS STAGGERED.

INSULATE FITTINGS WITH FABRICATED MITERED OR PREFORMED SECTIONS OF SPECIFIED INSULATION.

INSULATE OVER FLANGES AND MECHANICAL COUPLINGS WITH SPECIFIED INSULATION AND THICKNESS. SIZED TO SUIT FLANGE DIAMETERS. FILL SPACES BETWEEN INSULATION AND ADJOINING PIPE INSULATION WITH SIMILAR MATERIAL.

INSULATE VALVES AND INLINE COMPONENTS WITH FLEXIBLE INSULATION DENSITY (34 LBS./CU.FT.) COMPRESSED NOT MORE THAN 50% OF ORIGINAL THICKNESS. BUILD UP TO SPECIFIED THICKNESS WITH APPROVED ASBESTOS FREE FINISHING CEMENT.

DO NOT INSULATE TERMINAL UNIT AUTOMATIC CONTROL VALVES INSTALLED IN HOT PIPING. DO NOT INSULATE TERMINAL UNIT AUTOMATIC CONTROL VALVES WHICH ARE INSTALLED IN COLD PIPING AND WHICH ARE LOCATED OVER CONDENSATE DRAIN PANS.

UNDER ALL HANGERS USED ON CHILLED WATER AND DOMESTIC COLD WATER, PROVIDE AN INSERT BETWEEN SUPPORT SHELD AND PIPING FOR PIPING 1-1/2" OR LARGER.

PROVIDE THE FOLLOWING PIPE INSULATION TYPE AS INDICATED IN THE PIPE INSULATION TABLE BELOW.

PROVIDE THE FOLLOWING PIPE INSULATION TYPE AS INDICATED IN THE PIPE INSULATION TABLE BELOW.

PROVIDE NEW WHITE PVC JACKET COMPLETE WITH PIPE LEGEND ON ALL EXISTING AND NEW PIPING WITH INSULATION WITHIN OPEN CEILING SPACE, MECHANICAL ROOMS AND WHERE THE INSULATED PIPE IS EXPOSED.

WRAP ALL EXISTING AND NEW INSULATED DUCTWORK WITHIN OPEN CEILING AREA WITH 3M VENTURECLAD INSULATION JACKETING TAPE.

TYPE P1 OWENS CORNING 850 PIPE INSULATION, JOHNS MANVILLE MICRO-LOK AP-T PLUS FIBERGLAS PIPE INSULATION, MANSON FIBERGLAS PIPE INSULATION OR KNAUF PIPE INSULATION WITH FACTORY APPLIED ALL PURPOSE VAPOUR BARRIER JACKET WHERE SCHEDULED.

Table with 4 columns: DUTY, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for DOMESTIC COLD WATER (ABOVE 40°F) and DOMESTIC HOT WATER.

Table with 4 columns: BUILDING HOT WATER, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for < 1 1/2" P-1 and => 1 1/2" P-1.

Table with 4 columns: CHILLED WATER (ABOVE 40°F), INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for 6" AND LESS P-1 and 8" AND LARGER P-1.

Table with 4 columns: CONDENSER WATER, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for 4" AND LESS P-1 and 5" AND LARGER P-1.

Table with 4 columns: HORIZONTAL STORM AND SANITARY DRAINAGE, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for ALL PIPE SIZES P-1.

Table with 4 columns: HORIZONTAL CONDENSATE DRAINS, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for ALL PIPE SIZES P-1.

Table with 4 columns: REFRIGERANT SUCTION PIPE, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for ALL SIZES P-1.

Table with 4 columns: HEAT TRACED PIPE FOR FREEZE PROTECTION, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for 3" AND LESS P-1 and 4" AND ABOVE P-1.

Table with 4 columns: SHEET METAL INSULATION, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for 50 MM [2 IN.] AND SMALLER, 65 MM [2-1/2 IN.] AND LARGER.

APPLY VAPOUR BARRIER OVER INSULATION ON COLD TEMPERATURE DUCTWORK.

CIRCULAR VAPOURERS AND ACOUSTIC PLENUMS NEED NOT BE EXTERNALLY INSULATED.

DUCTWORK AND CASINGS LINED WITH ACOUSTIC INSULATION 1" OR MORE IN THICKNESS NEED NOT BE EXTERNALLY INSULATED.

PROVIDE THE FOLLOWING DUCTWORK INSULATION TYPE AS INDICATED IN THE DUCTWORK INSULATION TABLE BELOW.

TYPE D1 OWENS CORNING RIGID VAPOUR SEAL DUCT INSULATION, JOHN MANVILLE 814 SPIN-GLAS WITH FSK FACING, MANSON SPIN-GLAS RIGID INSULATING BOARD WITH REINFORCED FOL FACING, OR KNAUF RIGID INSULATION BOARD WITH FSK FACING. DENSITY SHALL BE NOT LESS THAN 3LBS./CU.FT. IMPALE ON MECHANICALLY FASTENED PINS LOCATED AT NOT GREATER THAN 12" CENTERS. SECURE WITH SPEED WASHERS. BUTT JOINTS TIGHTLY TOGETHER AND SEAL WASHERS, BREAKS AND JOINTS WITH SELF-ADHERING 4" WIDE PLAIN ALUMINUM TAPE, OR ADHERE FOL WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE.

TYPE D2 OWENS CORNING FLEXIBLE DUCT INSULATION, JOHNS MANVILLE MICROULTE TYPE 75 DUCT WRAP, MANSON MICROULTE INSULATION OR KRAFT DUCT WRAP, (34LB./CU.FT.) DENSITY WITH FACTORY APPLIED REINFORCED FOL FACING. ADHERE INSULATION TO DUCT SURFACE WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE, WHICH SHALL BE APPLIED IN STRIPS 6" WIDE AT NOT GREATER THAN 12" CENTERS. BUTT EDGES OF INSULATION TIGHTLY TOGETHER, AND SEAL BREAKS AND JOINTS OF FACING WITH SELF-ADHERING 4" WIDE ALUMINUM TAPE OR ADHERE FOL WITH CHILDER CP82 OR BAKELITE 230-39 ADHESIVE.

Table with 4 columns: DUTY, INSULATION TYPE, THICKNESS, VAPOUR BARRIER. Rows for PANELS BEHIND UNUSED PORTION OF LOURES, FINAL 10' OF EXHAUST DUCT BEFORE EXTING BUILDING, EXPOSED DUCTWORK, DUCTWORK OUTSIDE OF BUILDING OR EXPOSED TO WEATHER, CONCEALED DUCTWORK UP TO TERMINAL CONTROL UNITS, CONCEALED DUCTWORK FROM AIR TERMINAL CONTROL UNIT DISCHARGE TO AIR TERMINALS EXCLUDING FLEXIBLE DUCTWORK, PROTECT THE WORK OF THIS TRADE FROM BEING DEFACED BY OTHER TRADES.

APPLY INSULATION OVER CLEAN DRY SURFACES, FIRMLY BUTTING ALL SECTIONS TOGETHER.

MANUFACTURE AND INSTALLATION WHEN REQUIRED SHALL BE BY OWNERS/LANDLORDS APPROVED CONTRACTOR.

NEW THERMOSTATS AND CO2 SENSORS SHALL MATCH BASE BUILDING.

MOUNTING HEIGHT OF OCCUPANT ADJUSTABLE THERMOSTATS SHALL BE 1200 MM [3FT. 11 IN.] FROM FINISHED FLOOR. MOUNTING HEIGHT OF NON-ADJUSTABLE THERMOSTATS SHALL BE 1500 MM [5 FT. 0 IN.] FROM FINISHED FLOOR. COORDINATE LOCATION WITH ARCHITECT/DESIGNER. DO NOT INSTALL IN VICINITY OF ELECTRICAL LIGHTING DIMMERS.

CLEAN AND RECALIBRATE ALL EXISTING THERMOSTATS UPON COMPLETION OF CONSTRUCTION. SUBMIT REPORT THAT THIS WORK WAS COMPLETED.

PROVIDE ALL NECESSARY EMT CONDUIT, FITTINGS AND WIRE TO PROVIDE A COMPLETE AND OPERATING CONTROL SYSTEM. HARD WIRE ALL ELECTRICAL CONTROL DEVICES INTO THE ASSOCIATED SYSTEM MAGNETIC STARTER. PROVIDE POWER TO CONTROL PANEL FROM THE NEAREST NORMAL POWER ELECTRICAL DISTRIBUTION PANEL.

PROVIDE BACNET CARD FOR ALL NEW A/C EQUIPMENT SHOWN ON THE DRAWINGS.

CONTROL VALVES

PROVIDE CONTROL VALVES SUITABLE FOR THE OPERATING PRESSURES AND TEMPERATURE CONDITIONS OF THE SYSTEM. ENSURE THAT VALVES WILL CLOSE AGAINST SYSTEM OPERATING DIFFERENTIAL PRESSURES.

SELECT VALVES WITH CHARACTERISTICS TO SUIT THE APPLICATION. STRAIGHT THROUGH TWO PORT WATER VALVES SHALL BE SINGLE SEATED WITH EQUAL PERCENTAGE FLOW CHARACTERISTICS. STRAIGHT THROUGH TWO POSITION. THREE PORT VALVES SHALL BE LINEAR FOR EACH PORT TO GIVE CONSTANT TOTAL FLOW.

PROVIDE VALVES WITH STAINLESS STEEL STEMS, AND PACKING TO SUIT THE APPLICATION.

PROVIDE SCREWED BRONZE BODIES FOR VALVES [50 MM] [2"] AND SMALLER, SUITABLE FOR A MAXIMUM WORKING PRESSURE OF (1210 KPA) [175 PSIG].

PROVIDE FLANGED CAST IRON BODIES FOR VALVES [65 MM] [2-1/2"] AND LARGER, SUITABLE FOR A MAXIMUM WORKING PRESSURE OF (1210 KPA) [175 PSIG].

SUPPLY LINE SIZE TWO POSITION BUTTERFLY VALVES.

MEET THE FOLLOWING DESIGN FLOW PRESSURE DROP FOR VALVE SIZING: CHILLED WATER VALVES - (35 KPA) [5 PSIG] HOT WATER VALVES - (35 KPA) [5 PSIG] VALVES FOR TERMINAL UNITS RADIATION, REHEAT COILS, ETC. - (7 KPA) [1 PSIG] BUTTERFLY VALVES - 3-WAY HIGH PERFORMANCE MODULATING (21 KPA) [3 PSIG]

PLUMBING SYSTEM

PRIOR TO START CONSTRUCTION AND ORDERING ANY EQUIPMENT CONTRACTOR MUST PROVIDE PRESSURE TESTING READINGS ON DOMESTIC COLD WATER SYSTEM THAT WILL NEED TO BE EXTENDED AS PART OF THIS PROJECT. PROVIDE A COMPLETE REPORT WHICH INCLUDES THE RESULT OF TESTING INCLUDING MAXIMUM OPERATION PRESSURE RATING. ALLOW FOR PRESSURE REDUCING VALVES WHEN THE BUILDING PRESSURE IS ABOVE CODE REQUIREMENTS. SUBMIT THE REPORT TO ENGINEERS IMMEDIATELY FOR REVIEW.

EXISTING SANITARY DRAIN LOCATIONS AND INVERT ELEVATIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORK.

PLUMBING MATERIALS:

1. DOMESTIC HOT AND COLD WATER PIPING - TYPE L COPPER WITH COPPER FITTINGS USE 955 TIN/ANTIMONY SOLDER. PROVIDE TYPE "X" SOFT COPPER PIPING WITHOUT JOINTS BELOW GROUND.

2. DRAINAGE AND VENT PIPING (2-1/2" AND SMALLER):

SANITARY PIPING, ABOVE GROUND - DWV COPPER PIPE WITH DRAINAGE FITTINGS AND 50/50 SOLDER JOINTS. URINAL DRAINAGE PIPING SHALL BE TYPE L HARD COPPER WITH 50/50 SOLDER JOINTS.

SANITARY PIPING, BELOW GROUND - TYPE L HARD COPPER WITH 50/50 SOLDER JOINTS.

VENT PIPING, ABOVE GROUND - DWV COPPER PIPE WITH DRAINAGE FITTINGS, 50/50 SOLDER JOINTS. VENT PIPING SHALL BE TYPE L HARD COPPER WITH 50/50 SOLDER JOINTS BELOW THE FLOOR LEVEL RIM OF A FLUSH-VALVE-OPERATED URINAL.

VENT PIPING, BELOW GROUND - TYPE L COPPER PIPE WITH WROUGHT COPPER FITTINGS AND 50/50 SOLDER JOINTS.

3. DRAINAGE AND VENT PIPING (3" AND LARGER):

SANITARY PIPING, ABOVE GROUND - CSA CLASS 4000 CAST IRON SOIL PIPE AND FITTINGS, WITH MECHANICAL JOINTS. SANITARY PIPING, BELOW GROUND - CSA CLASS 4000 CAST IRON SOIL PIPE AND FITTINGS, WITH MECHANICAL JOINTS.

VENT PIPING, ABOVE GROUND - CSA CLASS 4000 CAST IRON SOIL PIPE AND FITTINGS, WITH MECHANICAL JOINTS.

VENT PIPING, BELOW GROUND - CSA CLASS 4000 CAST IRON SOIL PIPE AND FITTINGS, WITH MECHANICAL JOINTS.

VALVES CRANE OR JENKINS (JENKINS FIGURE NUMBERS LISTED BELOW):

1. TO 1379 KPA [200 PSi] WORKING PRESSURE:

Table with 4 columns: GATE, GLOBE, BALL, and a numerical value. Rows for 50 MM [2 IN.] AND SMALLER, 65 MM [2-1/2 IN.] AND LARGER.

2. TO 2068 KPA [300 PSi] WORKING PRESSURE:

Table with 4 columns: GATE, GLOBE, BALL, and a numerical value. Rows for 50 MM [2 IN.] AND SMALLER, 65 MM [2-1/2 IN.] AND LARGER.

3. PROVIDE BALL OR BUTTERFLY VALVES FOR ALL SHUT-OFF REQUIREMENTS. GATE VALVES WILL NOT BE APPROVED.

4. PROVIDE 20 MM [3/4" IN.] HOSE END DRAIN VALVES WITH CAP AND CHAIN AT ALL SYSTEM LOW POINTS.

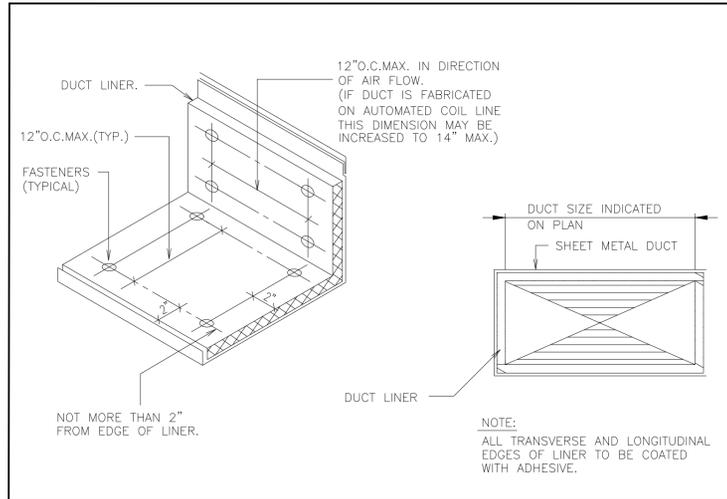
5. PROVIDE DIELECTRIC COUPLINGS FOR CONNECTION OF DISSIMILAR PIPING MATERIALS.

6. GLOBE VALVES TO BE USED ONLY IF IDENTIFIED SPECIFICALLY ON DRAWINGS. CLARIFY WITH ENGINEER PRIOR TO PURCHASE DUE TO LARGE PRESSURE DROP.

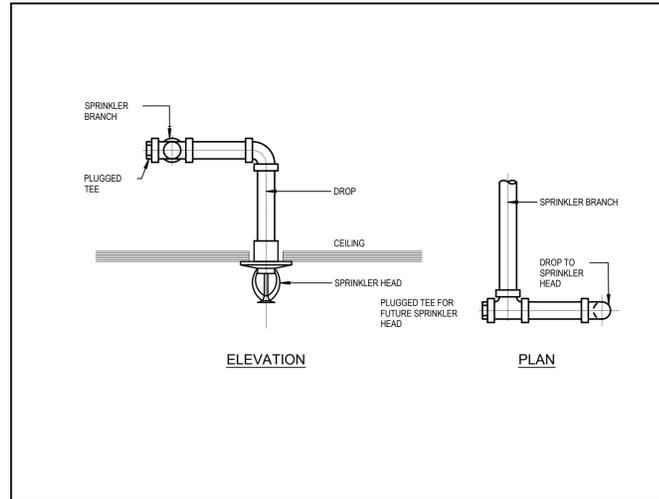
INSULATION SHALL BE PROVIDED TO MATCH BASE BUILDING STANDARDS OR REFER TO INSULATION SECTION.

FLUSH CLEAN AND PRESSURE TEST ALL HVAC PIPING SYSTEMS. CHEMICALLY CLEAN ALL PIPING SYSTEMS UTILIZING LOW FOAMING CHEMICAL DETERGENTS WHICH SHALL NOT ADVERSELY AFFECT SYSTEM COMPONENTS.

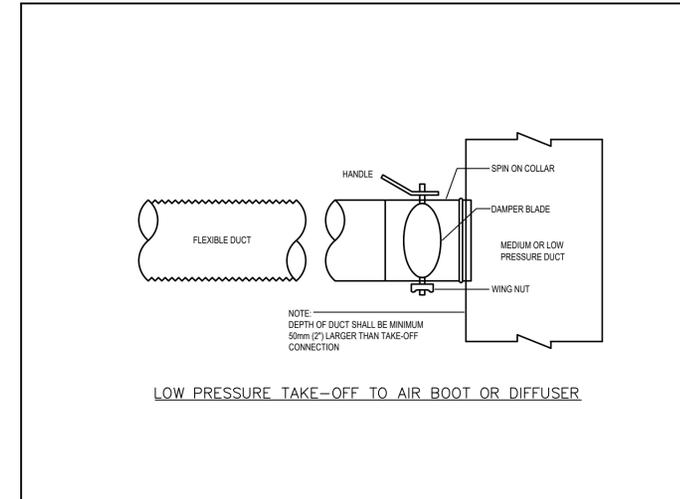
PERFORM PRESSURE TESTING ON ALL NEW AND MODIFIED PIPES TO ENSURE TIGHTNESS OF ALL NEW JOINTS USING HYDROSTATIC TEST AT 150% OF DESIGN WORKING PRESSURE BUT NOT LESS THAN 70KPA (100 PSI). TEST WITHOUT PRESSURE DROP FOR MIN. 4 HOURS AND REMOVE AND REPLACE DEFECTIVE PARTS AND COMPONENTS THAT WILL NOT WITHSTAND PRESSURE.



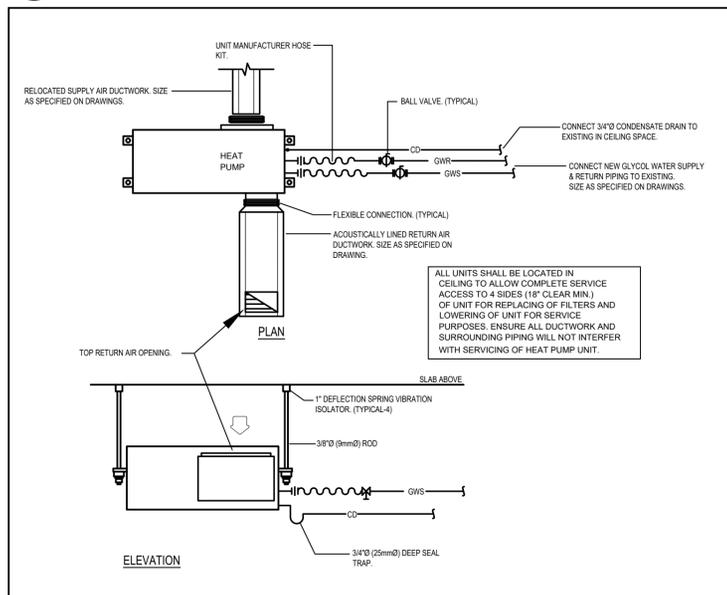
3 ACOUSTIC DUCT LINER DETAIL
M-0.2 N.T.S.



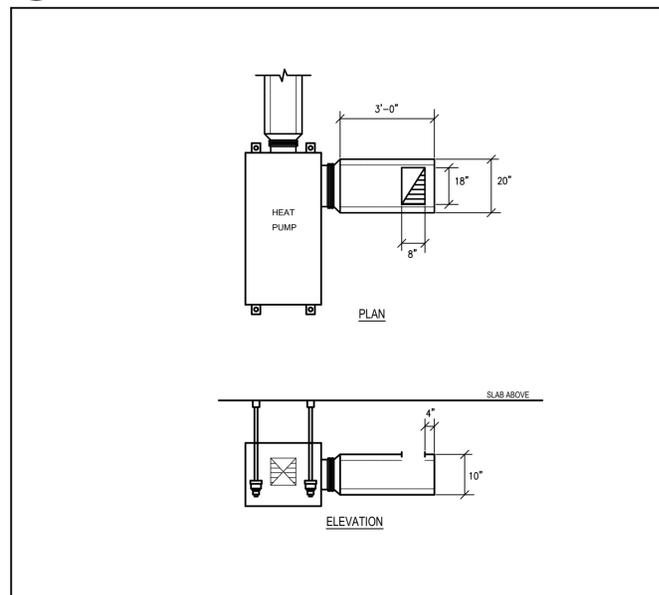
2 SPRINKLER BRANCH AT DROPS
M-0.2 N.T.S.



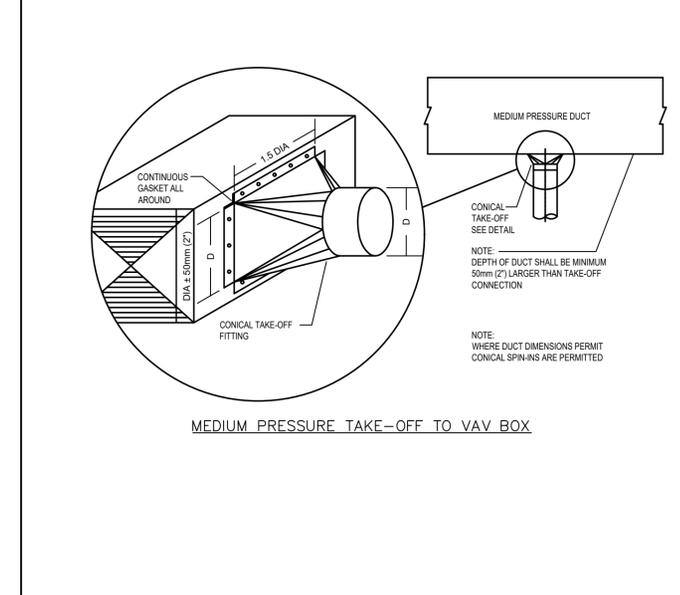
1 LOW & MEDIUM DUCT TAKE-OFFS
M-0.2 N.T.S.



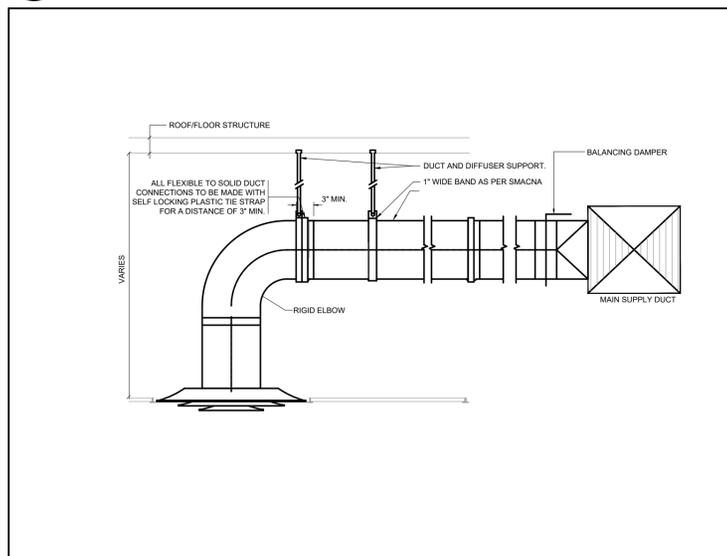
5 HEAT PUMP INSTALLATION DETAIL
M-0.2 N.T.S.



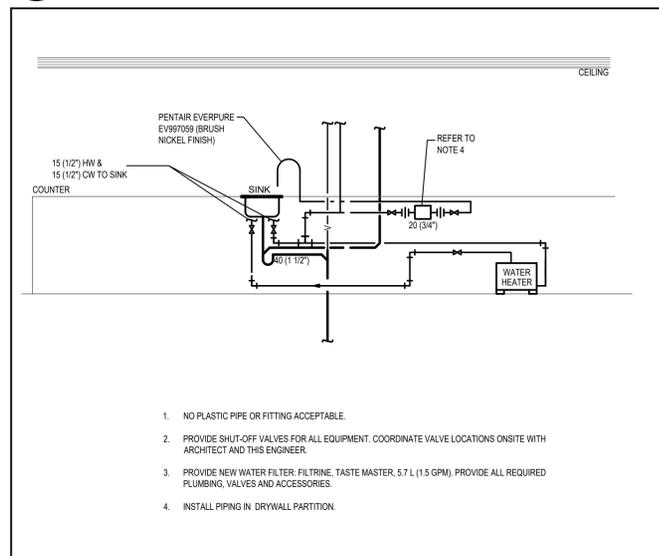
4 HEAT PUMP RETURN PLENUM DETAIL
M-0.2 N.T.S.



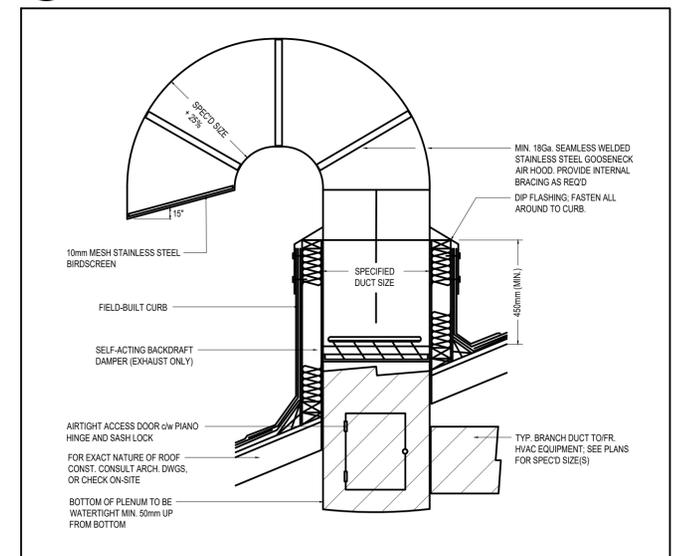
1 LOW & MEDIUM DUCT TAKE-OFFS
M-0.2 N.T.S.



8 TYPICAL DIFFUSER INSTALLATION DETAIL
M-0.2 N.T.S.



7 SERVERY DETAIL
M-0.2 N.T.S.



6 GOOSENECK DUCT DETAIL
M-0.2 N.T.S.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation	Seal

The Contractor shall check and verify all dimensions and report all errors and omissions to the IO-Owner's/MBS Designee (as applicable) for his/her written direction before proceeding with the Work.

A	B
A Detail No	B Sheet No where detailed



Ministry PSF Number

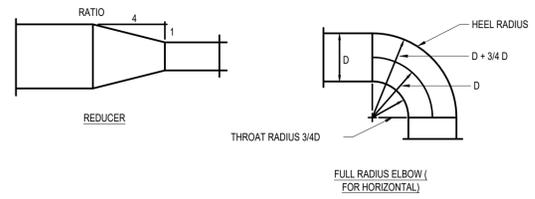
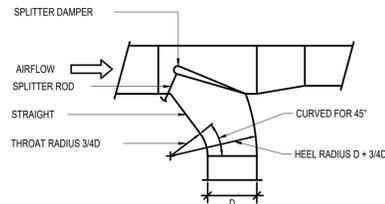
Project
MECHANICAL RENOVATION

Location
465 DAVIS DR. SUITE 301,
NEWMARKET, ON L3Y 7T9
IO Project No. 240256 Site No. B25590

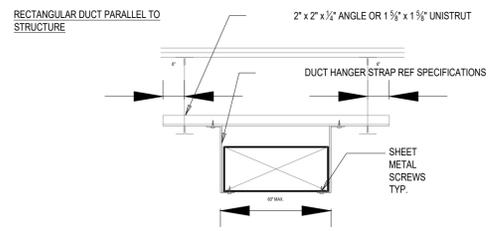
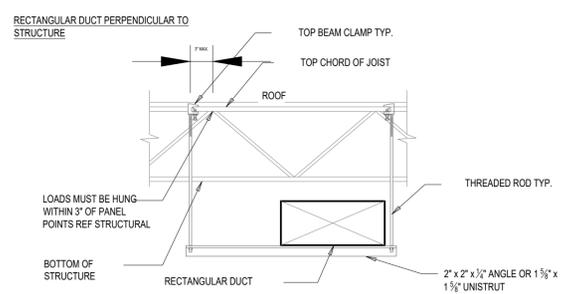
Client
INFRASTRUCTURE ONTARIO (IO)

Drawing Title
MECHANICAL DETAILS

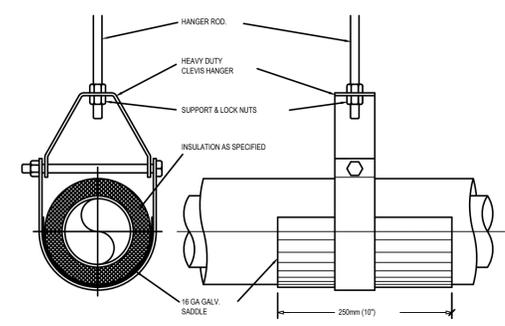
Scale NTS	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No. M-0.2
Approved by CP	Floor No. F03
CADD File NAME	



3 TYPICAL DUCT TRANSITION DETAIL
M-0.3 N.T.S.



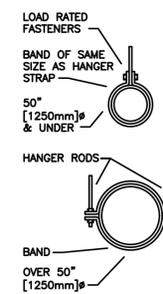
2 TYPICAL DUCT HANGER DETAIL
M-0.3 N.T.S.



HANGER ROD SIZES				
PIPE SIZE	UP TO 50mm (2")	65-75 (2 1/2" - 3")	100-125 (4" - 5")	150-200 (6" - 12")
HANGER ROD DIAMETER	10mm 3/8"	13mm 1/2"	16mm 5/8"	22mm 7/8"

HANGER SPACING												
PIPE SIZE	25mm 1"	30mm 1 1/4"	40mm 1 1/2"	50mm 2"	60mm 2 1/2"	75mm 3"	100mm 4"	125mm 5"	150mm 6"	200mm 8"	250mm 10"	300mm 12"
MAXIMUM SPACING	2100 7'	2400 8'	2700 9'	3000 10'	3300 11'	3600 12'	4200 14'	4800 16'	5100 17'	5700 19'	6600 22'	6900 23'

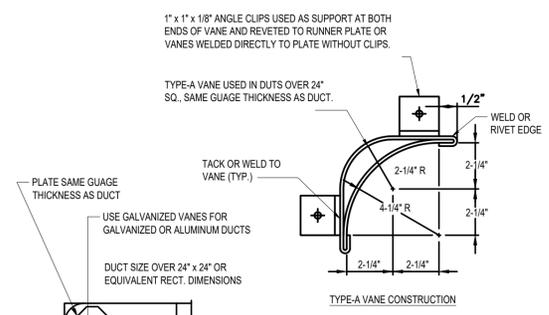
1 TYPICAL PIPE HANGER DETAIL
M-0.3 N.T.S.



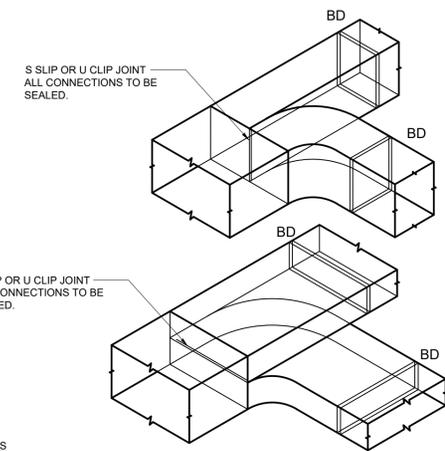
HANGER STRAPS OR RODS				
MAX. DUCT # IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]	
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]	
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]	
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]	
60 [1500]	TWO 3/8 [10] # RODS	1320 [598]	144 [3600]	
84 [2100]	TWO 1/2 [13] # RODS	2500 [1133]	144 [3600]	

NOTE: TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

6 ROUND DUCT SUPPORT DETAIL
M-0.3 N.T.S.

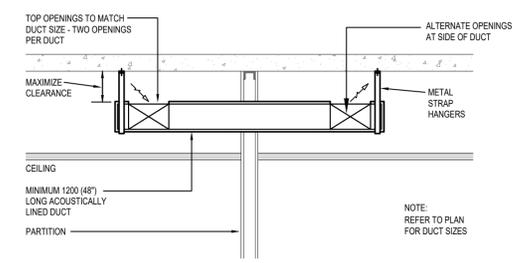


5 TYPICAL TURNING VANE DETAIL
M-0.3 N.T.S.

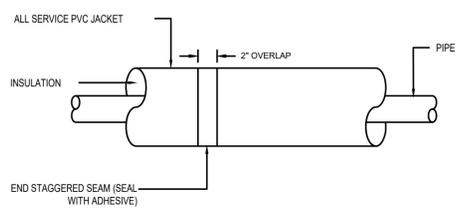


- NOTES
- VOLUME CONTROL SHOULD BE BY BRANCH DAMPERS.
 - ALL TURNING RADIUS TO CONFORM TO SMACNA DUCT CONSTRUCTION STANDARDS.
 - DUCT UP TO 250MM - SINGLE BLADE DAMPER
DUCT ABOVE 250MM - MULTI-BLADE DAMPER

4 TYPICAL DUCT TRANSITION DETAIL
M-0.3 N.T.S.

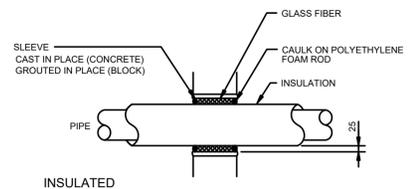
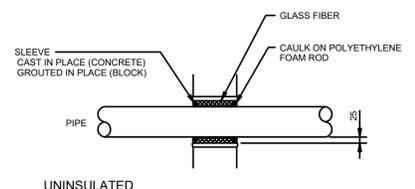


9 TRANSFER AIR DUCT (CEILING TO CEILING)
M-0.3 N.T.S.



- NOTE
- ALL PIPING EXPOSED IN OCCUPIED AREAS SHALL BE JACKETED WITH MATERIALS SUITABLE FOR PAINTING

8 TYPICAL PIPE INSULATION DETAIL
M-0.3 N.T.S.



7 TYPICAL PIPE WALL PENETRATION DETAIL
M-0.3 N.T.S.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation Seal

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A Detail No
B Sheet No where detailed



Ministry PSF Number

Project
MECHANICAL RENOVATION

Location
465 DAVIS DR. SUITE 301,
NEWMARKET, ON L3Y 7T9

ID Project No. 240256 Site No. B25590 Building No.

Client
INFRASTRUCTURE ONTARIO (IO)

Drawing Title
MECHANICAL DETAILS

Scale NTS	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No. M-0.3 of 08
Approved by CP	Floor No. F03

CADD File NAME

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE SPECIFICATION			TRIM SPECIFICATION			ACCESSORIES				PIPE CONNECTIONS				COMMENTS				
	TYPE	MANUFACTURER	DESCRIPTION	TYPE	MANUFACTURER	DESCRIPTION	SUPPLY PIPES STOPS, ETC. C.P. STOP & RISER	WASTE STRAINER OVERFLOW	TRAP	SUPPORT	C.W. (INCH) (mm)	H.W. (INCH) (mm)	DRAIN (INCH) (mm)	VENT (INCH) (mm)					
S-1	SINK	ELKAY	MODEL: #ELUHAD211555 ELKAY LUSTERSTONE CLASSIC SS 597mm x 664mm x 175mm. STAINLESS STEEL. UNDER-MOUNT SINK ADA COMPLIANT	FAUCET/ BEVERAGE FAUCET	KOHLER OR AMERICAN STANDARD OR EQUIVALENT PENTAIR	CRUE K-22974 TOUCHLESS PULL-DOWN KITCHEN SINK FAUCET WITH THREE FUNCTION SPRAYHEAD (1.5 GPM), ADA COMPLIANT BEVERAGE FAUCET. EVERPURE EV997059 (0.5 GPM) BRUSHED NICKEL.	MCGUIRE #LFBV170 FAUCET SUPPLIES. CHROME PLATED FINISH POLISHED BRASS. COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE STOPS, 13 MM (1/2") I.D. INLET X 127 MM (5") HORIZONTAL EXTENSION TUBES, CONVERTIBLE 1/4 TURN LOOSE KEY HANDLES, ESCUTCHEON AND FLEXIBLE COPPER RISERS. LAWLOR #570-88620, POINT OF USE THERMOSTATIC WATER MIXING VALVE.	BASKET STRAINER	MCGUIRE #8912C P-TRAP - HEAVY CAST BRASS. ADJUSTABLE P-TRAP. 202 MM (11-1/2") DISTANCE, WITH CLEANOUT PLUG	-	1/2	15	1/2	15	1 1/2	40	1 1/4	30	PROVIDE ALL NECESSARY PLUMBING ACCESSORIES AND MOUNTING HARDWARE REQUIRED FOR COMPLETE OPERATIONAL INSTALLATION. COORDINATE ALL ACCESSORIES AND FINISHES WITH THE ARCHITECT.
WC-1	WATER CLOSET	AMERICAN STANDARD	MODEL: CADET TWO PIECE - PRESSURE ASSIST 1.1GPM/4.2 LPF CHAIR HEIGHT ELONGATED EVERCLEAN TOILET, 768mm x 516mm x 781mm. ADA COMPLIANT, WATERSENSE, HIGH EFFICIENCY, ULTRA-LOW CONSUMPTION	SEAT	AMERICAN STANDARD	MODEL: 5503A008 TRANSITIONAL SLOW-CLOSE SOLID PLASTIC CLOSED FRONT SEAT WITH COVER.	-	-	-	-	1	25	-	-	4	100	1 1/2	40	PROVIDE ALL NECESSARY PLUMBING ACCESSORIES AND MOUNTING HARDWARE REQUIRED FOR COMPLETE OPERATIONAL INSTALLATION. COORDINATE ALL ACCESSORIES AND FINISHES WITH THE ARCHITECT.
LAV-1	LAVATORY	AMERICAN STANDARD	MODEL: STUDIO, 0614.300 502mm x 350mm x 216mm. WHITE VITREOUS CHINA UNDERMOUNT ADA SINK	FAUCET / BEVERAGE FAUCET	SLOAN	SF-2400 SENSOR FAUCET FINISH: POLISHED CHROME ADA COMPLAINT HARDWIRED-POWERED	MCGUIRE #LFBV170 FAUCET SUPPLIES. CHROME PLATED FINISH POLISHED BRASS. COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE STOPS, 13 MM (1/2") I.D. INLET X 127 MM (5") HORIZONTAL EXTENSION TUBES, CONVERTIBLE 1/4 TURN LOOSE KEY HANDLES, ESCUTCHEON AND FLEXIBLE COPPER RISERS. LAWLOR #570-88620, POINT OF USE THERMOSTATIC WATER MIXING VALVE.	BASKET STRAINER	MCGUIRE #8912CB P-TRAP, HEAVY CAST BRASS ADJUSTABLE BODY, WITH SLIP NUT, 38 MM (1-1/2") SIZE, BOX FLANGE AND SEAMLESS TUBULAR WALL BEND.	-	1/2	15	1/2	15	1 1/2	40	1 1/4	30	PROVIDE ALL NECESSARY PLUMBING ACCESSORIES AND MOUNTING HARDWARE REQUIRED FOR COMPLETE OPERATIONAL INSTALLATION. COORDINATE ALL ACCESSORIES AND FINISHES WITH THE ARCHITECT.

NOTES: 1. STANDARD OF ACCEPTANCE (PLUMBING FIXTURES): AMERICAN STANDARD, KINDRED, SLOAN, KOHLER.
 2. STANDARD OF ACCEPTANCE (PLUMBING SPECIALTIES - DRAINS): J.R. SMITH, ZURN, MIFAB.
 3. ALL FIXTURES AND ACCESSORIES SHALL BE CSA LABELED. MEET CITY GUIDELINES AND ARE NEW, FREE FROM CRACKS, FLAWS AND IMPERFECTIONS.
 4. ALL PLUMBING TRIMS SHALL MEET CSA B125.
 5. ALL EXPOSED PIPING SHALL BE IN POLISHED CHROME-PLATED FINISH.

EXHAUST FAN SCHEDULE

TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	TYPE	CAPACITY		EXTERNAL STATIC PRESSURE		MOTOR SIZE		FAN (RPM)	ELECTRICAL V/PHz	EMERGENCY POWER (Y/N)	MAXIMUM SOUND POWER LEVEL AT DISCHARGE OF EQUIPMENT MAX PWL IN dB RE 10 ⁻¹² W								WEIGHT		COMMENTS
						(CFM)	(L/s)	(in.H2O)	(Pa)	(HP)	(KW)				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	(LBS)	(Kg)	
EF-1.01	ALL GENDER WASHROOM	ALL GENDER WASHROOM	GREENHECK	SP-A390-VG	CEILING EXHAUST FAN	100	47	0.25	62.21	0.02	0.01	910	115/160	N	61	53	58	51	47	39	30	22	24	11	REFER TO NOTES BELOW.

NOTES: 1. PROVIDE LOCAL DISCONNECTS AND STARTERS FOR ALL FANS.
 2. FANS TO BE COMPLETE WITH BACKDRAFT DAMPERS.
 3. PROVIDE NEW VARIABLE SPEED CONTROLLER (LOW, MEDIUM, HIGH). MOUNT THE CONTROLLER NEXT TO THE EXHAUST FAN IN THE CEILING PLENUM IN ACCESSIBLE AREA.
 4. PROVIDE ISOLATION KIT FOR ALL FANS.
 5. C/W 5-BUTTON TIMER SWITCH.

ENERGY RECOVERY VENTILATOR SCHEDULE

TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	TYPE	CAPACITY		EXTERNAL STATIC PRESSURE		MAX. POWER CONSUMPTION		ELECTRICAL V/PHz	EMERGENCY POWER (Y/N)	WEIGHT		COMMENTS
						(CFM)	(L/s)	(in.H2O)	(Pa)	(HP)	(KW)			(LBS)	(Kg)	
ERV-1.01	UNIT 301	CEILING PLENUM	MITSUBISHI	LGH-F600RVX2-E	CROSS-FLOW ENERGY RECOVERY	600	283	0.86	214.00	1.00	0.75	208/160	N	123	56	REFER TO NOTES BELOW.

NOTES: 1. PROVIDE LOCAL DISCONNECTS.
 2. OUTDOOR AND EXHAUST DUCTWORK TO BE COMPLETE WITH BACKDRAFT DAMPERS.
 3. C/W LOSSARY CONTROLLER, ACCESS DOOR, FLOOR MOUNTED SPRING ISOLATORS AND ISOLATION RAILS.
 4. C/W MERV 14 FILTER.

AIR TERMINAL SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	MATERIAL	FINISH	MOUNTING	COMMENTS
S-1	SQUARE CONE DIFFUSER	E.H. Price	SCD-4C	STEEL	WHITE	T-BAR	24" x 24". NECK SIZE ON PLAN. TO MATCH BASEBUILDING STANDARDS.
R-1	EGG CRATE RETURN AIR GRILLE	E.H. Price	80	ALUMINUM	WHITE	T-BAR	13mm x 13mm x 13mm (1/2" x 1/2" x 1/2") ALUMINUM GRID CORE

GENERAL REQUIREMENTS:
 1. STANDARD OF ACCEPTANCE: E.H. PRICE, NAILOR, CARNES, KRUEGER.
 2. REFER TO DRAWINGS FOR NECK/PLENUM SIZES.
 3. EACH DUCT TAKE-OFF FROM MAIN SUPPLY DUCT SHALL BE COMPLETE WITH MANUAL BALANCING DAMPER WITH LOCKING QUADRANT. DAMPER AT THE GRILL/DIFFUSER NECK IS NO ACCEPTABLE.
 4. SURFACE FINISHING SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO ORDERING.

PLUMBING FIXTURES SIZING TABLE

FIXTURE DESCRIPTION	DRAIN	VENT	CW	HW
WATER CLOSET - FLUSH VALVE	100mm 4"	40mm 1 1/2"	25mm 1"	
WATER CLOSET - FLUSH TANK	100mm 4"	40mm 1 1/2"	15mm 1/2"	
URINAL - FLUSH VALVE	50mm 2"	40mm 1 1/2"	20mm 3/4"	
URINAL - FLUSH TANK	50mm 2"	40mm 1 1/2"	15mm 1/2"	
LAVATORY	30mm 1 1/4"	30mm 1 1/4"	15mm 1/2"	15mm 1/2"
BATHUB	40mm 1 1/2"	30mm 1 1/4"	15mm 1/2"	15mm 1/2"
SHOWER STALL	75mm 3"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
WASHFOUNTAIN - 54" SEMI-CIRC	40mm 1 1/2"	30mm 1 1/4"	20mm 3/4"	20mm 3/4"
SINK - 1 COMPARTMENT	40mm 1 1/2"	30mm 1 1/4"	15mm 1/2"	15mm 1/2"
SINK - 2 COMPARTMENT	40mm 1 1/2"	30mm 1 1/4"	15mm 1/2"	15mm 1/2"
SINK - 3 COMPARTMENT	50mm 2"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
SERVICE SINK	75mm 3"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
MOP SINK	75mm 3"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
DRINKING FOUNTAIN	30mm 1 1/4"	30mm 1 1/4"	15mm 1/2"	
LAUNDRY TUB	40mm 1 1/2"	30mm 1 1/4"	15mm 1/2"	15mm 1/2"

IMPERIAL TO METRIC SIZING CONVERSION

1/2"	3mm	1"	25mm	3"	75mm
3/4"	6mm	1 1/4"	30mm	3 1/2"	90mm
1"	10mm	1 1/2"	40mm	4"	100mm
1 1/2"	15mm	2"	50mm	5"	125mm
2"	20mm	2 1/2"	65mm	6"	150mm

NOTES:
 1. SIZING OF SUPPLIES INSIDE WASHROOM AREA TO BE BASED ON 5 psi (34 kPa) PRESSURE DROP PER 100' (30m) OF PIPE OR MAX. 8 FPS VELOCITY.
 2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PLUMBING AND DRAINAGE INSIDE WASHROOM AREA FOR ALL WASHROOMS.
 3. SIZES SHOWN ARE FOR ABOVE GRADE PIPING ONLY. MINIMUM SIZE OF ALL BURIED PIPING IS 4" (100mm). FOR ALL WASHROOMS.

1 PLUMBING FIXTURE DETAIL
 M-0-4 N.T.S.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation	Seal
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A Detail No
 B Sheet No where detailed



Ministry PSF Number

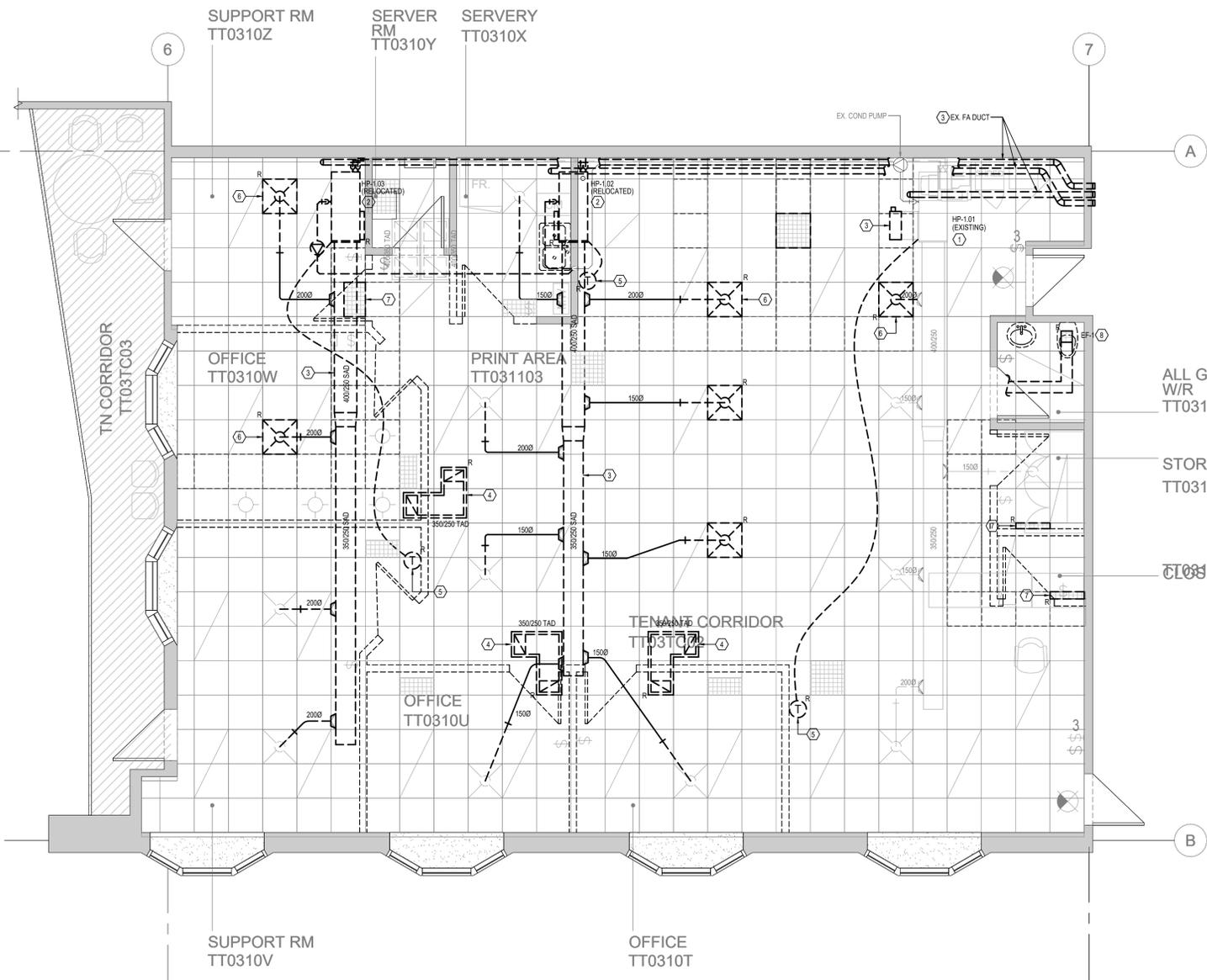
Project
 MECHANICAL RENOVATION

Location
 465 DAVIS DR. SUITE 301,
 NEWMARKET, ON L3Y 7T9
 ID Project No. 240256 Site No. - Building No. B25590

Client
 INFRASTRUCTURE ONTARIO (IO)

Drawing Title
 MECHANICAL DETAIL
 AND SCHEDULES

Scale NTS	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No M-0-4 of 08
Approved by CP	Floor No F03



GENERAL NOTES:

1. PRIOR TO COMMENCEMENT OF WORK, ORDERING OF EQUIPMENT AND/OR FABRICATING MATERIALS THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS. THIS SHALL BE DONE IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES, OMISSIONS AND/OR INTERFERENCES PRIOR TO COMMENCEMENT OF WORK. PROVIDE INTERFERENCE DRAWINGS AS REQUIRED.
2. WHERE DUCTPIPE IS REMOVED THROUGH FIRE-RATED WALL OR FLOOR ASSEMBLIES, PROVIDE ULC-CLASSIFIED FIRE STOPPING SYSTEMS THAT ARE TESTED IN ACCORDANCE WITH CAN4-S115 AND INSTALL ALL FIRE STOPPING SYSTEM IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTION. STANDARD OF ACCEPTANCE: 3M, HLT.
3. WHERE EXISTING DUCTPIPE INSULATION IS DAMAGED DURING MECHANICAL DEMOLITION, PROVIDE NEW INSULATION TO MAINTAIN INTEGRITY OF THE EXISTING INSULATION.
4. WHERE EXISTING DUCTPIPE INSULATION IS FOUND TO REQUIRE REPAIR, RECORD THE EXTENT OF THE REQUIRED REPAIR ON PLANS AND REPORT TO LANDLORD/CONSULTANT.
5. THE MINIMUM REQUIREMENT GOVERNING THE WORK OF THIS PROJECT AND GOVERNING MATERIALS, CONSTRUCTION, ERECTION, ETC., SHALL CONFORM TO THE BASE BUILDING STANDARDS, APPLICABLE CODES, RULES AND REGULATIONS PLUS THE MECHANICAL DOCUMENTS, WHICHEVER REQUIREMENT PROVED TO BE THE MORE STRINGENT.
6. PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS. THIS INCLUDES ALL WORK WHICH MAY BE DEEMED NOISY. (REFER TO LANDLORD'S CONSTRUCTION MANUAL.)
7. WHERE MECHANICAL EQUIPMENT (I.E. HEAT PUMP, EXHAUST FAN) IS REMOVED, COORDINATE PROMPTLY WITH GENERAL CONTRACTOR AND ELEC. DIV. TO DISCONNECT AND MAKE SAFE THE ASSOCIATED POWER SUPPLY. MECH. DIV. SHALL ENSURE THAT NO ABANDONED LIVE POWER CORD IS LEFT UNPROTECTED AT ANY TIME.
8. LANDLORD SHALL HAVE THE OPTION TO RECEIVE ANY ITEMS CALLED TO BE REMOVED FROM SITE PRIOR TO REMOVAL FROM SITE.
9. COORDINATE WITH GENERAL CONTRACTOR TO SCHEDULE THE MECHANICAL CONTROLS DEMOLITION AND PROTECTIVE WORKS, AS SPECIFIED ON PLANS. REFER TO, AND COMPLY WITH THE PHASING PLAN OF THE GENERAL CONTRACTOR.
10. ALL SHUTDOWNS OF ANY BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE LANDLORDS BUILDING OPERATIONS STAFF AND COORDINATED WITH THE LANDLORD. THIS INCLUDES BUT NOT LIMITED TO THE EXISTING GLYCOL WATER LOOP SYSTEM.

KEYED NOTES (REFER TO PLAN):

- ① EXISTING HEAT PUMP UNIT TO REMAIN.
REMOVE/RELOCATE EXISTING HEAT PUMP UNIT, INCLUDING BUT NOT LIMITED TO: ALL DUCTWORK, DIFFUSERS, CONTROLS AND GLYCOL WATER PIPING BACK TO MAINS AND CAP. MAKE SAFE ELECTRICALLY. REFER TO GENERAL NOTES. REMOVE EXISTING CONDENSATE PUMP AND CONDENSATE DRAIN PIPING BACK TO TERMINATION POINT.
- ② REMOVE/RELOCATE EXISTING DUCTWORK AS SHOWN ON PLAN. TYPICAL.
- ③ REMOVE EXISTING TRANSFER AIR DUCT. TYPICAL.
- ④ REMOVE/RELOCATE EXISTING THERMOSTAT TO NEW LOCATION AS SHOWN IN NEW PLAN. TYPICAL.
- ⑤ REMOVE/RELOCATE EXISTING SUPPLY AIR DIFFUSER CW ALL ASSOCIATED DUCTWORK. COORDINATE WITH LANDLORD PRIOR TO THE DISPOSING OF THE AIR DIFFUSERS. HAND OVER EXCESS DIFFUSERS TO LANDLORD IF SO DESIRED BY THE LANDLORD. TYPICAL.
- ⑥ REMOVE EXISTING RETURN GRILLE. COORDINATE WITH LANDLORD PRIOR TO DISPOSING. TYPICAL.

SEPARATE PRICING NOTES:

- ④ REMOVE EXISTING EXHAUST FAN CW ASSOCIATED DUCTWORK AND CONTROLS. COORDINATE WITH LANDLORD PRIOR TO THE DISPOSING OF ANY EQUIPMENT. HAND OVER TO LANDLORD IF SO DESIRED BY THE LANDLORD. REMOVE POWER FEED BACK TO ELECTRICAL PANEL AND MAKE SAFE ELECTRICALLY.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation Seal

The Contractor shall check and verify all dimensions and report all errors and omissions to the IO-Owner's/MBS Designee (as applicable) for his/her written direction before proceeding with the Work.

A Detail No
B Sheet No where detailed



Ministry PSIF Number

Project
MECHANICAL RENOVATION

Location
465 DAVIS DR. SUITE 301,
NEWMARKET, ON L3Y 7T9

Project No: 240256 Site No: - Building No: B25590

Client
INFRASTRUCTURE ONTARIO (IO)

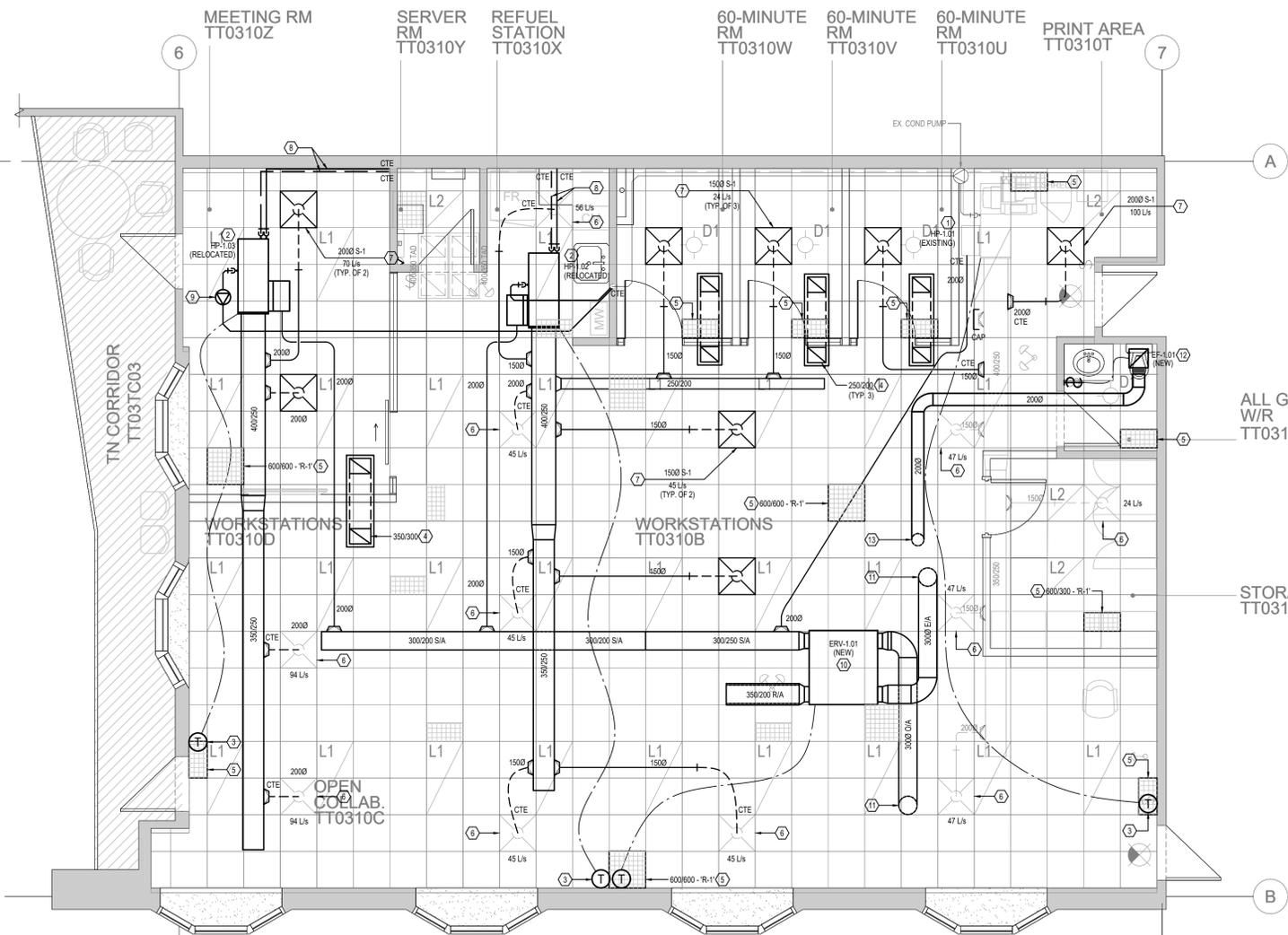
Drawing Title
3RD FLOOR MECHANICAL PLAN:
H.V.A.C. LAYOUT -
DEMOLITION

Scale 1 : 50	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No
Approved by CP	Floor No F03

M-3.1

08

CADD File NAME



GENERAL NOTES:

- PRIOR TO COMMENCEMENT OF WORK, ORDERING OF EQUIPMENT AND/OR FABRICATING MATERIALS THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS. THIS SHALL BE DONE IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEERS OF ANY DISCREPANCIES, OMISSIONS AND/OR INTERFERENCES PRIOR TO COMMENCEMENT OF WORK. PROVIDE INTERFERENCE DRAWINGS AS REQUIRED.
- WHERE EXISTING DUCTPIPE INSULATION IS FOUND TO REQUIRE REPAIR, RECORD THE EXTENT OF THE REQUIRED REPAIR ON PLANS AND REPORT TO LANDLORD/CONSULTANT.
- COORDINATE ALL SERVICES BEFORE ORDERING/INSTALLATION OF ANY MECHANICAL EQUIPMENT AND ENSURE THE LAYOUT AS SHOWN DOES NOT INTERFERE WITH OTHER SERVICES.
- NOT ALL DUCTPIPE INSULATION/LINING IS SHOWN ON PLAN FOR CLARITY. REFER TO SPECIFICATION.
- NOT ALL AIR BALANCING DEVICES IS SHOWN ON PLAN FOR CLARITY. DIVISION 15 SHALL PROVIDE ALL NECESSARY BALANCING DEVICES TO ACHIEVE PERFORMANCE SPECIFIED ON PLAN.
- SUPPLY AND INSTALL FIRESTOPPING AND SMOKE SEALS AROUND MECHANICAL SERVICE PIPING AND DUCT PENETRATIONS THROUGH FIRE/SMOKE RATED WALL AND FLOOR ASSEMBLIES. THE FIRESTOPPING MATERIAL AND INSTALLATION SHALL CONFORM TO OBC, LATEST EDITION & LOCAL STANDARDS.
- BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION. COMPLY WITH LANDLORD'S REQUIREMENTS FOR SYSTEM SHUTDOWN AND CONNECTION.
- CONTROL WIRING AND DEVICES SHALL BE PROVIDED UNDER THIS CONTRACT. WHEN REQUIRED, CONTROL WORK SHALL BE COMPLETED BY OWNERS/LANDLORD'S APPROVED CONTRACTOR AND PAID FOR UNDER THIS CONTRACT.
- A LANDLORD APPROVED CONTROL CONTRACTOR SHALL PERFORM ALL CONTROLS SCOPE.
- A LANDLORD APPROVED BALANCING CONTRACTOR SHALL PERFORM ALL SYSTEM BALANCING.
- THE MINIMUM REQUIREMENT GOVERNING THE WORK OF THIS PROJECT AND GOVERNING MATERIALS, CONSTRUCTION, CRECTION, ETC. SHALL CONFORM TO THE BASE BUILDING STANDARDS, APPLICABLE CODES, RULES AND REGULATIONS PLUS THE MECHANICAL DOCUMENTS, WHICH EVER REQUIREMENT PROVIDED TO BE THE MORE STRINGENT.
- PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS. THIS INCLUDES ALL WORK WHICH MAY BE DEEMED NOISY. (REFER TO LANDLORD'S CONSTRUCTION MANUAL.)
- PROVIDE SLEEVES FOR ALL NEW PIPING THROUGH EXISTING SLABS, WALLS, AND/OR BEAMS.
- ENSURE THAT ALL MATERIALS IN THE CEILING SPACE MEET OR EXCEED THE O.B.C. FLAME AND SMOKE SPREAD/DEVELOPMENT RATINGS.
- COORDINATE WITH GENERAL CONTRACTOR TO SCHEDULE THE MECHANICAL/CONTROLS DEMOLITION AND PROTECTIVE WORKS, AS SPECIFIED ON PLANS. REFER TO, AND COMPLY WITH THE PHASING PLAN OF THE GENERAL CONTRACTOR.
- COORDINATE ALL SERVICES BEFORE ORDERING/INSTALLATION OF ANY MECHANICAL EQUIPMENT AND ENSURE THE LAYOUT AS SHOWN DOES NOT INTERFERE WITH OTHER SERVICES.
- PROVIDE ALL REQUIRED CUTTING AND PATCHING OF WALLS AND ROOF DECK TO FACILITATE THE INSTALLATION OF THE MECHANICAL SERVICES OUTLINED FOR THIS SCOPE OF WORK.
- EXACT DUCT ROUTES, DROPS, AND FINAL CONNECTIONS SHALL BE DETERMINED ON SITE.
- ALL SHUTDOWNS OF ANY BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE LANDLORD'S BUILDING OPERATIONS STAFF AND COORDINATED WITH THE LANDLORD. THIS INCLUDES BUT NOT LIMITED TO THE EXISTING GLYCOL WATER LOOP SYSTEM.

KEYED NOTES (REFER TO PLAN) :

- TEST OPERATION AND CONTROLS OF EXISTING HEAT PUMP UNIT. VERIFY HEAT PUMP UNIT IS RESPONDING TO THERMOSTATIC CONTROLS. PROVIDE A REPORT WHICH INCLUDES THE RESULT OF TESTING INCLUDING ANY REPAIR WORK REQUIRED. PRIOR TO COMMENCEMENT OF WORK, THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS AND SERVICEABLE. HEAT PUMP UNIT(S) WILL BE SUSPENDED FROM THE CEILING WITH SPRING ISOLATORS. PROVIDE FLEXIBLE DUCT CONNECTIONS, 1" THICKNESS ACOUSTICALLY LINED DUCTWORK. RELOCATE THERMOSTAT AS SHOWN ON PLAN. PROVIDE PROGRAMMABLE THERMOSTAT TO MATCH BASE BUILDING STANDARDS. PROVIDE RETURN PLENUM DUCTWORK ON RETURN SIDE OF HEAT PUMP UNIT. MEASURE EXACT SIZING PRIOR TO COMMENCEMENT OF WORK. INSTALL HEAT PUMP UNIT WITH CLEARANCE FOR FILTER & MAINTENANCE ACCESS. PROVIDE NEW FILTER AND REPLACE PRIOR TO TURNOVER. REFER TO DETAILS ON DRAWING M-0.2 FOR HEAT PUMP INSTALLATION AND CONNECTION. TYPICAL.
- PROVIDE RELOCATED THERMOSTAT. FINAL LOCATION TO BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION. TYPICAL.
- PROVIDE ACOUSTICALLY LINED TRANSFER AIR DUCT WITH CLEAR INSIDE DIMENSIONS AS SHOWN ON PLAN. REFER TO DETAIL ON DRAWING M-0.3. TYPICAL.
- PROVIDE NEW 600mm x 300mm (24"x12") EGGRATE RETURN AIR GRILLE (R-1) AS INDICATED IN MECHANICAL SCHEDULE. MEASURE THE EXACT DIMENSIONS ON SITE PRIOR TO ORDERING. REFER TO MECHANICAL SCHEDULE ON DRAWING M-0.4. TYPICAL UNLESS OTHERWISE NOTED.
- RE-BALANCE EXISTING SUPPLY DIFFUSERS TO AIR QUANTITIES (IN L/s) AS SHOWN ON PLAN. TYPICAL.
- PROVIDE NEW SQUARE CONE DIFFUSER (S-1). MEASURE THE EXACT DIMENSIONS ON SITE PRIOR TO ORDERING. BALANCE AIR AT NEW DIFFUSER TO AIRFLOW RATE (IN L/s) AS SHOWN ON PLAN. REFER TO MECHANICAL SCHEDULE ON DRAWING M-0.4. TYPICAL.
- PROVIDE NEW 250 (1"Ø) GLYCOL WATER SUPPLY AND RETURN PIPING AND CONNECT TO EXISTING SERVICES AS SHOWN ON PLAN. ALLOW FOR FREEZING IF REQUIRED. TYPICAL.
- PROVIDE NEW PLENUM RATED CONDENSATE DRAIN PUMP EQUIVALENT TO: BLUE DIAMOND MAXIBLUE, 3.7GPH, 23 FT CW RESERVOIR SENSOR. INFORM ENGINEER PRIOR TO ORDERING PUMP.

SEPARATE PRICING NOTES:

- PROVIDE NEW ERV UNIT CW ALL SUPPORTS, CONTROLLER AND ACCESSORIES. ENSURE THAT THE UNIT IS LEVEL & INSTALLED AT LOW LEVEL IN CEILING PLENUM. PRIOR TO COMMENCEMENT OF WORK, THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS AND SERVICEABLE. PROVIDE DUCT CONNECTIONS, 1" THICKNESS ACOUSTICALLY LINED DUCTWORK ON SUPPLY AND RETURN AIR DUCTWORK. INSTALL UNIT WITH CLEARANCE FOR FILTER & MAINTENANCE ACCESS. PROVIDE FILTER PRIOR TO TURNOVER. INSTRUCT TENANT ON ACQUIRING A MAINTENANCE CONTRACTOR FOR TENANT EQUIPMENT. REFER TO MECHANICAL SCHEDULE ON DRAWING M-0.4.
- PROVIDE 3000 (12"Ø) OUTDOOR AND EXHAUST AIR DUCTWORK, TO BE ROUTED FROM NEW PROPOSED ERV UNIT TO ROOF ABOVE. ALL PENETRATIONS SHALL BE FIRE-STOPPED AND WATER-PROOFED. BUILDING OPERATION AND/OR LANDLORD TO APPROVE CORING/CUTTING AND PENETRATION TO ROOF AND OBTAIN WRITTEN APPROVAL. BEFORE PROCEEDING, PROVIDE INSULATED INTAKE AND EXHAUST GOOSENECK VENT ON ROOF. ENSURE THERE IS MINIMUM TEN (10) FEET DISTANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST FAN DISCHARGE. FLUE VENTS, PLUMBING VENTS, ETC. CONTRACTOR TO SITE VERIFY EXISTING SITE CONDITION PRIOR TO PROCEEDINGS.
- PROVIDE NEW WASHROOM CEILING MOUNT EXHAUST FAN CW DUCTWORK. PROVIDE CONTROLS AND SWITCH FOR WASHROOM EXHAUST FAN. COORDINATE WITH ELECTRICAL TRADE FOR POWER CONNECTION. REFER TO MECHANICAL SCHEDULE ON DRAWING M-0.4.
- PROVIDE 2000 (8"Ø) EXHAUST AIR DUCTWORK, TO BE ROUTED FROM NEW PROPOSED EXHAUST FAN TO ROOF ABOVE. ALL PENETRATIONS SHALL BE FIRE-STOPPED AND WATER-PROOFED. BUILDING OPERATION AND/OR LANDLORD TO APPROVE CORING/CUTTING AND PENETRATION TO ROOF AND OBTAIN WRITTEN APPROVAL. BEFORE PROCEEDING, PROVIDE EXHAUST GOOSENECK VENT ON ROOF. ENSURE THERE IS MINIMUM TEN (10) FEET DISTANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST FAN DISCHARGE. FLUE VENTS, PLUMBING VENTS, ETC. CONTRACTOR TO SITE VERIFY EXISTING SITE CONDITION PRIOR TO PROCEEDING.

3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation	Seal
The Contractor shall check and verify all dimensions and report all errors and omissions to the IO-Owner's/MBS Designee (as applicable) for his/her written direction before proceeding with the Work.	

- A A Detail No
- B B Sheet No where detailed



Ministry PSF Number
 Project
MECHANICAL RENOVATION

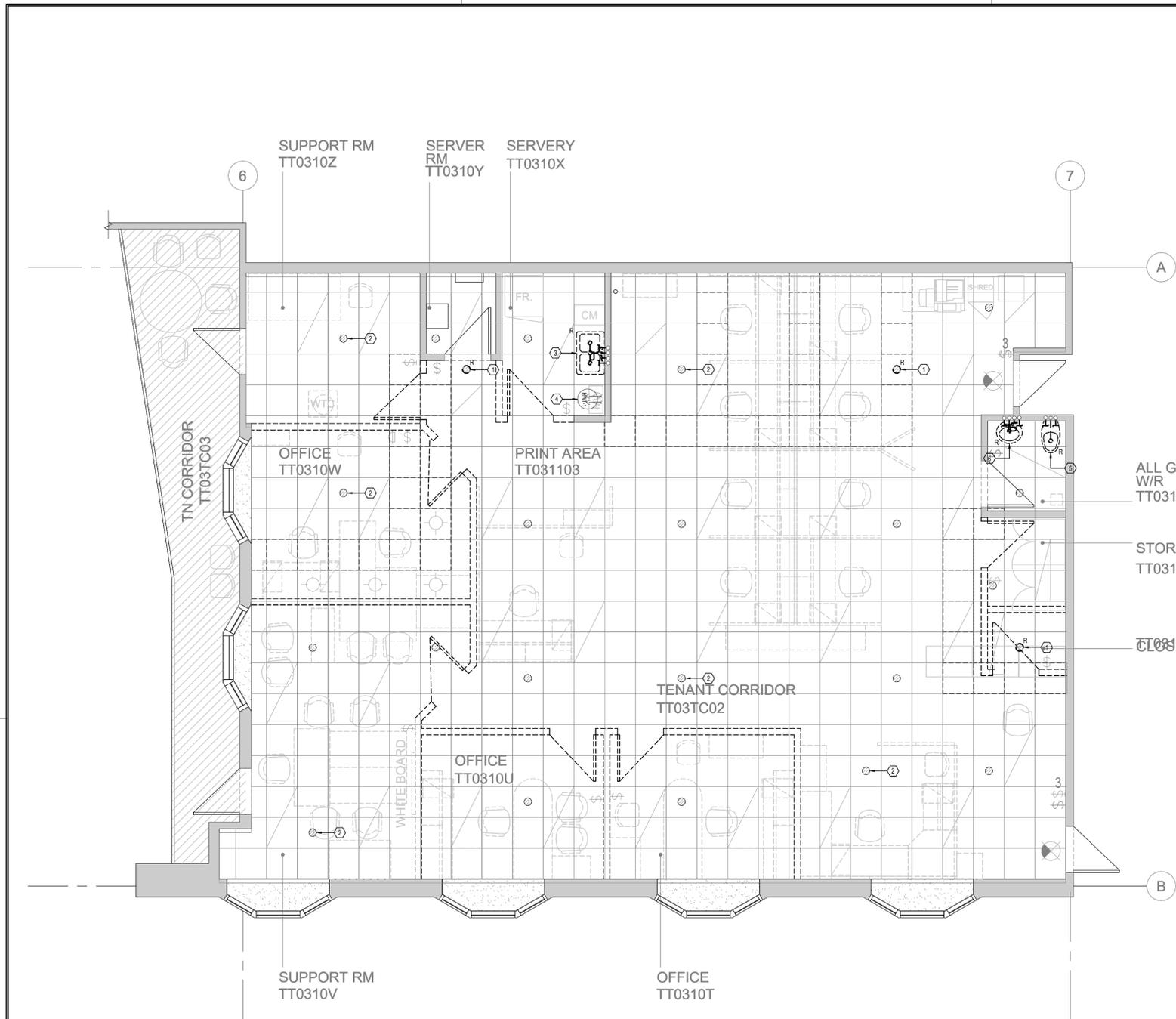
Location
**465 DAVIS DR. SUITE 301,
 NEWMARKET, ON L3Y 7T9**
 IO Project No: **240256** Site No: **-** Building No: **B25590**

Client
INFRASTRUCTURE ONTARIO (IO)

Drawing Title
**3RD FLOOR MECHANICAL PLAN:
 H.V.A.C. LAYOUT -
 NEW WORK**

Scale 1 : 50	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No M-3.2
Approved by CP	Floor No F03

CAD File NAME



- GENERAL NOTES:**
1. BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION. COMPLY WITH LANDLORD'S REQUIREMENTS FOR SYSTEM SHUTDOWN AND CONNECTION.
 2. PROVIDE ALL REQUIRED CUTTING AND PATCHING OF EXISTING FLOORING TO FACILITATE THE INSTALLATION OF THE MECHANICAL SERVICES OUTLINED FOR THIS SCOPE OF WORK.
 3. ALL SHUTDOWNS OF ANY BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE LANDLORD'S BUILDING OPERATIONS STAFF AND COORDINATED WITH THE LANDLORD.
 4. LANDLORD SHALL HAVE THE OPTION TO RECEIVE ANY ITEMS CALLED TO BE REMOVED FROM SITE PRIOR TO REMOVAL FROM SITE.
 5. PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS. THIS INCLUDES ALL WORK WHICH MAY BE DEEMED NOISY. (REFER TO LANDLORD'S CONSTRUCTION MANUAL.)
 6. WHERE PIPES ARE REMOVED THROUGH FIRE-RATED WALL OR FLOOR ASSEMBLIES, PROVIDE UL-C CLASSIFIED FIRE STOPPING SYSTEMS THAT ARE TESTED IN ACCORDANCE WITH CAN/ULC S104. ALL FIRE STOPPING SYSTEMS MUST ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTION. STANDARD OF ACCEPTANCE: 3M, HLT.
 7. WHERE EXISTING PIPE INSULATION IS DAMAGED DURING MECHANICAL DEMOLITION, PROVIDE NEW INSULATION TO MAINTAIN INTEGRITY OF THE EXISTING INSULATION.
 8. WHERE EXISTING PIPE INSULATION IS FOUND TO REQUIRE REPAIR, RECORD THE EXTENT OF THE REQUIRED REPAIR ON PLANS AND REPORT TO LANDLORD/CONSULTANT.
 9. MAINTAIN OPERATION OF ALL EXISTING FIRE SAFETY EQUIPMENT, INCLUDING ALL FIRE SPRINKLER HEADS AND FIRE EXTINGUISHERS. REQUIREMENT TO MODIFY THE EXISTING SPRINKLER HEADS TO SUIT OPEN CEILING (I.E. UPRIGHT HEADS) TO PROVIDE TEMPORARY SPRINKLER COVERAGE DURING VACANT CONSTRUCTION PERIOD SHALL BE SUBJECT TO THE REQUIREMENT OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
 10. REMOVE ALL EXISTING PLUMBING FIXTURES INCLUDING BUT NOT LIMITED TO: SINK, TRAPS, VENTS, DRAIN PIPES FROM CEILING SPACE OF FLOOR BELOW. PLUMBING TRIM. ALL PLUMBING SERVICES BACK TO MAIN AND CAP.
 11. ALLOW FOR REMOVAL OF TWO (2) ADDITIONAL SPRINKLER HEADS AND 1/2 FT. OF 1" SPRINKLER PIPING BRANCH FOR EACH HEAD.
 12. ALL EXISTING MECHANICAL SERVICES TO BE REMOVED AS SHOWN ON PLAN.

- KEYED NOTES (REFER TO PLAN):**
- ① REMOVE EXISTING SPRINKLER HEAD.
 - ② EXISTING SPRINKLER HEAD TO REMAIN, TYPICAL.
 - ③ REMOVE EXISTING SERVER PIPING, INCLUDING BUT NOT LIMITED TO: DOMESTIC COLD AND HOT WATER PIPING, VENT PIPING, DRAIN PIPING WITHIN FLOOR BELOW, AND ALL POWER FEEDS BACK TO THE ELECTRICAL PANEL. CAP VENT AND SANITARY PIPING AT CORE. WHERE POSSIBLE, PROVIDE TEMPORARY CAP CONNECTION FOR INSTALLATION OF THE NEW PLUMBING FIXTURES. COORDINATE DEMOLITION OF ALL SERVICES IN CEILING SPACE OF FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. MAKE PROVISIONS FOR WORK TO BE COMPLETED AFTER HOURS IF NECESSARY.
 - ④ EXISTING HOT WATER TANK TO REMAIN.

- SEPARATE PRICING NOTES:**
- ① EXISTING WATER CLOSET AND ALL ASSOCIATED ACCESSORIES TO BE DISCONNECTED, INCLUDING BUT NOT LIMITED TO: DOMESTIC COLD AND HOT WATER PIPING, VENT PIPING, DRAIN PIPING WITHIN FLOOR BELOW, AND ALL POWER FEEDS BACK TO THE ELECTRICAL PANEL. CAP VENT AND SANITARY PIPING AT CORE. WHERE POSSIBLE, PROVIDE TEMPORARY CAP CONNECTION FOR INSTALLATION OF THE NEW PLUMBING FIXTURES. COORDINATE DEMOLITION OF ALL SERVICES IN CEILING SPACE OF FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. MAKE PROVISIONS FOR WORK TO BE COMPLETED AFTER HOURS IF NECESSARY.
 - ② EXISTING LAV FAUCET AND ALL ASSOCIATED ACCESSORIES TO BE DISCONNECTED, INCLUDING BUT NOT LIMITED TO: DOMESTIC COLD AND HOT WATER PIPING, VENT PIPING, DRAIN PIPING WITHIN FLOOR BELOW, AND ALL POWER FEEDS BACK TO THE ELECTRICAL PANEL. CAP VENT AND SANITARY PIPING AT CORE. WHERE POSSIBLE, PROVIDE TEMPORARY CAP CONNECTION FOR INSTALLATION OF THE NEW PLUMBING FIXTURES. COORDINATE DEMOLITION OF ALL SERVICES IN CEILING SPACE OF FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. MAKE PROVISIONS FOR WORK TO BE COMPLETED AFTER HOURS IF NECESSARY.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation	Seal
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A	A Detail No
B	B Sheet No where detailed



Ministry PSIF Number
 Project
MECHANICAL RENOVATION

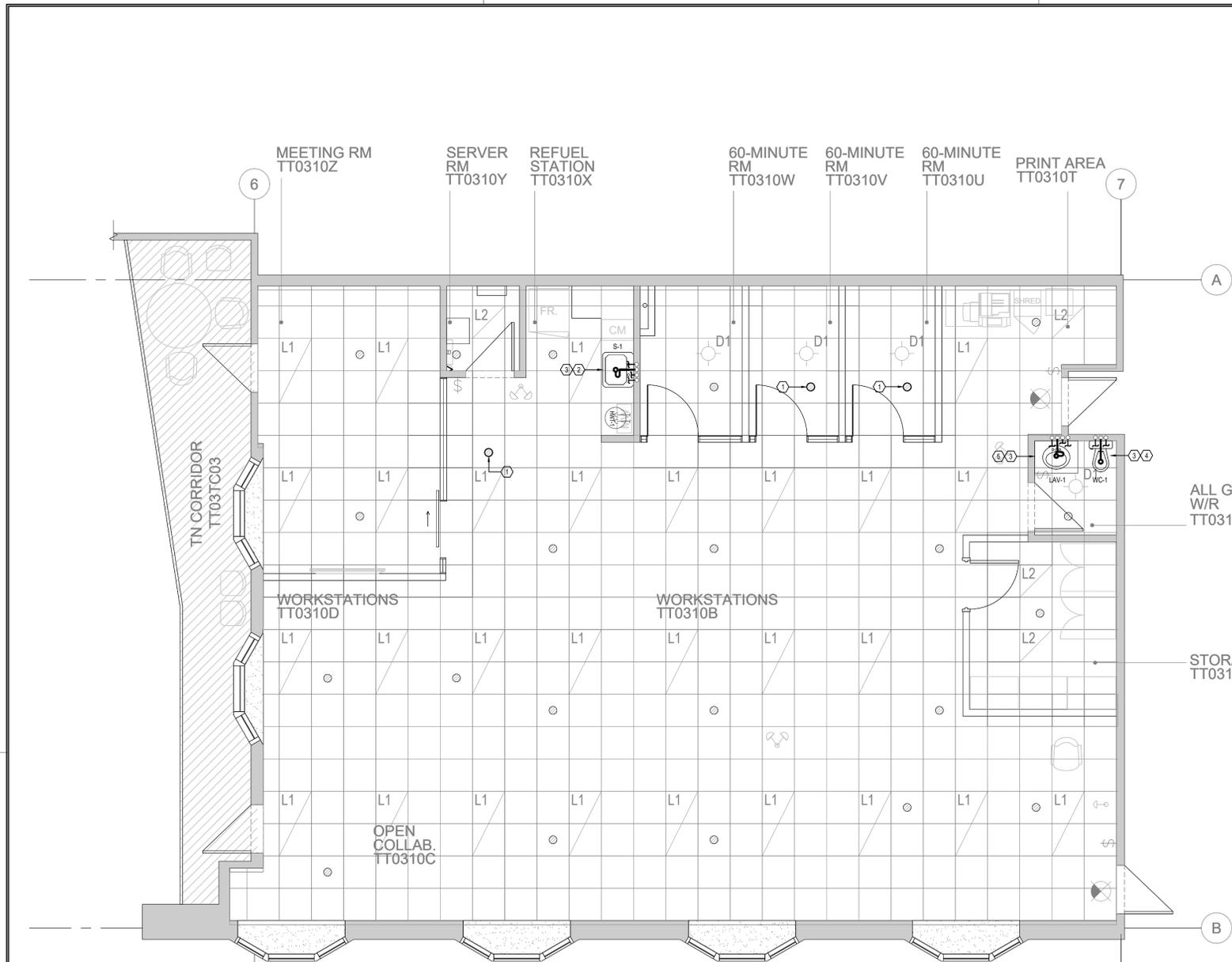
Location
 465 DAVIS DR. SUITE 301,
 NEWMARKET, ON L3Y 7T9
 IO Project No: 240256 Site No: - Building No: B25590

Client
 INFRASTRUCTURE ONTARIO (IO)

Drawing Title
**3RD FLOOR MECHANICAL PLAN:
 PLUMBING & FIRE PROTECTION LAYOUT
 - DEMOLITION**

Scale 1 : 50	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No
Approved by CP	Floor No F03

M-3.3.08
 CADD File NAME



- GENERAL NOTES:**
- UPON COMPLETION, DIVISION 15 SHALL SUBMIT TO LANDLORD ENGINEER STAMPED LETTER CERTIFYING THAT ALL FIRE SPRINKLER WORKS WITHIN THE EXTENT OF THIS PROJECT COMPLY WITH NFPA 13 AND CBC.
 - COORDINATE SPRINKLER HEAD LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS.
 - PRIOR TO COMMENCEMENT OF WORK, ORDERING OF EQUIPMENT AND/OR FABRICATING MATERIALS THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS. THIS SHALL BE DONE IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEERS OF ANY DISCREPANCIES, OMISSIONS AND/OR INTERFERENCES PRIOR TO COMMENCEMENT OF WORK. PROVIDE INTERFERENCE DRAWINGS.
 - EXACT PIPE ROUTES, DROPS, AND FINAL CONNECTIONS SHALL BE DETERMINED ON SITE WITH PROJECT MANAGER. REFER TO INTERFERENCE DRAWINGS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND FUTURE LOCATION AND CONNECTIONS.
 - PROVIDE ALL REQUIRED CUTTING AND PATCHING OF EXISTING FLOORING TO FACILITATE THE INSTALLATION OF THE MECHANICAL SERVICES OUTLINED FOR THIS SCOPE OF WORK.
 - PROVIDE SLEEVES FOR ALL NEW PIPING THROUGH EXISTING SLAB WALLS AND/OR BEAMS.
 - PLEASE ENSURE THAT ALL MATERIALS IN THE CEILING SPACE MEET OR EXCEED THE O.B.C. FLAME AND SMOKE SPREAD/DEVELOPMENT RATINGS.
 - BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION. COMPLY WITH LANDLORD'S REQUIREMENTS FOR SYSTEM SHUT-DOWN AND CONNECTION.
 - PREMIUM TIME COSTS SHALL BE INCLUDED FOR WORK OUTSIDE OF NORMAL WORKING HOURS. THIS INCLUDES ALL WORK WHICH MAY BE DEEMED NECESSARY. REFER TO LANDLORD'S CONSTRUCTION MANUAL.
 - SUPPLY AND INSTALL FIRESTOPPING AND SMOKE SEALS AROUND MECHANICAL SERVICE PIPING THROUGH FIRE-SMOKE RATED WALL AND FLOOR ASSEMBLIES. THE FIRESTOPPING MATERIAL AND INSTALLATION SHALL CONFORM TO CBC, LATEST EDITION LOCAL STANDARDS.
 - ALL SHUT-DOWNS OF ANY BASE BUILDING SYSTEM SHALL BE PERFORMED BY THE LANDLORD'S BUILDING OPERATIONS STAFF AND COORDINATED WITH THE LANDLORD.
 - LANDLORD SHALL HAVE THE OPTION TO RECEIVE ANY ITEMS CALLED TO BE REMOVED FROM SITE PRIOR TO REMOVAL FROM SITE.
 - COORDINATE WITH GENERAL CONTRACTOR TO SCHEDULE THE MECHANICAL CONTROLS DEMOLITION AND PROTECTIVE WORKS AS SPECIFIED ON PLANS.

- KEYED NOTES (REFER TO PLAN):**
- PROVIDE NEW SEMI-RECESSED TYPE SPRINKLER HEAD TO MATCH BASE BUILDING STANDARDS. TYPICAL.
 - PROVIDE NEW WITCHEN RINK (S-1) AND FAUCET AND ALL NECESSARY WATER SUPPLIES, SHUT-OFF VALVES, P-TRAP CLEANOUT AND PLUMBING ACCESSORIES FOR COMPLETE OPERATIONAL INSTALLATION. ACCOUNT FOR DOW, VENT, SAN PIPING TO BE IN TO EXISTING PLUMBING. COORDINATE INSTALLATION OF SERVICES IN FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT INCLUDING BUT NOT LIMITED TO WATER SPOUT ETC. REFER TO SCHEDULES AND DETAILS ON DRAWING M-2.2 AND M-4.4.
 - ALL NEW SHUT-OFF VALVES TO BE INSTALLED IN ACCESSIBLE AREAS. TYPICAL.

- SEPARATE PIPING NOTES:**
- PROVIDE NEW WATER CLOSET AND ACCESSORIES AND RECONNECT ALL EXISTING PLUMBING SERVICES TO FUTURE. ACCOUNT FOR DOW, VENT, SAN PIPING TO BE IN TO EXISTING PLUMBING. COORDINATE INSTALLATION OF SERVICES IN FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. COORDINATE WITH ELECTRICAL TRADE FOR ANY POWER REQUIREMENTS. REFER TO SCHEDULES ON DRAWING M-4.4.
 - PROVIDE NEW LAV, FAUCET AND ACCESSORIES AND RECONNECT ALL EXISTING PLUMBING SERVICES TO FUTURE. ACCOUNT FOR DOW, VENT, SAN PIPING TO BE IN TO EXISTING PLUMBING. COORDINATE INSTALLATION OF SERVICES IN FLOOR BELOW WITH LANDLORD AND TENANT OF OCCUPIED SPACE. COORDINATE WITH ELECTRICAL TRADE FOR ANY POWER REQUIREMENTS. REFER TO SCHEDULES ON DRAWING M-4.4.

No	Revisions	Date
3	ISSUED FOR TENDER	20250528
2	ISSUED FOR 99% REVIEW	20250415
1	ISSUED FOR 66% REVIEW	20250312

Orientation

Seal

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Ministry PSIF Number	
Project MECHANICAL RENOVATION	
Location 465 DAVIS DR. SUITE 301, NEWMARKET, ON L3Y 7T9	
IO Project No 240256	Building No B25590
Client INFRASTRUCTURE ONTARIO (IO)	
Drawing Title 3RD FLOOR MECHANICAL PLAN: PLUMBING & FIRE PROTECTION LAYOUT - NEW WORK	
Scale 1 : 50	Project Start Date 20241122
Drawn by AM	Substantial Performance Date 20251030
Designed by AM	Drawing No
Approved by CP	Floor No F03
M-3.4 of 08	
CADD File NAME	