

**MECHANICAL SPECIFICATIONS**

MECHANICAL CONTRACTOR SHALL SUBMIT PRICE FOR THE COST OF SUPPLY AND INSTALLATION OF EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE AND OPERATING MECHANICAL PACKAGE. MECHANICAL PACKAGE TO CONSIST OF EQUIPMENT AND MATERIALS AS DESCRIBED IN THIS OUTLINE SPECIFICATION. REFER TO MECHANICAL PLANS FOR ACTUAL REQUIREMENTS OF EQUIPMENT.

**A. GENERAL CONDITIONS**

1. PROVIDE ALL LABOUR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN ON ALL MECHANICAL DRAWINGS INCLUSIVE AND AS SPECIFIED HEREIN.
2. ALL NECESSARY PERMITS SHALL BE OBTAINED AND ALL FEES SHALL BE PAID TO CARRY OUT THE SPECIFIED WORK. PROVIDE ALL REQUIRED LOCAL PROVINCIAL ENGINEERING SEALS FOR DRAWINGS AND DESIGNS TO OBTAIN BUILDING CONSTRUCTION PERMITS, ETC.
3. ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF COMPLETED WORK ACCEPTANCE BY THE ARCHITECT. SUBMIT DOCUMENTATION IDENTIFYING ADDITIONAL EQUIPMENT WARRANTY COVERAGE AND TIME FRAMES.
4. ALL WORK SHALL COMPLY IN EVERY RESPECT WITH ALL NATIONAL, PROVINCIAL, AND LOCAL BY-LAWS AND CODES, WHICH SHALL BE CONSIDERED PART OF THIS SPECIFICATION.
5. ALL CUTTING, PATCHING, FLASHING FOR WORK AS REQUIRED HEREIN SHALL BE BY THE GENERAL CONTRACTOR.
6. THE MECHANICAL CONTRACTOR SHALL INSTALL HEATING, AIR CONDITIONING, AND PLUMBING SYSTEMS IN COMPLETE ACCORDANCE WITH THE RECOMMENDATIONS OF THE ASHRAE, NATIONAL WARM AIR STANDARDS, SMACNA LATEST EDITION DUCT STANDARDS, AND LOCAL PLUMBING CODES.
7. CO-ORDINATE WORK WITH WORK OF OTHER TRADES TO AVOID CONFLICT.
8. ALTER THE LOCATION OF DUCTS OR PIPES AT THE DIRECTION OF THE ENGINEER WITHOUT CHARGE TO THE OWNER, PROVIDED THE CHANGE IS MADE BEFORE INSTALLATION AND DOES NOT NECESSITATE ADDITIONAL MATERIALS.
9. TENDER QUOTATIONS SHALL BE BASED ON THE USE OF SPECIFIED MANUFACTURERS. UNLESS APPROVAL FOR THE USE OF EQUAL MANUFACTURERS IS OBTAINED FROM THE ENGINEER PRIOR TO SUBMISSION OF TENDERS. ALTERNATE MANUFACTURERS MAY BE QUOTED AS AN INCREASE OR DECREASE AMOUNT TO THE TENDER PRICE, WITHOUT PRIOR APPROVAL OF THE ENGINEER. THE USE OF AN EQUAL OR ALTERNATE MANUFACTURER SHALL IN NO WAY RELIEVE THE MECHANICAL CONTRACTOR FROM THE RESPONSIBILITY OF PROVIDING ALL WORK THAT MAY BE REQUIRED BY REASON OF DIFFERENT SPACE, WEIGHT, ELECTRICAL, OR OTHER REQUIREMENTS FROM THAT OF THE SPECIFIED MANUFACTURER.
10. FURNISH TO THE ENGINEER ELECTRONIC PDF COPIES CONTAINING THEREIN ONE (1) COMPLETE SET OF MANUFACTURERS' OPERATING AND MAINTENANCE INSTRUCTIONS SHOWING ALL MAJOR EQUIPMENT, AND APPARATUS REQUIRING MAINTENANCE. INSTRUCTIONS SHALL BE COMPLETE FOR INSTALLATION, OPERATION AND MAINTENANCE AND SHALL INCLUDE PERTINENT INFORMATION SUCH AS DETAILED DRAWINGS AND OPERATION CURVES. SPARE PARTS, SUPPLIER LISTS AND ADDRESSES SHALL BE SUPPLIED. INSTRUCTIONS SHALL BE REQUIRED WITH THE OWNERS' REPRESENTATIVE TO ENSURE A THOROUGH UNDERSTANDING OF THE EQUIPMENT AND ITS OPERATION.
11. ALL WIRING AND SUPPLY AND INSTALLATION OF DISCONNECT SWITCHES FOR EQUIPMENT SPECIFIED HEREIN SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED.
12. PRIOR TO SUBMITTING TENDER PRICE, CONTRACTOR SHALL EXAMINE THE SITE AND CONDITIONS AFFECTING WORK, METHODS OF CONNECTION AND LOCATION OF ALL SERVICES INVOLVED UNDER THIS CONTRACT. FAILURE TO MAKE THIS VISIT IN NO WAY ALLEVIATES THE MECHANICAL CONTRACTOR FROM RESPONSIBILITY FOR COMPLETING THE MECHANICAL WORK OF THIS CONTRACT IN A WORKMANLIKE MANNER. NO ALLOWANCE WILL BE MADE AFTER CONTRACT AWARD FOR ANY EXPENSE INCURRED THROUGH A FAILURE TO MAKE THIS EXAMINATION AND INVESTIGATION.
13. SCHEDULING OF ALL WORK SHALL BE ARRANGED WITH THE OWNER, AND THE OWNER SHALL BE NOTIFIED AND HIS APPROVAL OBTAINED PRIOR TO SHUTTING OFF EXISTING SERVICES FOR PURPOSES OF CONNECTING NEW WORK.
14. PROVIDE AN AUTOCAD FILE COPY OF THE CONTRACT DRAWINGS FOR RECORD "AS-BUILT" DRAWINGS, REVISED AS REQUIRED TO SHOW ANY DEVIATIONS OF LAYOUTS FROM THAT ORIGINALLY SHOWN.
15. PROVIDE ONE SET OF SPECIAL TOOLS REQUIRED TO SERVICE EQUIPMENT AS RECOMMENDED BY MANUFACTURERS.
16. PROVIDE DIELECTRIC COUPLINGS WHEREVER PIPES OF DISSIMILAR METALS ARE JOINED.
17. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE TEMPORARY HEATING AS REQUIRED FOR THE PROPER AND PROGRESS OF THE WORK.
18. THE MECHANICAL CONTRACTOR SHALL PROVIDE ELECTRONIC PDF COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT FOR REVIEW AND APPROVAL BY ENGINEERS.
19. PIPE HANGERS WHERE REQUIRED SHALL BE GRINNELL FIG. 65 FOR STEEL PIPE AND FIG. CP65 FOR COPPER PIPE, ALL WITH FIG. 140 THREADED ROD ATTACHED TO FIG. 117 EXPANSION CASE SET IN HOLES DRILLED IN CONCRETE, OR ATTACHED TO FIG. 225 OR 227 CLAMP ATTACHED TO FLOOR JOIST AND ROOF JOIST. FOR INSULATED PIPING, PROVIDE PROTECTION SADDLES SIZE HANGER TO ACCOMMODATE INSULATION WHERE APPLIED. (NO PERFORATED STRAP HANGERS WILL BE ACCEPTED FOR SUPPORT METHOD.)

**B. SHOP DRAWINGS**

1. SHOP DRAWINGS AND DATA SHEETS FOR EQUIPMENT INTENDED FOR INSTALLATION UNDER THIS CONTRACT SHALL BE REVIEWED, DATED AND STAMPED BY MECHANICAL CONTRACTOR FIRST AND THEN SUBMITTED FOR CONSULTANT'S REVIEW. AFTER CONSULTANT'S REVIEW, SHOP DRAWINGS WILL BE RETURNED TO THE MECHANICAL CONTRACTOR.
- PLUMBING FIXTURES.

**C. GUARANTEE**

1. THE CONTRACTOR SHALL EXECUTE AND DELIVER TO THE OWNER, BEFORE FINAL PAYMENT, A WRITTEN GUARANTEE IN FORM SATISFACTORY TO THE OWNER THAT ALL LABOUR AND MATERIALS FURNISHED AND WORK PERFORMED BY THE CONTRACTOR ARE IN ACCORDANCE WITH THE CONTRACT. CONTRACT DRAWINGS, SPECIFICATIONS AND AUTHORIZED ALTERATIONS AND ADDITIONS THERETO AND, SHOULD ANY DEFECT DEVELOP DURING THE CONTRACT GUARANTEE PERIOD AS HEREINAFTER DEFINED DUE TO IMPROPER MATERIALS, WORKMANSHIP OR ARRANGEMENT, THE SAME TOGETHER WITH ANY OTHER WORK AFFECTED IN CORRECTING SUCH DEFECT SHALL, UPON WRITTEN NOTICE BE MADE GOOD BY THE CONTRACTOR WITHOUT EXPENSE TO THE OWNER.
2. THE CONTRACTOR'S AFORESAID GUARANTEE SHALL COVER ALL WORK UNDER THE CONTRACT, WHETHER OR NOT ANY PORTION OR TRADE HAS BEEN ASSIGNED OR SUBLET. IN THE EVENT ANY PORTION OF THE WORK IS PERFORMED BY ASSIGNEES AND SUBCONTRACTORS THEIR WRITTEN GUARANTEE TO THE OWNER COVERING THEIR RESPECTIVE PORTIONS OF THE WORK FOR THE PERIODS SPECIFIED AND SHALL DELIVER SAME, TOGETHER WITH HIS OWN GUARANTEE, TO THE OWNER. ASSIGNEES AND SUBCONTRACTORS' GUARANTEES SHALL EXPRESSLY PROVIDE THAT THE SAME SHALL BE ENFORCEABLE DIRECTLY BY THE OWNER AND SHALL RUN CONCURRENTLY WITH THE CONTRACTOR'S GUARANTEE.

**D. CLOSE-OUT DOCUMENTS AND INSTRUCTIONS**

- AS-BUILT DRAWINGS
- EQUIPMENT TESTING AND STARTUP REPORT
- WARRANTIES
- ALL APPROVAL AND VERIFICATION CERTIFICATES
- MAINTENANCE MANUALS
- INSTRUCT OWNER IN THE OPERATION OF ALL EQUIPMENT AND MAKE FAMILIAR WITH SYSTEM
- AIR TESTING AND BALANCING REPORT

**E. COMMISSIONING AND DEMONSTRATION**

1. THE COMMISSIONING PROCESS REQUIRES THE COMPLETE PROCESS TO TEST, ADJUST AND BALANCE SYSTEMS TO PERFORM IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND TO DO ALL OTHER WORK AS SPECIFIED IN THIS SECTION.
2. THE MECHANICAL CONTRACTOR SHALL ACT AS THE COMMISSIONING AGENT FOR THIS PROJECT.
3. TO ADJUST AND REGULATE EQUIPMENT AND SYSTEMS SO AS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS AND TO ACHIEVE SPECIFIED INTERACTION WITH ALL OTHER RELATED SYSTEMS UNDER ALL NORMAL AND EMERGENCY LOADS AND OPERATING CONDITIONS.
4. BALANCE SYSTEMS AND EQUIPMENT TO REGULATE FLOW RATES TO MATCH LOAD REQUIREMENTS OVER FULL OPERATING RANGES.

**F. PLUMBING**

1. PROVIDE COMPLETE FUNCTIONAL PLUMBING SYSTEM COMPRISED OF DOMESTIC WATER PIPING, NATURAL GAS PIPING, VENT PIPING, SANITARY DRAINAGE PIPING, ETC.
2. SANITARY DRAINAGE AND VENT PIPING MATERIAL SHALL BE CAST IRON CERTIFIED TO CAN/CSA-B70 OR PVC DRAIN, WASTE, AND VENT PIPE AND PIPE FITTINGS CERTIFIED TO CAN/CSA-B181.2. ABS PIPING IS NOT ACCEPTABLE.
3. PROVIDE IPEX SYSTEM XFR PIPE AND FITTINGS C/W APPROVED FIRE STOPS TO CAN/ULC-S115 IN AREA WHERE THE CEILING SPACE IS UTILIZED AS RETURN AIR PLENUM OR WHEN INSTALLED IN A BUILDING CLASSIFIED AS A HIGH BUILDING.
4. STORMWATER DRAINAGE PIPING MATERIAL SHALL BE CAST IRON CERTIFIED TO CSA-B70 OR PVC DRAIN, WASTE AND VENT PIPE AND PIPE FITTINGS CERTIFIED TO CAN/CSA-B181.2. ABS PIPING IS NOT ACCEPTABLE.
5. DOMESTIC HOT AND COLD WATER PIPING SHALL BE TYPE "L" HARD COPPER TUBING WITH SOLDERED FITTINGS FLEX. PEX PIPE NOT ACCEPTABLE.
6. DRAINS AND VENT PIPING ABOVE GROUND INSIDE BUILDING SHALL BE DWV COPPER, CAST IRON CLASS 4000 OR PLASTIC PIPE WHERE APPLICABLE OR APPROVED BY LOCAL AUTHORITIES. JOINTS SHALL BE SOLDERED FOR COPPER, MECHANICAL JOINT FOR CAST IRON PIPE, AND SOLVENT CEMENT FOR PLASTIC PIPE.
7. MECHANICAL CONTRACTOR SHALL VERIFY ON SITE ALL CONNECTION POINTS TO EXISTING SERVICES. EXTEND ALL SERVICES INSIDE BUILDING AS SHOWN ON DRAWINGS. CONNECT SEWER AND WATER SERVICES TO EXTERIOR BUILDING SERVICES. CONFIRM AND VERIFY EXACT LOCATIONS AND INVERTS OF BUILDING SERVICES WITH SITE CONDITIONS. ALL CONNECTIONS TO BE MADE IN ACCORDANCE WITH LOCAL PROVINCIAL CODE REQUIREMENTS.
8. USE 95.5 TIN ANTIMONY BRAZING SOLDER ON ALL HOT AND COLD WATER PIPING. USE NON-CORROSIVE NON-LEADED FLUX.
8. ALL VALVES TO BE BY ONE MANUFACTURER.
9. MECHANICAL CONTRACTOR SHALL ALLOW FOR IN TENDER QUOTATION ANY ADDITIONAL LABOUR, MATERIALS, ETC. DEEMED NECESSARY DUE TO EXACT SITE CONDITIONS WHICH HAVE NOT BEEN REFLECTED ON MECHANICAL DRAWING OR IN MECHANICAL SPECIFICATION.
10. MECHANICAL CONTRACTOR SHALL CONNECT DOMESTIC WATER LINES, VENT LINES, SANITARY DRAIN SERVICES AS SHOWN FOR ALL PLUMBING FIXTURE INSTALLATIONS.
11. PROVIDE ACCESS DOORS, CLEANOUT COVERS, ETC FOR ALL EQUIPMENT REQUIRING ACCESS FOR SERVICING OR OPERATING PURPOSES. ACCESS DOORS TO BE PROVIDED BY DIVISION 15 FOR INSTALLATION BY SUB-TRADE PROVIDING WALL, CEILING, FLOORING, ETC.
12. PROVIDE SHUT-OFF VALVES ON BOTH DOMESTIC WATER LINES SERVING EACH PIECE OF EQUIPMENT, PLUMBING FIXTURE, ETC.
13. PROVIDE ESCUTCHEON PLATE COVERS OVER ANY DOMESTIC WATER LINES, DRAIN LINES, ETC PENETRATING WALLS.
14. PROVIDE TRAP PRIMERS AND PRIMER LINES. INSTALL IN CONCEALED LOCATION WITH ACCESS PANEL..

**G. PIPING AND EQUIPMENT IDENTIFICATION**

1. IDENTIFY ALL PIPING SYSTEMS. INDICATE PIPE SIZE, SERVICE AND DIRECTION OF FLOW.
2. THE LETTERING SHALL BE PROPORTIONAL TO THE OUTSIDE DIAMETER OF THE PIPE OR COVERING RANGING FROM 13MM HIGH TO 20MM O.D., PIPE OR COVERING UP TO 100MM HIGH ON 300MM O.D. PIPE OR COVERING. BRADLEY PIPE TAG SHALL BE THE STANDARD OF LABELS. PIPES SMALLER THAN 20MM O.D. PIPE OR COVERING MAY BE Banded WITH COLOURED PLASTIC TAPE IN LIEU OF PAINT AND THE CONTENTS IDENTIFIED BY MEANS OF "DYNMO" EMBOSSED PLASTIC LABELS. STENCIL A DIRECTION-OF-FLOW ARROW ON EACH COLOUR BAND. PIPE IDENTIFICATION SHALL BE APPLIED AT EACH HORIZONTAL OR VERTICAL CHANGE IN DIRECTION AND A MAXIMUM OF 12 METER APART.

**H. PIPING INSULATION**

1. ALL WATER LINES LISTED BELOW SHALL BE INSULATED WITH 25MM THICK DUAL TEMPERATURE GLASS FIBRE PIPE INSULATION. INSULATION SHALL BE MANUFACTURED BY FIBREGLASS OF CANADA.
2. THIS INSULATION SHALL BE SUPPLIED COMPLETE WITH FLAME RETARDANT VAPOUR BARRIER JACKET CONSISTING OF GLASS FIBRE, REINFORCED LAMINATE OF ALUMINUM FOIL AND KRAFT PAPER. LONGITUDINAL SEAMS OF THE VAPOUR BARRIER JACKET SHALL BE SEALED WITH VAPOUR-PROOF ADHESIVE, FLINTKOTE TYPE 32. INSULATE AND TAPE ALL VALVES AND FITTINGS. EXPOSED PIPING INSULATION TO BE FINISHED WITH 8 OZ. FATTAL U.L.C. LISTED CANVAS AND CHILDERS LAGGING. NON-U.L.C. LISTED CANVAS WILL NOT BE ACCEPTED.
3. PROVIDE POLYVINYL JACKETING FOR ALL PIPING INSIDE MECHANICAL ROOM AND IN AREAS EXPOSED TO VIEW.
4. INSULATE THE FOLLOWING PIPING, FITTINGS AND COMPONENTS:
  - DOMESTIC COLD WATER
  - DOMESTIC HOT WATER AND RECIRCULATION
  - INTERNAL RAIN WATER LEADERS ABOVE GRADE
  - SANITARY VENTS
  - CONDENSATE DRAINS

5. UNBURIED DOMESTIC COLD WATER PIPING: HEAVY DENSITY GLASS FIBRE PREFORMED PIPE INSULATION WITH MAXIMUM OF 0.033 W/M-K CONDUCTIVITY AT 24°C MEAN WITH FACTORY APPLIED VINYL FOIL KRAFT LAMINATED GLASS FIBRE REINFORCED FIRE RESISTIVE VAPOUR BARRIER JACKET WITH NOT MORE THAN 1.15 PERM RATING (ASJ) WITH SEALED LAPPED JOINTS. USE 1" (25 MM) THICKNESS ON PIPING UP TO 1-1/2" (38 MM) SIZE, AND 2" (50 MM) THICKNESS ON PIPING 1-1/2" (38 MM) AND ABOVE.
  6. UNBURIED DOMESTIC HOT WATER RECIRCULATING PIPING: HEAVY DENSITY GLASS FIBRE PREFORMED PIPE INSULATION WITH MAXIMUM 0.035 W/M-K CONDUCTIVITY AT 38°C MEAN WITH FACTORY APPLIED FIRE RESISTIVE VAPOUR BARRIER JACKET OF NOT MORE THAN 1.15 PERM RATING. USE 2" (50 MM) THICKNESS ON ALL DOMESTIC HOT WATER RECIRCULATING PIPING.
  7. UNBURIED DOMESTIC HOT WATER PIPING: HEAVY DENSITY GLASS FIBRE PREFORMED PIPE INSULATION WITH A MAXIMUM 0.035 W/M-K CONDUCTIVITY AT A MEAN TEMPERATURE OF 38°C WITH FACTORY APPLIED FIRE RESISTIVE VAPOUR BARRIER JACKET OF NOT MORE THAN 1.15 PERM RATING. INSULATE ALL PIPES BETWEEN THE HOT WATER SOURCE OR RECIRCULATION LOOP AND THE FIXTURE USING THE FOLLOWING MINIMUM THICKNESSES: USE 1" (25 MM) THICKNESS ON PIPING UP TO 1-1/2" (38 MM) SIZE, AND 2" (50 MM) THICKNESS ON PIPING 1-1/2" (38 MM) AND ABOVE.
  8. EXPOSED HORIZONTAL & VERTICAL RUNS OF SANITARY DRAINS EXCEPT AS NOTED ABOVE: 1" FIBERGLASS INSULATION WITH POLYVINYL COVERING C/W PVC JACKETS.
  9. VENT PIPING: INSULATE THE FIRST 3.0M OF ALL VENT PIPING INSIDE THE BUILDING BETWEEN THE POINTS THEY EXIT AT THE ROOF LEVEL AND THROUGH THE SLAB ON GRADE INSULATION. USE 2" HEAVY DENSITY GLASS FIBRE PREFORMED PIPE INSULATION WITH A POLYVINYL COVERING AND A MAXIMUM 0.035 W/M-K CONDUCTIVITY AT A MEAN TEMPERATURE OF 38°C.
  10. VALVES AND FITTINGS: 2" (50 MM) GLASS FIBRE BLANKET CONFORMING TO CGSB #51\_BF11 COMPRESSED TO SAME THICKNESS AS ADJOINING INSULATION AND SECURED WITH JUTE TWINE. OVER THIS APPLY SMOOTH COAT OF INSULATING CEMENT AND RECOVER WITH 4 OZ (135.6 G/M<sup>2</sup>) CANVAS. ON COLD WATER PIPING WRAP BLANKET WITH FOIL FACED FRICTION TAPE OVERLAPPED TO FORM VAPOUR BARRIER BEFORE APPLYING INSULATION CEMENT. SEAL ALL VAPOUR BARRIERS.
  11. END JOINTS SHALL BE COVERED WITH A 4" (100 MM) WIDE FACTORY SUPPLIED STRIP OF THE SAME MATERIAL AS THE INSULATION JACKET AND SEALED WITH ADHESIVE.
  12. AT ALL FITTINGS AND VALVES, INSULATION ENDS SHALL BE MITRED AND FITTINGS, ETC., SHALL BE TIGHTLY WRAPPED WITH GLASS FIBRE BLANKET BUILT UP TO AN EQUIVALENT THICKNESS. ALUMINUM FOIL 2 MIL THICKNESS SHALL BE WRAPPED OVER THE BLANKET INSULATION TO PROVIDE A VAPOUR BARRIER AND THE WHOLE WRAPPED WITH GLASS FABRIC MEMBRANES SATURATED WITH BRUSH COAT OF VAPOUR PROOF MASTIC.
  13. CONDENSATE PIPING: 0.5" (13 MM) THICK GLASS FIBRE PIPE INSULATION. ENSURE CONTINUOUS VAPOUR BARRIER.
- I. FIRESTOPPING**
1. THIS CONTRACTOR SHALL WORK WITH ALL OTHER CONTRACTORS ON THE PROJECT IN PROVIDING ONE COMMON METHOD OF FIRE STOPPING ALL PENETRATIONS MADE IN FIRE RATED ASSEMBLIES.
  2. APPROVED FIRE STOPPING AND SMOKE SEAL MATERIAL IN ALL FIRE SEPARATIONS AND FIRE RATINGS WITHIN ANNULAR SPACE BETWEEN PIPES, DUCTS, INSULATION AND ADJACENT FIRE SEPARATION AND/OR FIRE RATING.
  3. DO NOT USE CEMENTIOUS OR RIGID SEALS AROUND PENETRATIONS FOR PIPE, DUCTWORK, OR OTHER MECHANICAL ITEMS.
  4. INSULATED PIPES AND DUCTS: ENSURE INTEGRITY OF INSULATION AND VAPOUR BARRIER AT FIRE SEPARATION.
  5. PROVIDE MATERIALS AND SYSTEMS CAPABLE OF MAINTAINING EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES. ENSURE CONTINUITY AND INTEGRITY OF FIRE SEPARATION.
  6. COMPLY WITH THE REQUIREMENTS ON CAN4-S115-M35, AND DO NOT EXCEED OPENING SIZED FOR WHICH THEY HAVE BEEN TESTED.
  7. SYSTEMS TO HAVE AN F OR FT RATING (AS APPLICABLE) NOT LESS THAN THE FIRE PROTECTION RATING REQUIRED FOR CLOSURES IN FIRE SEPARATION. PROVIDE FIRE WRAP BLANKET AROUND SERVICES PENETRATING FIRE WALLS. EXTENT OF BLANKET MUST CORRESPOND TO ULC RECOMMENDATIONS.
  8. THE FIRE STOPPING MATERIALS ARE NOT TO SHRINK, SLUMP OR SAG AND TO BE FREE OF ASBESTOS, HALOGENS AND VOLATILE SOLVENTS.
  9. FIRESTOPPING MATERIALS ARE TO CONSIST OF A COMPONENT SEALANT APPLIED WITH A CONVENTIONAL CAULKING GUN AND TROWEL.
  10. FIRE STOP MATERIALS ARE TO BE CAPABLE OF RECEIVING FINISH MATERIALS IN THOSE AREAS WHICH ARE EXPOSED AND SCHEDULED TO RECEIVE FINISHES. EXPOSED SURFACES ARE TO BE ACCEPTABLE TO CONSULTANT PRIOR TO APPLICATION OF FINISH.
  11. FIRESTOPPING SHALL BE INSPECTED AND APPROVED BY LOCAL AUTHORITY PRIOR TO CONCEALMENT OR ENCLOSURE.
  12. INSTALL MATERIALS AND COMPONENTS IN ACCORDANCE WITH ULC CERTIFICATION, MANUFACTURER'S INSTRUCTIONS AND LOCAL AUTHORITY.
  13. SUBMIT PRODUCT LITERATURE AND INSTALLATION MATERIAL ON FIRE STOPPING IN SHOP DRAWING AND PRODUCT DATA MANUAL. MAINTAIN COPIES OF THESE ON SITE FOR VIEWING BY INSTALLERS AND CONSULTANT.
  14. MANUFACTURER OF PRODUCT SHALL PROVIDE CERTIFICATION OF INSTALLATION. SUBMIT LETTER TO THE CONSULTANT.
  15. ACCEPTABLE MANUFACTURER: 3M, HILTI OR APPROVED EQUIVALENT.

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No.	REVISION	DATE (MM/DD/YYYY)
3	ISSUED FOR PERMIT/ TENDER	01/30/2026
2	ISSUED FOR CLIENT REVIEW	06/03/2025
1	ISSUED FOR 90% COORDINATION	05/01/2025

  
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PROJECT:  
**GLEN WILLIAMS PS  
 HDSB**  
 512 MAIN STREET,  
 GEORGETOWN, ON

CLIENT:  
**HALTON DISTRICT SCHOOL BOARD**

DWG. TITLE:  
**MECHANICAL SPECIFICATION 1**

DESIGN: TP	SCALE: AS NOTED
DRAWN: JP	JOB No: <b>25015</b>
CHECKED: CK	
DATE: 04.04.2025	DWG. No: <b>MO.01</b>



PLUMBING FIXTURE SCHEDULE									
TAG	SPECIFICATION	FIXTURE SIZE	CW	HW	WASTE	VENT	REMARKS		
S-1	FRANKE COMMERCIAL LBS6108P-1-3 POLISHED COMPLIANT SINGLE COMPARTMENT STAINLESS STEEL TYPE 304 SINK WITH FAUCET LEDGE, C/W 8" CENTERSET.	CHICAGO 786-GR8E35V317XKAB TWO HANDLE COUNTER MOUNTED SINK FAUCET c/w 1.5gpm AERATOR, 8" CENTERSET, ANGLE STOPS, FLEXIBLE RISERS, RIGID GOOSENECK SPOUT c/w LAWLER MIXING VALVE MODEL NO TMM-1070-87500 w/ THERMOSTATIC LIMIT STOP.	13mm	13mm	38mm	32mm			

NOTES:  
1. EACH PLUMBING FIXTURE SHALL BE LOW WATER CONSUMPTION IN ACCORDANCE TO ONTARIO BUILDING CODE.  
2. PROVIDE ALL REQUIRED FITTINGS, TRAPS, VALVES, FAUCETS AND ESCUTCHEONS TO COMPLETE EACH FIXTURE INSTALLATION.  
3. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BEFORE ORDERING ANY FIXTURE.  
4. ALL ANGLE STOPS TO BE DAHL 1/4 TURN MINI BALL VALVE. NO ALTERNATE WILL BE ACCEPTABLE.

EX. VERTICAL UNIT VENTILATOR SCHEDULE (FOR REFERENCE ONLY)																	
TAG	MANUFACTURER	MODEL	TYPE	AREA SERVED	AIR FLOW (CFM)	ESP " W.C.	MIN FRESH AIR (CFM)	HEATING COIL DATA			COOLING COIL DATA		COOLING TYPE	EER	ELECTRICAL		WEIGHT (LBS)
								CAPACITY (MBH)	EWT/LWT (F)	FLOW (USGPM)	TOTAL (MBH)	SENSIBLE (MBH)			V/PH/HZ	HP	
EX.UV-1	SYSTEM AIR	SHOPOMORE	VERTICAL SELF-CONTAINED UV	CLASSROOM 1	1000	0.25	350	50.8	180/154	4	32.8	20.1	DX	11.3	208/3/60	0.5	1000
EX.UV-4	SYSTEM AIR	SHOPOMORE	VERTICAL SELF-CONTAINED UV	CLASSROOMS 3,5 & 7	1000	0.25	350	50.8	180/154	4	44.2	25.8	DX	11.3	208/3/60	0.75	1000

NOTES:  
1. UNIT SHALL BE C/W FACTORY MOUNTED STARTER AND DISCONNECT SWITCH. UNITS SHALL BE COMPLETE WITH EXTERIOR LOUVERS, WALL SLEEVES, PLENUMS, STAND-OFFS AND PIPE CHASE.  
2. UNITS SHALL BE SELECTED FOR HEATING HOT WATER ENTERING TEMPERATURE OF 180F AND LEAVING TEMPERATURE OF 155F.  
3. COOLING CAPACITY TO BE BASED ON EAT (DB/WB) 80F/67F. DESIGN AMBIENT (DB) 95F. REFRIGERANT SHALL BE R-410A.

GRILLE AND DIFFUSER SCHEDULE									
TAG	MANUFACTURER	MODEL	TYPE	SIZE	NECK SIZE	FINISH	MOUNTING	DAMPER	REMARKS
RA1	E.H PRICE	EGG CRATE	RETURN	AS NOTED	-	B12	WALL MOUNTED	NO	SEE BELOW

NOTES:  
1. ACCEPTABLE EQUIVALENT : KRUEGER, NAILOR, METALAIRE.

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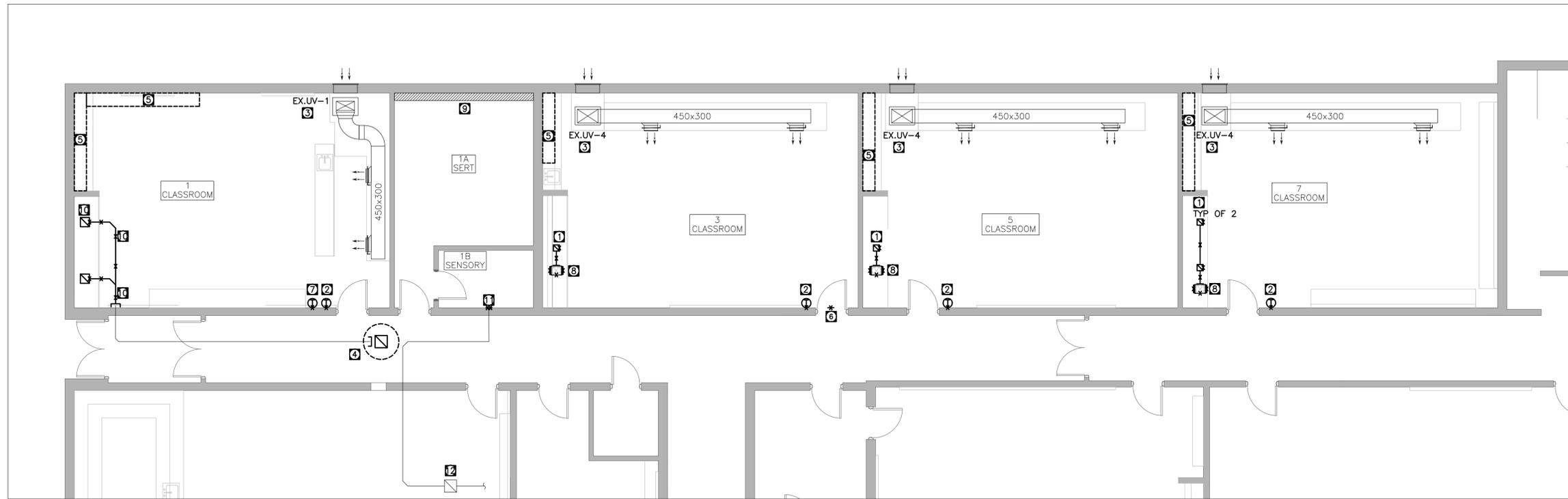
PROJECT:  
**GLEN WILLIAMS PS  
HDSB**

512 MAIN STREET,  
GEORGETOWN, ON

CLIENT:  
**HALTON DISTRICT SCHOOL BOARD**

DWG. TITLE:  
**MECHANICAL SCHEDULES**

DESIGN: TP	SCALE: AS NOTED
DRAWN: JP	JOB No: <b>25015</b>
CHECKED: CK	DWG. No: <b>MO.03</b>
DATE: 04.04.2025	



GROUND FLOOR HVAC DEMOLITION LAYOUT – PHASE 1  
1:75

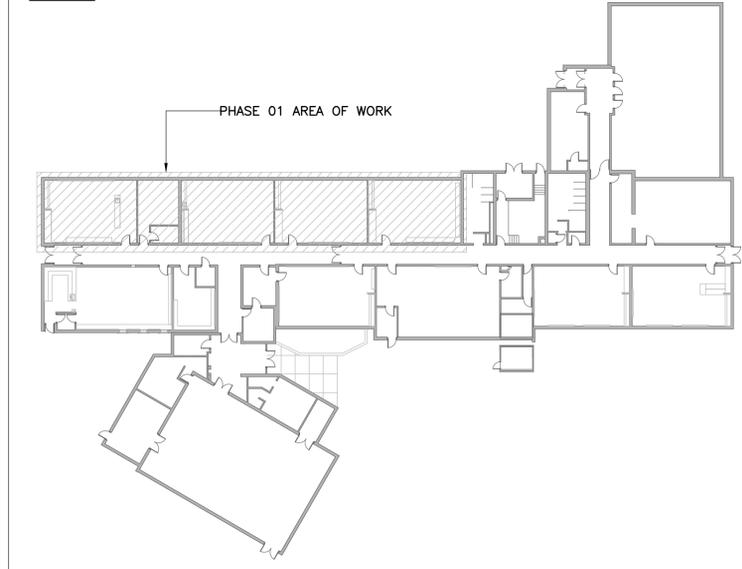
**GENERAL NOTES:**

- A. DO NOT SCALE DRAWINGS IN THIS PACKAGE. DRAWING IS DIAGRAMMATIC IN PART OR IN WHOLE AND IS INTENDED TO CONVEY THE GENERAL ARRANGEMENT OF COMPONENTS ONLY. VERIFY ALL DIMENSIONS, CLEARANCES, DISTANCES AND OTHER FACTORS AFFECTING WORK ON SITE AND PRIOR TO ORDERING EQUIPMENT OR START WORK.
- B. THIS DRAWING DOES NOT SHOW ALL HIDDEN OR CONCEALED PIPING, DUCTS, PLUMBING AND EQUIPMENT. CONTRACTOR SHALL VISIT THE SITE AND MAKE THEIR OWN EVALUATION AND ESTIMATE OF THE EXTENT AND MAGNITUDE OF THE WORK INVOLVED.
- C. REMOVE EQUIPMENT, PIPING, DUCTING, SUPPORTS, CONTROLS, PLUMBING MATERIAL, HOUSE KEEPING PAD, SHOWN WITH 'x' MARK THROUGHOUT. (UNLESS OTHERWISE INDICATED).
- D. REMOVE EXISTING CEILING AS REQUIRED TO INSTALL NEW SERVICES. REINSTALL SALVAGED CEILING COMPONENTS TO MATCH CONFIGURATION AND HEIGHT OF EXISTING CONDITION UNLESS NOTED OTHERWISE. REPLACE DAMAGED MATERIALS WITH MATERIALS TO MATCH EXISTING.
- E. SCHEDULE WORK IS TO BE PERFORMED IN A GIVEN AREA WITH OWNER AND ENGINEER WITH A WRITTEN PRE-PLANNED SCHEDULE, SO THAT THE SITE IS CLEAN, FULLY FUNCTIONAL AND READY FOR OWNER'S PROGRAMS AT THE CONCLUSION OF WORK IN A GIVEN WORK AREA. DO NOT LEAVE OPENINGS, NON-FUNCTIONAL DEVICES, EQUIPMENT OR SYSTEM OF ANY SORT IN OCCUPIED SPACES.
- F. CONTRACTOR TO ALLOW FOR FREEZING OF EXISTING HYDRONIC PIPES FOR DEMOLITION WORK.

**DEMOLITION NOTES:**

- 1 REMOVE EXISTING EXHAUST GRILLE, CUT/CAP DUCTS INSIDE CLOSET SPACE AND FINISH TO MATCH NEW ARCHITECTURAL FINISHING.
- 2 REMOVE & RELOCATE EXISTING THERMOSTAT TO CLASS ROOM NEW MCP PANEL, WIRING BY ELECTRICAL.
- 3 EXISTING UNIT VENTILATOR WITH SUPPLY AIR DUCT, FRESH AIR DUCT c/w LOUVER, HOT WATER SUPPLY AND RETURN CONNECTIONS w/ TCV AND ISOLATION VALVES TO REMAIN.
- 4 REMOVE EXISTING EXHAUST FAN FROM ROOF ABOVE CORRIDOR 25. DISCONNECT POWER FROM SOURCE AND MAKE SAFE. PATCH AND REPAIR ROOF AS REQUIRED TO MATCH EXISTING CONSTRUCTION. SEAL DUCT ABOVE ROOF PROPERLY THROUGH EXISTING ROOF CURB OR INSTALL A NEW ROOF CURB TO DO THE SAME. DO ALL NECESSARY WORK TO ENSURE DUCT PENETRATION THROUGH ROOF REMAIN WATER TIGHT.
- 5 CONTRACTOR TO SITE VERIFY AND REMOVE ABANDONED HOT WATER SUPPLY/RETURN PIPE WITHIN MILLWORK RESULTING MILLWORK REMOVAL, CAP AND FINISH TO MATCH ARCHITECTURAL FINISHING OF THE AREA.
- 6 REMOVE EXISTING WALL MOUNTED EXHAUST GRILLE, CAP AT DUCT CONNECTION AND FINISH TO MATCH EXISTING WALL FINISHING.
- 7 REMOVE EXISTING ABANDONED THERMOSTAT OF ALREADY REMOVED WALL FIN HEATER.
- 8 FIELD VERIFY EXISTING EXHAUST FAN LOCATED INSIDE CLOSET SPACE, REMOVE c/w DUCT WORK, GRILLES, PATCH AND FINISH TO MATCH ARCHITECTURAL FINISHING.
- 9 EXISTING WALL FIN OF THE SERT ROOM TO REMAIN.
- 10 REMOVE EXISTING EXHAUST GRILLE w/ DUCTS INSIDE CLOSET SPACE AND ABOVE CEILING SPACE OF THE CLASSROOM. CUT/CAP DUCT CONNECTION AT LOCATION AS SHOWN.
- 11 REMOVE EXISTING WALL MOUNTED EXHAUST GRILLE, CLEAN & TEMPORARY COVER DUCT CONNECTION TO INSTALL NEW RETURN GRILLE.
- 12 EX. ROOF EXHAUST FAN TO REMAIN.

**KEY PLAN**



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3	ISSUED FOR PERMIT/ TENDER	01/30/2026
2	ISSUED FOR CLIENT REVIEW	06/03/2025
1	ISSUED FOR 90% COORDINATION	05/01/2025

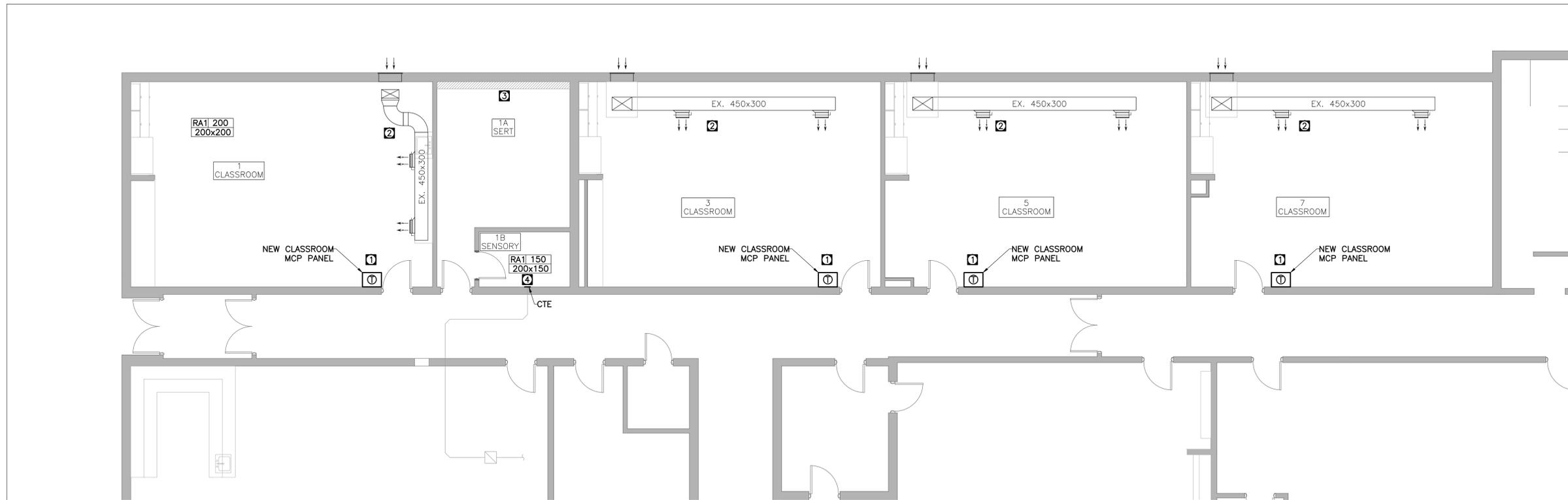
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PROJECT:  
**GLEN WILLIAMS PS  
HDSB**  
512 MAIN STREET,  
GEORGETOWN, ON

CLIENT:  
HALTON DISTRICT SCHOOL BOARD

DWG. TITLE:  
GF HVAC DEMOLITION LAYOUT -  
PHASE 1

DESIGN: TP	SCALE: AS NOTED
DRAWN: JP	JOB No: 25015
CHECKED: CK	DWG. No: M1.01
DATE: 04.04.2025	



GROUND FLOOR HVAC NEW LAYOUT – PHASE 1  
1:75

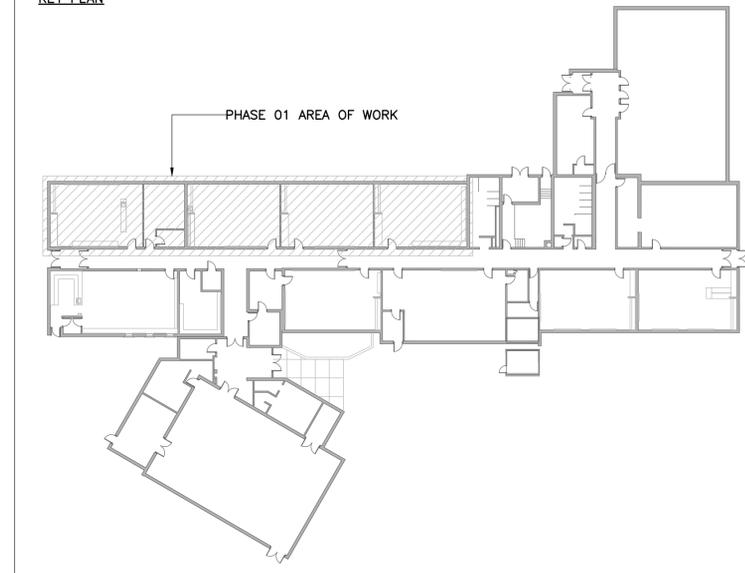
**GENERAL NOTES:**

- A. ALL WORK SHALL CONFORM TO ONTARIO BUILDING CODE, CONSTRUCTION SAFETY ACT AND REGULATIONS OF THE CITY AND PROVINCIAL AUTHORITIES.
- B. CONTRACTOR SHALL FIELD VERIFY ALL SITE CONDITIONS AFFECTING THIS WORK BEFORE SUBMITTING QUOTATION ON THIS JOB.
- C. COORDINATE DUCTS WITH PIPES, ELECTRICAL AND STRUCTURAL, OFFSET IF REQUIRED.
- D. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL NEW HVAC EQUIPMENT AND SYSTEMS.
- E. ALL SUPPLY/RETURN AND EXHAUST BRANCH DUCT SHALL HAVE BALANCING DAMPERS.
- F. ALL SUPPLY AND RETURN AIR GRILLES SHALL COMPLETE WITH BALANCING DAMPERS.
- G. INSULATE FIRST TEN FEET FROM EXTERIOR WALL FOR ALL EXHAUST DUCTS.

**MECHANICAL DRAWING NOTES:**

- ① RELOCATE THE THERMOSTAT TO CLASSROOM MCP PANEL BY ELECTRICAL.
- ② EXISTING UNIT VENTILATOR, SUPPLY DUCTWORK AND GRILLES TO REMAIN.
- ③ EXISTING WALL FIN IN SERT ROOM TO REMAIN.
- ④ PROVIDE NEW RETURN AIR GRILLE AT WALL AND CONNECT TO EXISTING EXHAUST DUCT. REBALANCE TO FLOW RATE AS INDICATED.

**KEY PLAN**



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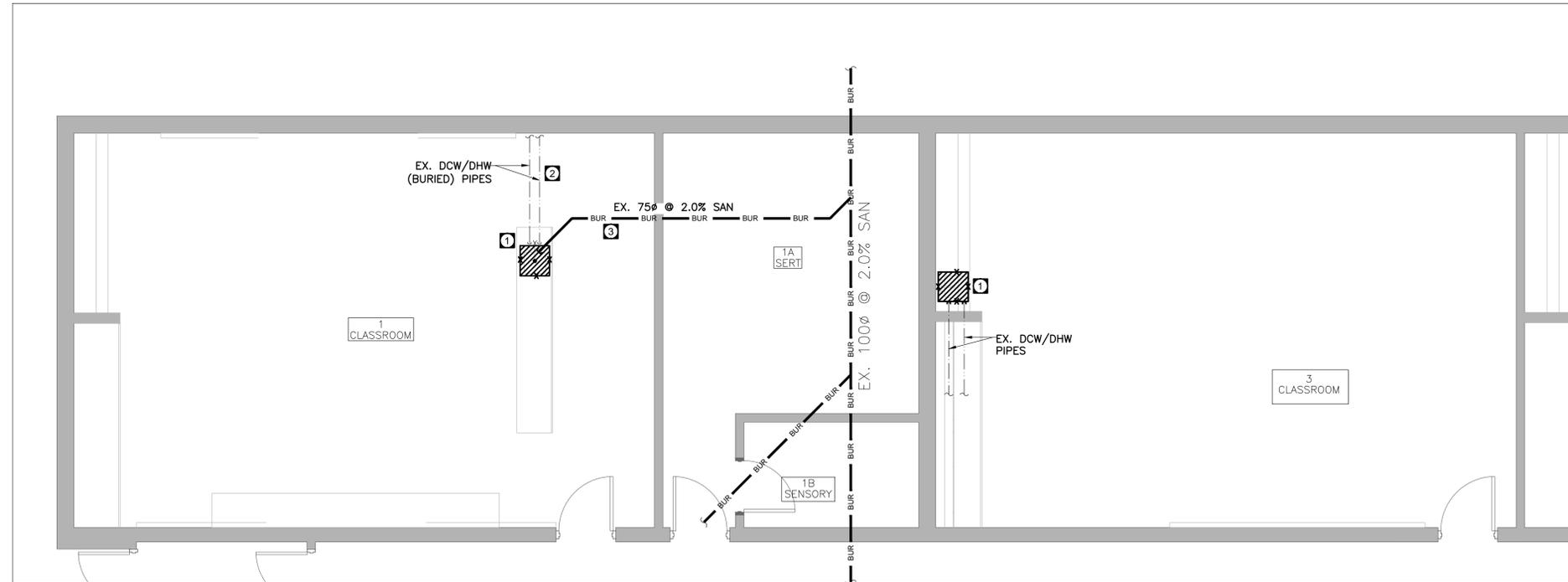
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512 MAIN STREET,  
GEORGETOWN, ON

CLIENT:  
HALTON DISTRICT SCHOOL BOARD

DWG. TITLE:  
**GF HVAC NEW LAYOUT -  
PHASE 1**

DESIGN: TP	SCALE: AS NOTED
DRAWN: JP	JOB No: <b>25015</b>
CHECKED: CK	
DATE: 04.04.2025	DWG. No: <b>M2.01</b>



GROUND FLOOR PLUMBING DEMOLITION LAYOUT – PHASE 1

1:50

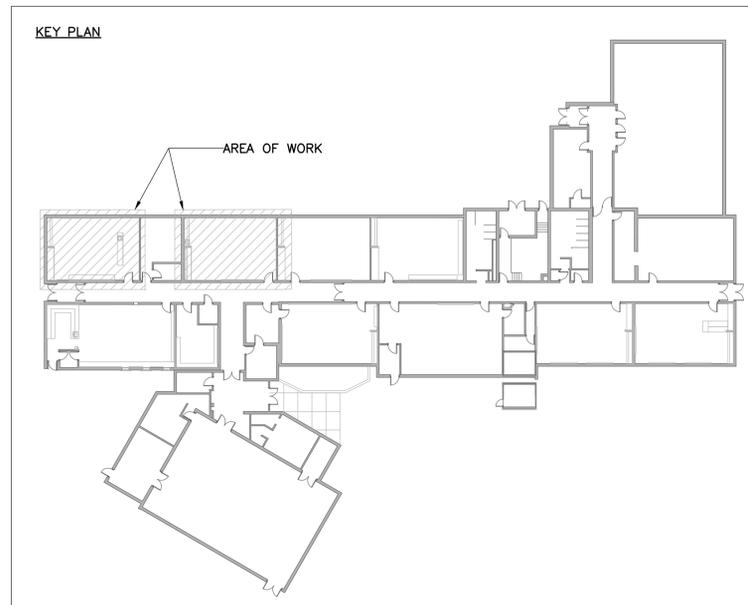
**GENERAL NOTES:**

1. REVIEW DRAWINGS BEFORE COMMENCING WITH DEMOLITION WORK.
2. REMOVE ALL EQUIPMENT, PIPING, STEEL SUPPORTS, CONTROLS, PLUMBING MATERIAL, HOUSE KEEPING PAD, SHOWN APPROXIMATELY WITH HEAVY CROSSED ('X') LINES THROUGHOUT. ANY SERVICES SERVING OTHER FLOOR OR PART OF BASE BUILDING SYSTEM SHALL NOT BE DISTURBED.
3. THIS DRAWING DOES NOT SHOW ALL HIDDEN OR CONCEALED PIPING, DUCTS, PLUMBING AND EQUIPMENT TO BE REMOVED.
4. DEMOLITION CONTRACTOR TO COORDINATE WITH ARCHITECT/OWNER TO DETERMINE THE ITEMS TO BE SALVAGED PRIOR TO COMMENCEMENT OF WORK.
5. DEMOLITION CONTRACTOR TO ENSURE THAT ALL MATERIALS AND FIXTURES NOT BEING SALVAGED TO BE DISPOSED OF ON A LEGAL MANNER.
6. REFER TO ARCHITECTURAL DRAWINGS FOR WALL REPAIR DETAIL UNLESS NOTED OTHERWISE.
7. EXISTING SERVICES SHOWN ON THIS DRAWING HAVE BEEN DRAFTED FROM THE EXISTING MECHANICAL DRAWINGS AND SITE INVESTIGATIONS. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE MECHANICAL CONTRACTOR SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES, BEFORE THE COMMENCEMENT OF ANY WORK.
8. CONTRACTOR SHALL ENSURE TO REPAIR AND MAKE GOOD OF ANY EXISTING SERVICES AFFECTED AS A RESULT OF THIS DEMOTION WORK.
9. REMOVE ALL DEBRIS AND CLEAN FROM SITE DAILY.

**PLUMBING DRAWING NOTES:**

- 1 REMOVE EXISTING SINK, DISCONNECT THE PLUMBING CONNECTIONS, TEMPORARY CAP AND PROTECT TO CONNECT TO NEW SINK (REFER DRAWING P2.01).
- 2 EXISTING BURIED DCW/DHW LINES TO REMAIN.
- 3 EXISTING BURIED SAN. LINE TO REMAIN.

**KEY PLAN**



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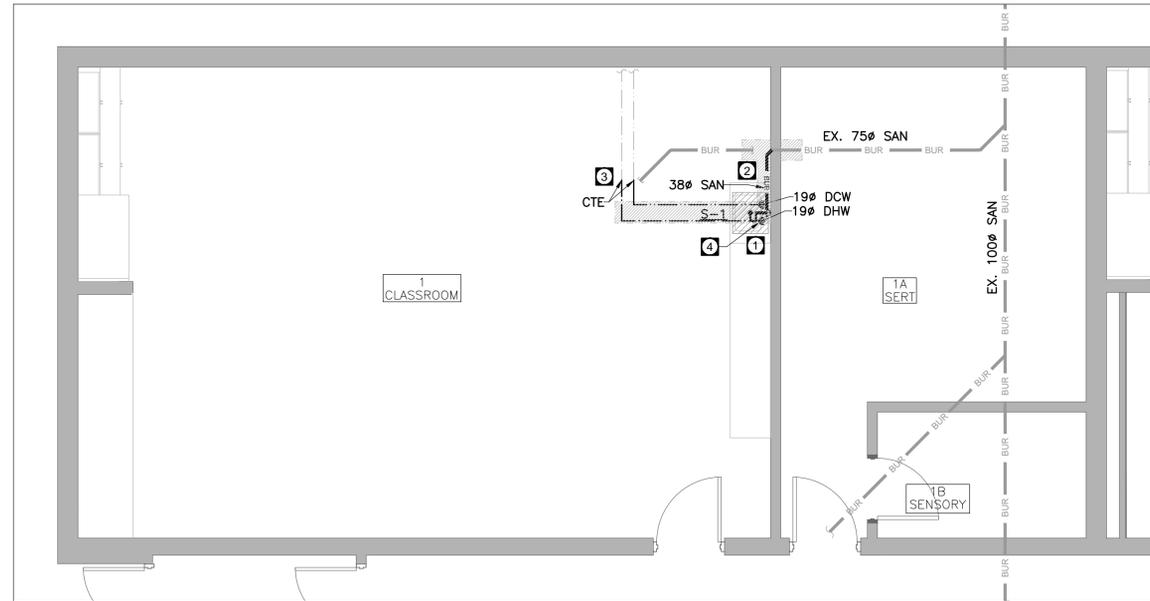
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CLIENT:  
HALTON DISTRICT SCHOOL BOARD

DWG. TITLE:  
**GF PLUMBING DEMOLITION  
LAYOUT - PHASE 1**

DESIGN: TP	SCALE: AS NOTED
DRAWN: JP	JOB No: <b>25015</b>
CHECKED: CK	DWG. No: <b>P1.01</b>
DATE: 04.04.2025	



GROUND FLOOR PLUMBING NEW LAYOUT – PHASE 1  
1:50

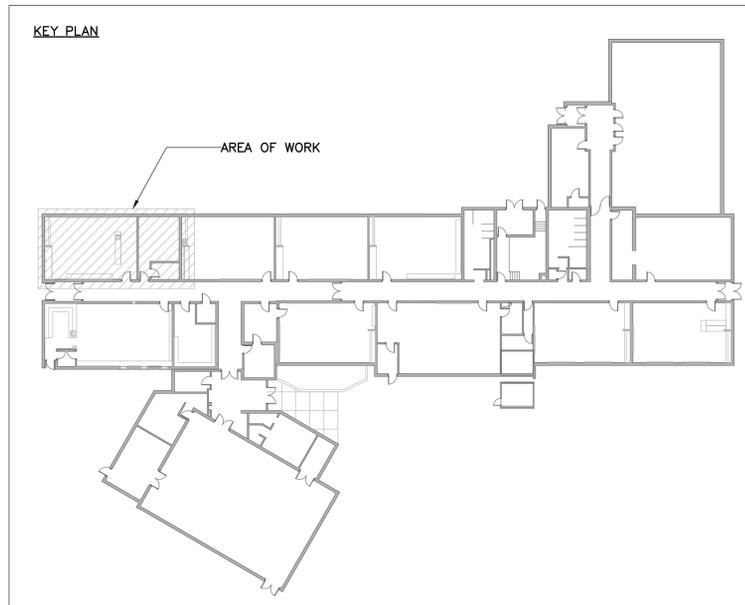
**GENERAL NOTES:**

- A. ALL PLUMBING WORK TO CONFORM TO ONTARIO BUILDING CODE, PROVIDE COMPLETE VENT SYSTEM TO MEET SECTION 7 OF ONTARIO BUILDING CODE.
- B. REFER TO MECHANICAL SPECIFICATIONS FOR ACCEPTABLE PIPING MATERIALS.
- C. PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE.
- D. CONTRACTOR TO FIELD VERIFY WORK SITE CONDITIONS.
- E. COORDINATE PIPES WITH DUCTS, ELECTRICAL AND STRUCTURAL, OFFSET IF REQUIRED.
- F. INSULATE ALL DCW, DHW AND DHWR PIPES WITH PIPE INSULATION. COVER EXPOSED PIPES WITH PVC JACKETS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING LAYOUT. REFER TO MECHANICAL SPECIFICATIONS 15080.
- G. ALL RUNNING TRAPS TO BE COMPLETE WITH PRIMER CONNECTION AND TRAP SEAL PRIMER. PROVIDE TRAP SEAL PRIMER IN A CONCEALED LOCATION WITH ACCESS PANEL.
- H. INSULATE ALL EXPOSED SANITARY PIPING WITH FIBERGLASS INSULATION WITH POLYVINYL COVERING. VENT PIPING TO BE INSULATED UP TO 3.0METRES FROM THE POINT OF ROOF PENETRATION WITH INSULATION.
- I. ALL DOMESTIC WATER PIPING WITHIN FIRE RATED SHAFTS SHALL BE COPPER. IPEX AQUARISE PIPES AND FITTINGS ARE NOT ALLOWED IN FIRE RATED SHAFTS.
- J. INSTALL FIRE STOPS TO APPROVED STANDARD IN ALL PIPING PENETRATIONS THROUGH RATED WALLS.
- K. PROVIDE ACCESS DOORS FOR CLEANOUTS INSIDE VERTICAL CHASES OR WALLS.
- L. ALL MECHANICAL PENETRATIONS (PIPES, DUCTS) THROUGH SUITE WALLS AND BUILDING ENVELOPE (BASEMENT FLOORS, WALLS, ROOF DECK, ETC) SHALL BE AIR TIGHT SEALED, EXCLUDING FIRE DAMPERS.

**PLUMBING DRAWING NOTES:**

- ① INSTALL THE NEW SINK AS SHOWN. PROVIDE NEW 13mm DCW & 13mm DHW CONNECTIONS TO SUPPLY WATER TO NEW SINK.
- ② CONTRACTOR TO SCAN, X-RAY OF EXISTING BURIED SANITARY PIPEWORK AND CONNECT THE NEW SANITARY PIPE TO EXISTING AS SHOWN. GENERAL CONTRACTOR TO REPAIR AND FINISH FLOOR OPENINGS TO PER ARCHITECTURAL FINISHING OF THE FLOOR.
- ③ CONTRACTOR TO FIELD VERIFY/ SCAN LOCATION OF EXISTING BURIED DCW/DHW PIPES AND CONNECT THE NEW DCW/DHW TO EXISTING AS SHOWN. GENERAL CONTRACTOR TO REPAIR AND FINISH FLOOR OPENINGS TO MEET ARCHITECTURAL FINISHING OF THE FLOOR.
- ④ DCW/DHW PIPES TO BE RISEN UNDERNEATH THE SINK WITHIN NEW MILLWORK AND CONNECTED TO THE SINK. REFER TO PLUMBING FIXTURE SCHEDULE FOR MORE INFORMATION (DWG M0.03).

**KEY PLAN**



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