MECHANICAL SPECIFICATION

A) GENERAL CONDITIONS

1. SUPPLY AND INSTALL ALL ITEMS, ARTICLES, MATERIALS, AND OPERATIONS. INCLUDE ALL LABOUR, EQUIPMENT, MATERIALS, TOOLS NECESSARY TO COMPLETE ALL SYSTEMS SHOWN ON THE DRAWINGS RENDERING A COMPLETE INSTALLATION.

2. VISIT AND INSPECT THE SITE AND ALL OTHER DRAWINGS. BECOME FAMILIAR WITH THE BUILDING CONSTRUCTION AND DETAILS. NO ALLOWANCE WILL BE MADE FOR FAILURE TO DO SO.

3. BE RESPONSIBLE FOR CARE OF THE BUILDING. DO ALL CUTTING, PATCHING, AND PAINTING REQUIRED FOR THE WORK OF THIS TRADE. WORKS TO BE PERFORMED BY THE GENERAL CONTRACTOR'S FORCES AT THE MECHANICAL CONTRACTOR'S EXPENSE.

4. THIS CONTRACTOR IS TO ALLOW FOR CUTTING AND PATCHING PERTAINING TO THE MECHANICAL SYSTEMS INSTALLATION.

UNLESS NOTED OTHERWISE. THIS SHALL INCLUDE ALL CUTTING AND PATCHING OF ROOFS, PARTITION WALLS, CEILINGS, AND FLOORS AND OUTSIDE WALLS. ALL CUTTING AND PATCHING SHALL BE PERFORMED BY WORKERS SPECIALIZED IN THIS TYPE OF WORK AND CAPABLE OF PERFORMING TO GOOD COMMERCIAL STANDARDS.

ALL PATCHING SHALL BE DONE SO AS TO MAINTAIN ANY FIRE SEPARATIONS, SOUND TRANSMISSION CLASS RATINGS, VAPOR RETARDED PERFORMANCE, INSULATION VALUES, ETC.

5. CLEAN ALL DEBRIS DAILY AND UPON COMPLETION OF CONTRACT.

6. COOPERATE WITH ALL OTHER TRADES. COORDINATE WORK WITH ALL OTHER TRADES. PATCH AND SEAL ALL FLOOR AND WALL OPENINGS WITH FIRE RESISTANT INSULATION AND MASTIC.

7. PROVIDE "X" RAY OF SLAB TO DETECT EMBEDDED METALS IF CORE DRILLING OF CONCRETE STRUCTURE IS REQUIRED BY LANDLORD. PERFORM ALL WORK OUTSIDE NORMAL WORKING HOURS IN COORDINATION WITH BUILDING MANAGEMENT AND TENANTS. OBTAIN APPROVAL FROM STRUCTURAL ENGINEER PRIOR TO CORE DRILLING.

8. SLEEVES:

PROVIDE SLEEVES FOR PIPING AS FOLLOWS:

–FOR ALL PENETRATIONS OF POURED CONCRETE STRUCTURES. SLEEVES ARE NOT REQUIRED PROVIDED THE MECHANICAL CONTRACTOR CUTS ALL REQUIRED OPENINGS AFTER THE CONCRETE INSTALLATION AND PROVIDED ALL OPENINGS COMPLY WITH THE FIRESTOP MANUFACTURERS REQUIREMENTS.

–FOR ALL COPPER PIPE PENETRATIONS OF MASONRY AND POURED CONCRETE STRUCTURES WHERE REQUIRED TO PREVENT DIRECT CONTACT OF THE MASONRY/POURED CONCRETE WITH THE COPPER PIPING. SLEEVES ARE NOT REQUIRED PROVIDED THAT DIRECT CONTACT OF COPPER AND MASONRY / POURED CONCRETE IS PREVENTED AND PROVIDED THE OPENINGS COMPLY WITH THE FIRESTOP MANUFACTURERS REQUIREMENTS.

9. SLEEVES SHALL BE SCHEDULE 40 STEEL. PLASTIC PIPE SLEEVES MAY BE USED IN POURED CONCRETE STRUCTURES PROVIDED OPENINGS CAN BE PROVIDED WHICH COMPLY WITH THE REQUIREMENTS OF THE FIRESTOP MANUFACTURER AND THE LOCAL AUTHORITY.

SLEEVES SHALL BE SIZED LARGE ENOUGH TO ALLOW FOR ANY LATERAL MOVEMENT OF PIPING DUE TO EXPANSION/CONTRACTION, PIPE INSULATION, FIRE STOPPING AND SOUND PACKING.

10. FIRE STOPPING:

FIRESTOPPING SHALL BE PRO SET SYSTEMS OR APPROVED EQUAL FIRE STOP SEALANT/DEVICES OF A TYPE TO SUIT PIPING, BUILDING CONSTRUCTION, OPENING SIZE, ETC. INSTALL ACCORDING TO MANUFACTURERS DETAILED INSTALLATION INSTRUCTIONS. NOTE: REFER TO MANUFACTURERS DETAILED INSTALLATION DRAWINGS AND PROVIDE SHOP DRAWINGS OF ALL FIRE STOP SYSTEMS PRIOR TO APPLICATION OF FIRE STOPPING. SHOP DRAWINGS SHALL SHOW APPROVALS OF ALL GOVERNING AGENCIES.

ALL FIRE STOP SYSTEMS SHALL MEET THE F AND T RATINGS OF THE WALL CONSTRUCTION IN WHICH THEY ARE INSTALLED. ALL SYSTEMS SHALL BE IDENTIFIED WITH APPROPRIATE SP NUMBERS

11. ONE SET OF OWNER'S APPROVED DRAWINGS AND PERMIT DRAWINGS SHALL BE KEPT ON SITE AND AVAILABLE FOR CHECKING AT ALL TIMES DURING CONSTRUCTION.

12. ALL MATERIALS TO MEET FLAME SPREAD RATING REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

13. OBTAIN ALL PERMITS REQUIRED. ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY AND PAY ALL FEES. PROVIDE FINAL CERTIFICATE TO THE OWNER.

14. MECHANICAL CONTRACTORS SHALL COMPLY WITH ALL RULES AND REGULATIONS SET FORTH BY THE OWNER.

15. SUBMIT 5 COPIES OF SHOP DRAWINGS FOR APPROVAL OF ALL EQUIPMENT AND FIXTURES.

16. PROVIDE A CERTIFICATE OF GUARANTEE OF WORKMANSHIP AND MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.

17. IDENTIFY ALL EQUIPMENT WITH LAMICOID PLATES.

18. ANY WORK NOT SHOWN ON THE DRAWINGS OR SPECIFICALLY MENTIONED IN THE SPECIFICATIONS BUT CONSIDERED NECESSARY FOR THE COMPLETION OF THE WORK IN PROPER MANNER SHALL BE PROVIDED BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGE.

19. BEFORE FABRICATION AND INSTALLATION OF DUCTWORK AND PIPING, MAKE CERTAIN THAT SUCH ITEMS CAN BE INSTALLED AS SHOWN ON THE DRAWINGS WITHOUT INTERFERENCE WITH THE STRUCTURE OR THE WORK OF OTHER TRADES. IF ANY MATERIALS ARE FABRICATED OR INSTALLED PRIOR TO THE INVESTIGATION AND REACHING OF A SOLUTION TO POSSIBLE INTERFERENCE PROBLEMS, NECESSARY CHANGES SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

20. NOTE: THIS CONTRACTOR SHALL VERIFY EXACT LOCATION AND ARRANGEMENT OF EXISTING MECHANICAL SERVICES AND EQUIPMENT PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK. THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED ELBOWS, DUCTWORK, PIPING, PIPE FITTINGS, ETC., TO COMPLETE THE INTENT OF THIS DRAWING. NO EXTRA WILL BE ALLOWED FOR THIS WORK.

21. NOTHING CONTAINED HEREIN SHALL BE CONSTRUED TO RELIEVE THIS CONTRACTOR FROM MAKING GOOD AND PERFECT IN ALL USUAL DETAILS OF CONSTRUCTION AND HE WILL BE HELD RESPONSIBLE TO PROVIDE AND FURNISH MATERIAL, TO DO ALL WORK AND LABOUR, AND BEAR EXPENSES INCIDENTAL TO THE SATISFACTORY COMPLETION OF THE WORK EMBRACED IN THESE SPECIFICATIONS.

22. VERIFY VOLTAGE ON SITE BEFORE ORDERING EQUIPMENT.

23. SUBMIT ONE SET OF MARKED UP SEPIAS TO THE OWNER SHOWING AS-BUILT CONDITIONS AT COMPLETION OF THE PROJECT.

24. MECHANICAL CONTRACTOR SHALL PROVIDE TO OWNER 3 BOUND SETS OF MAINTENANCE AND OPERATING INSTRUCTIONS FOR ALL MECHANICAL EQUIPMENT.

25. COMPLETE MECHANICAL INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, BY-LAWS AND AUTHORITIES HAVING JURISDICTION, AND SHALL CONFORM TO SCHEDULE 'C' OF LANDLORD/TENANT LEASE AGREEMENT.

26. PROVIDE ACCESS DOORS (WHERE REQUIRED) FOR NEW AND EXISTING CONCEALED VALVES, DAMPERS, ETC.. HAVE THESE INSTALLED BY THE TRADES IN WHOSE WORK THE DOORS ARE REQUIRED. FINISH DOORS TO MATCH WALL AND CEILING FINISHES. CONSULT WITH CONSTRUCTION MANAGER FOR LOCATIONS. CEILING ACCESS DOORS SHALL BE MARCRAFT MODEL NO. DW-5040 WITH A FINISH TO MATCH CEILING.

27. SUPPLY AND INSTALL HANGERS TO INCLUDE ALL MISCELLANEOUS STEEL

28. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOIST. WHERE INTERFERENCES OCCUR, AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

29. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED.

30. UNLESS NOTED OTHERWISE, ALL POWER WIRING TO MECHANICAL EQUIPMENT SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR, AND LOW VOLTAGE CONTROL WIRING AND ASSOCIATED CONTROL ITEMS, INCLUDING STARTERS AND DISCONNECT SWITCHES SHALL BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR.

31. PRIOR TO STARTING OF THE HVAC EQUIPMENT, CONTRACTOR SHALL PROVIDE AND INSTALL BRAND NEW AIR FILTERS. AFTER TESTING AND BALANCING IS COMPLETE A NEW SET OF AIR FILTERS SHALL BE INSTALLED AS A FINAL CHANGE BEFORE TENANT'S OPENING FOR BUSINESS. ALSO PROVIDE ONE SPARE SET OF AIR FILTERS AND BELTS AT THE COMPLETION OF THE CONTRACT.

B) PLUMBING AND HEATING

1. ALL PLUMBING WORK, MATERIALS AND INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF LOCAL PLUMBING CODES AND AUTHORITIES HAVING JURISDICTION.

2. WHERE BELOW GRADE SANITARY DRAINAGE SYSTEM IS SHOWN ON DRAWINGS AND/OR REQUIRED, THIS MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAW CUTTING OF THE FLOOR SLAB, DO ALL EXCAVATIONS, PROVIDE CRUSHED STONE BED AND INSTALL PIPE COMPACTED BACKFILL TO UNDERSIDE OF CONCRETE FLOOR. POURING OF THE FLOOR SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

3. CONTRACTOR SHALL ARRANGE TO HAVE THE EXISTING SANITARY DRAINAGE SYSTEM SERVING THE NEW SPACE VIDEO INSPECTED AND CLEANED FROM THE SPACE TO POINT OF CONNECTION TO EXISTING SANITARY MAIN AND TO ENSURE THE EXISTING SANITARY SYSTEM IS CLEAR OF ANY DEBRIS OR OBSTRUCTIONS. PROVIDE A WRITTEN REPORT CERTIFYING THAT THE SANITARY DRAIN LINES ARE CLEAN AND FREE OF ANY OBSTRUCTIONS. SUBMIT THE INSPECTION REPORT TO THE OWNER/ENGINEER FOR REVIEW PRIOR TO INSTALLATION OF PLUMBING FIXTURES AND PIPING AND GUARANTEE THE CLEANING WORK INCLUDING LABOUR AND MATERIALS FOR ONE YEAR AFTER ACCEPTANCE.

4. FOR UNDERGROUND SANITARY, USE X H CAST IRON CLASS 4000, C.S.A. B-70 OR ABS PLASTIC PIPE.

5. FOR ABOVE GRADE SANITARY AND STORM DRAINS OF SIZES 2 1/2" (65MM) AND SMALLER, USE GALVANIZED IRON C.S.A. B-63 OR COPPER DWV. NO PVC PIPING SHALL BE USED IN CEILING RETURN PLENUM. (USE IPEX 'SYSTEM 15 XFR' (EXCEPT IN RETURN AIR CEILING PLENUMS) AND CAST IRON WITH MECHANICAL JOINTS WHERE IPEX 'SYSTEM 15 XFR' IS NOT ALLOWED).

6. FOR ABOVE GRADE SANITARY AND STORM DRAINS OF SIZES 3" (75MM) AND LARGER, USE MEDIUM WEIGHT C.I. CLASS 4000, C.S.A. B-70 OR COPPER DWV. NO PVC PIPING SHALL BE USED IN CEILING RETURN PLENUM. (USE IPEX 'SYSTEM 15 DWV' (EXCEPT IN RETURN AIR CEILING PLENUMS) AND CAST IRON WITH MECHANICAL JOINTS WHERE IPEX 'SYSTEM 15 DWV' IS NOT ALLOWED).

7. FOR SANITARY VENT PIPES, USE IPEX 'SYSTEM 15 DWV' (EXCEPT IN RETURN AIR CEILING PLENUMS) AND COPPER TUBING (DWV) WHERE IPEX 'SYSTEM 15 DWV' IS NOT ALLOWED.

8. FOR DOMESTIC COLD AND HOT WATER PIPING AND FITTINGS, USE TYPE "L" HARD COPPER PIPE WITH SOLDER FITTINGS.

9. FOR GAS PIPING, USE ASTM A-53 SCHEDULE 40 PIPING.

10. PLASTIC PIPES (ABS AND PVC) WILL NOT BE ACCEPTED FOR ABOVE GROUND INSTALLATIONS.

11. ALL STEEL PIPING UNLESS INDICATED OTHERWISE SHALL HAVE THREADED CONNECTIONS AND ALL COPPER PIPING SHALL HAVE SOLDERED JOINTS OF 300 LBS. PRESSURE.

12. ALL CONNECTIONS BETWEEN DISSIMILAR METALS SHALL UTILIZE DIELECTRIC INSULATING FITTINGS, COUPLINGS AND UNIONS.

13. SUPPORT PIPES AS PER CODE REQUIREMENTS.

14. PROVIDE SHUT-OFF VALVES OR SCREWDRIVER STOPS ON WATER SERVICE TO ALL FIXTURE AND EQUIPMENT. USE BACKFLOW PREVENTERS ON EQUIPMENT CONNECTIONS, WATTS MODEL 9DM3. USE CGA APPROVED GAS COCKS WITH QUARTER STOPS.

.1 FOR DOMESTIC WATER:

a) BALL VALVES IN LIEU OF GATE AND GLOBE VALVES OF SIZES 2" AND SMALLER, USE CRANE 9302 OR 9322 (600 PSI).

b) GATE VALVES, USE CRANE 431, 437 (300 PSI) FOR 2" VALVES AND SMALLER AND CRANE CLASS 150 CAST STEEL NO. 33XUF (300 PSI) FOR 2 1/2" VALVES AND LARGER.

c) GLOBE VALVES, USE CRANE 7 (300 PSI) FOR 2" VALVES AND SMALLER AND CRANE 143 CAST STEEL (300 PSI) FOR 2 1/2" VALVES AND LARGER.

d) CHECK VALVES, USE CRANE 137 OR 1342 (300 PSI) FOR 2" VALVES AND SMALLER AND CRANE 147 (300 PSI) FOR 2 1/2" VALVES AND LARGER.

15. PROVIDE WATER HAMMER ARRESTORS, SMS INC. #SC SERIES WATER HAMMER ARRESTORS WITH BRASS PISTON IN A TYPE 'K' COPPER CASING SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS CHART BELOW TO ELIMINATE WATER HAMMER AND SHOCK FROM PIPING SYSTEM. PROVIDE WATER HAMMER ARRESTORS ON HOT AND COLD WATER SUPPLIES TO ALL QUICK VALVES, SOLENOIDS, AND PLUMBING FIXTURES, AND LOCATE IN AN UPRIGHT POSITION BETWEEN THE LAST TWO FIXTURES ON A LINE, OR HORIZONTALLY AT THE END OF LINE CLOSEST TO SUPPLY SOURCE. ON PROJECTS EXCEEDING FIVE STORIES IN HEIGHT, PROVIDE WATER HAMMER ARRESTORS ON DOMESTIC WATER RISERS AS FOLLOWS. LOCATE ARRESTORS AT THE END OF RISER OPPOSITE SUPPLY SOURCE. ARRESTOR SHALL BE TWO PIPE SIZES LARGER THAN THE RISER IS AT THE CONNECTION POINT, NOT EXCEEDING THE LARGEST PIPE SIZE DIAMETER IN THE RISER WATER HAMMER ARRESTORS.

16. INSULATE ALL DOMESTIC COLD WATER PIPES AND FITTINGS WITH 1" (25 MM) PRE-FORMED LOW PRESSURE FIBREGLASS INSULATION WITH VAPOUR BARRIER JACKET. SEAL ALL JOINTS OF VAPOUR BARRIER. INSULATION SHALL CONFORM TO ASHRAE 90.1 REQUIREMENTS.

17. INSULATE ALL DOMESTIC HOT WATER PIPES AND FITTINGS (105F-140F) WITH FIBRE GLASS INSULATION (PRE-FORMED), COMPLETE WITH VAPOUR BARRIER. SEAL ALL JOINTS OF VAPOUR BARRIER. INSULATION THICKNESS TO CONFORM TO ASHRAE 90.1 REQUIREMENTS AND SHALL BE AS FOLLOWS:

a) USE 1" (25MM) THICK INSULATION FOR PIPE SIZES UP TO 1 1/4" (32MM).

18. INSTALL A SANITARY VENT SYSTEM TO COMPLY WITH ALL APPLICABLE CODES, AND AUTHORITIES HAVING JURISDICTION. ENSURE THAT PLUMBING VENT PENETRATIONS THROUGH ROOF ARE MINIMUM 10'-0" (3.05 M) FROM ANY AIR INTAKE OPENING.

19. INSTALL CHROME PLATED ESCUTCHEONS PLATES AT ALL EXPOSED PIPE PENETRATIONS THROUGH WALLS AND CEILINGS.

20. INSTALL PVC JACKET ON ALL INSULATED PIPING IN EXPOSED AREAS

21. PROVIDE ACCESSIBLE SHUT-OFF VALVES ON ALL COLD, HOT AND GAS SERVICES TO EACH PIECE OF EQUIPMENT.

22. ALL GAS PIPING UP TO 2" (50 MM) IN SIZE SHALL HAVE THREADED JOINTS AND PIPING OF 2 1/2" (65 MM) IN SIZE AND LARGER SHALL HAVE WELDED JOINTS. COMPLY WITH AUTHORITIES HAVING JURISDICTION.

23. ALL GAS PIPING SHALL BE PAINTED YELLOW AND BE WELDED WITH SHUT-OFF VALVES AT EACH APPLIANCE.

24. INSULATE FIRST 10 FEET (3.05 METER) OF VENT 10 FEET (3.05 METER) FROM THE ROOF WITH 1" (25 MM) THICK FIBRE GLASS, HEAVY DENSITY PIPE INSULATION WITH FACTORY APPLIED ALL SERVICE JACKET (ASJ). INSTALL VAPOUR BARRIER ON NCOLD WATER PIPING. SEAL ALL JOINTS OF VAPOUR BARRIER.

25. VAPOUR SEAL WITH 1/8" (3 MM) WET COATS OF VAPOUR BARRIER MASTIC, REINFORCED WITH GALSS FABRIC.

26. PRESSURE TEST PUIPING SYSTEMS IN ACCORDANCE WITH LOCAL AND PROVINCIAL CODES FOR LEAKS BEFORE INSULATION IS APPLIED. SUBMIT REPORT TO OWNER AND A COPY TO THE ENGINEER.

C) FIRE PROTECTION

1. THE SPRINKLER DRAWING IS SCHEMATIC ONLY, SHOWING APPROXIMATE LOCATIONS AND NUMBER OF HEADS. REFER TO SPRINKLER SHOP DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS.

2. USE ASTM A-53 SCHEDULE 40 PIPE FOR SPRINKLERS. SUPPORT PIPES AS PER CODE REQUIREMENTS.

3. HAVE SPRINKLER INSTALLATION PERFORMED BY LANDLORD'S CONTRACTOR AT TENANT'S EXPENSE OR BY A CONTRACTOR APPROVED BY THE LANDLORD, LISTED BY IAO AND LICENSED FOR SPRINKLER INSTALLATION BY THE AUTHORITIES.

4. HAVE SPRINKLER SYSTEM SIZED BY HYDRAULIC DESIGN FOR ORDINARY HAZARD OCCUPANCY AND TO BASE BUILDING DESIGN CRITERIA AND TO N.F.P.A. AND I.A.O. STANDARDS. HAVE SPRINKLER DRAWINGS SUBMITTED TO THE OWNER'S INSURANCE UNDERWRITER AND OBTAIN THEIR APPROVAL.

5. IT IS THE RESPONSIBILITY OF THIS SPRINKLER CONTRACTOR TO PREPARE AND SUBMIT SHOP DRAWINGS AND ALL PERTINENT DOCUMENTS AND CALCULATIONS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION, AND SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER, FILE THESE DRAWINGS WITH LOCAL BUILDING DEPARTMENTS AND AUTHORITIES HAVING JURISDICTION AND OBTAIN ALL NECESSARY APPROVALS AND PERMITS. CONTRACTOR SHALL BEAR ALL COSTS OF PREPARING SHOP DRAWINGS, CALCULATIONS AND SECURING PERMITS AND APPROVALS.

6. HAVE DRAWINGS AND CALCULATIONS SUBMITTED TO THE OWNER'S INSURANCE UNDERWRITER.

7. INSTALL ALL PIPING, DROPS AND HEADS. PROVIDE TEST CONNECTIONS PIPED TO DRAIN OR TO OUTDOORS. HAVE SYSTEM TESTED TO THE APPROVAL OF AUTHORITIES, UNDERWRITERS AND THE OWNER.

8. ENSURE SPRINKLER SYSTEM INSTALLATION IS COORDINATED WITH DUCTWORK INSTALLATION. SPRINKLER HEAD POSITIONING SHALL COMPLY WITH NFPA-13 REQUIREMENTS FOR DISTANCE AND HEIGHT INSTALLATION.

9. MAINTAIN ALL SPRINKLER AND ANY OTHER FIRE AND LIFE SAFETY PROTECTION SERVICES IN OPERATION AT ALL TIMES DURING CONSTRUCTION.

10. CO-ORDINATE CHANGES TO EXISTING SPRINKLER SYSTEM WITH ALL TRADES PRIOR TO INSTALLATION. MODIFY EXISTING HYDRAULICALLY DESIGNED SPRINKLER PIPING AS REQUIRED TO SUIT NEW SPRINKLER HEAD LAYOUT AND TO AVOID INTERFERENCE WITH NEW DUCTWORK AND EQUIPMENT. ALLOWANCES FOR ADDITIONAL WORK AND MATERIALS REQUIRED TO SUIT SITE CONDITIONS AND REROUTING OF EXISTING AND/OR NEW SERVICES SHALL BE INCLUDED IN TENDER PRICE.

11. ADJUST SPRINKLER DROPS AND HEADS TO SUIT LAYOUT AND CEILING HEIGHTS.

12. ALL EXISTING SPRINKLER HEADS LOCATED WITHIN THE THIS TENANT AREA SHALL BE REMOVED AND REPLACED WITH NEW TO SUIT NEW SPRINKLER HEAD LAYOUT. PROVIDE NEW PIPING AS REQUIRED.

13. NEW SPRINKLER HEADS SHALL MATCH EXISTING BASE BUILDING HEADS OR SHALL BE AS FOLLOWS:

a) CONCEALED SPRINKLER HEADS (165 DEGREES FAHRENHEIT), RELIABLE MODEL "G-1" WITH WHITE COVER PLATE.

b) UPRIGHT SPRINKLER HEADS (165 DEGREES FAHRENHEIT), RELIABLE MODEL "G" WITH NATURAL BRONZE FINISH.

14. NEW SPRINKLER HEAD LAYOUT AND TYPES OF HEADS SHALL BE AS REQUIRED TO SUIT TENANT INTERIOR DESIGN. ADD NEW SPRINKLER HEADS AND PIPING WHERE REQUIRED DUE TO SITE CONDITIONS TO OBTAIN THE NECESSARY APPROVALS FROM LOCAL AUTHORITIES AND UNDERWRITERS.

15. ALL SPRINKLER HEADS LOCATED WITHIN 12" (300 mm) OF SURFACE MOUNTED TRACK LIGHTING FIXTURES SHALL BE 212 DEGREES FAHRENHEIT TYPE. MAINTAIN MINIMUM 6" (150 mm) CLEAR BETWEEN SPRINKLER HEADS AND TRACK LIGHTING FIXTURES.

D) DUCTWORK

1. ALL DUCTWORK AND HANGERS SHALL BE CONSTRUCTED FROM LOCK FORMING QUALITY STEEL WITH G90 DESIGNATION ZINC COATING TO ASTM A525M-80 IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE LATEST EDITION OF ASHRAE GUIDE AND SMACNA STANDARDS. DUCT LEAKAGE SHALL NOT EXCEED 3% MAXIMUM.

2. DUCT SIZES SHOWN ON THE DRAWINGS ARE INTERIOR DIMENSIONS. WHEN ACOUSTIC INSULATION IS ADDED INSIDE THE DUCT, SIZES SHALL BE INCREASED ACCORDINGLY.

3. DUCT GAUGES SHALL BE AS FOLLOWS:

LARGEST SIDE OF RECTANGULAR DUCT GALVANIZED STEEL (U.S. STD.) GAUGE

UP TO 12" (300 MM)	26
13" (330 MM) TO 24" (610 MM)	24
25" (635 MM) TO 50" (1270 MM)	22
51" (1295 MM) TO 60" (1524 MM)	20

4. EXPOSED ROUND DUCTWORK SHALL BE SPIRAL, EQUAL TO ALPHA FREE FLOW SPIRAL DUCT. SINGLE WALL ROUND DUCT MADE FROM G60 GALVANIZED STEEL CONFORMING TO ASTM A525-8. PROVIDE MATCHING MANUFACTURED FITTINGS. DUCT GAUGES TO CONFORM TO ASHRAE, SMACNA AND SPIDA STANDARDS. SUBMIT SHOP DRAWINGS FOR DUCTS AND FITTINGS. PROVIDE A SEALANT ON ALL JOINTS. PAINTING BY GENERAL CONTRACTOR.

5. SPIN-ON FITTING SHALL BE "KERR-HUNT" MODEL NO. SO-2, COMPLETE WITH BALANCING DAMPER OF SIZE EQUAL TO FLEXIBLE DUCT DIAMETER.

6. FLEXIBLE ROUND DUCTWORK IS PERMITTED ONLY IN LAY-IN CEILINGS.

7. FLEXIBLE ROUND DUCTWORK SHALL BE FLEXMASTER TYPE "M" TRIPLE LOCK THERMAL FLEXIBLE. CONNECTIONS SHALL BE SCREWED AND TAPED. MAXIMUM DUCT LENGTH SHALL NOT EXCEED 5'-0" (1.52 M).

8. PROVIDE FIRE DAMPERS WHERE SHOWN ON DRAWINGS AND WHERE REQUIRED BY LOCAL AUTHORITIES AND CODES. RATE FIRE DAMPERS TO MATCH THE FIRE RATING OF SEPARATION CROSSED. PROVIDE ONLY ULC LABELLED DAMPERS AND INSTALL AS SPECIFIED IN NFPA/CUA 90A.

9. ALL EXPOSED DUCTWORK IN OCCUPIED SPACES SHALL BE PAINTED. COLOUR AS SELECTED BY ARCHITECT/INTERIOR DESIGNER.

E) DUCT INSULATION

1. PROVIDE 1" (25 MM) ACOUSTIC LINING IN DUCTS WHERE SHOWN ON THE DRAWINGS. DUCT SIZES INDICATED ARE CLEAR INSIDE DIMENSIONS.

2. INSULATE ALL CONCEALED SUPPLY AIR RIGID AND FLEXIBLE DUCTWORK (INCLUDING INTERNALLY LINED DUCTWORK) WITH 1" (25 MM) THICK RIGID FIBRE GLASS INSULATION WITH FOIL FACED VAPOUR BARRIER. SEAL ALL JOINTS OF VAPOUR BARRIER.

3. DO NOT "EXTERNALLY" INSULATE EXPOSED SUPPLY AIR DUCTWORK OR DUCTWORK LOCATED WITHIN CEILING RETURN AIR PLENUM.

4. COVER EXHAUST DUCTWORK FOR A MINIMUM LENGTH OF 10'-0" (3.05 M) FROM ROOF/WALL OPENINGS, WITH 2" (50 MM) (MIN R-8) THICK RIGID FIBREGLASS INSULATION WITH FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOUR BARRIER. INSULATION SHALL BE MECHANICALLY FASTENED TO DUCTWORK. SEAL ALL JOINTS AND BREAKS WITH 4" (100 MM) WIDE STRIPS OF OPEN MESH GLASS CLOTH OR TAPE IMBEDDED BETWEEN TWO COATS OF VAPOUR BARRIER SEALANT.

5. INSULATION SHALL BE TREATED WITH A FIRE AND DAMAGE RESISTANT AIR SURFACE. SEAL LEADING EDGES. THE DUCT LINER SHALL MEET THE REQUIREMENTS FOR LIFE SAFETY AS SET FORTH IN NFPA-90A AND NFPA-90B AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD C-1071. THERE SHALL BE A 24" (600 MM) OVERLAP OF THERMAL DUCT INSULATION AND ACOUSTIC DUCT INSULATION.

6. EXTERNAL AND INTERNAL DUCT INSULATION AND PIPE INSULATION IN CEILING PLENUMS SHALL BE PLENUM RATED WITH RESPECT TO FIRE AND SMOKE SPREAD RATINGS.

7. INSULATE ALL EXHAUST AND OUTSIDE AIR INTAKE PLENUMS AT LOUVRES OR HOODS. INSULATE ALL DUCTWORK FOR A MINIMUM LENGTH OF 10 FEET ON THE BUILDING SIDE OF THE ASSOCIATED MOTORIZED EXHAUST DAMPERS AND THE ENTIRE LENGTH OF THE OUTSIDE AIR INTAKE DUCT. USE 1 IN. (25 MM) FINISHED THICKNESS RIGID INSULATION BOARD WITH VAPOUR BARRIER, AND WHERE EXPOSED TO VIEW COVER WITH CANVAS.

8. ALL PIPING, CARRYING FLUIDS SUBJECT TO FREEZING, ROUTING OUTSIDE THE BUILDING, OR IN SPACES SUBJECT TO FREEZING TEMPERATURES, SHALL BE ELECTRICALLY TRACED BY DIVISION 16 AND INSULATED WITH 2 IN. THICKNESS FIBREGLASS INSULATION AND COVERED WITH A WEATHERPROOF PVC OR ALUMINIUM JACKET.

9. WHERE SUPPLY, RETURN, OR KITCHEN EXHAUST DUCTS ARE LOCATED ON THE ROOF OR EXPOSED TO THE ELEMENTS, INSULATE WITH 2 IN. OF RIGID FIBERGLASS INSULATION. INSULATION IS TO BE CANVAS COVERED AND SEALED WITH TWO APPLICATIONS OF AN ASPHALT BASED INSULATION WEATHER PROTECTION COATING.

10. INSULATION AND VAPOUR BARRIER SHALL BE CONTINUOUS AT ALL FITTINGS, HANGERS AND THROUGH WALLS OR FLOORS.

F) AIR OUTLETS

1. PROVIDE REGISTERS, GRILLES AND DIFFUSERS OF SIZE AND TYPE AS SHOWN ON THE DRAWINGS. GRILLES AND DIFFUSERS SHALL SUIT CEILING TYPES WHERE INSTALLED, FINAL LOCATIONS SHALL SUIT FINAL REFLECTED CEILING PLANS, AND / OR AS DIRECTED ON SITE.

2. GRILLES, REGISTERS AND DIFFUSERS SHALL BE E.H. PRICE MANUFACTURE AS SPECIFIED IN EQUIPMENT SCHEDULE, WITH MOUNTING SUITABLE FOR CEILING, WALLS AND FLOORS WHERE INSTALLED.

G) AIR BALANCING

1. SUPPLY AND INSTALL ALL NECESSARY BALANCING AND VOLUME DAMPERS. BALANCE THE AIR SYSTEMS TO THE AIR VOLUMES SHOWN ON DRAWINGS. SUBMIT BALANCING REPORT TO THE OWNER. AIR BALANCING MUST BE PERFORMED BY A REPRESENTATIVE OF THE ASSOCIATED AIR BALANCING COUNCIL, CANADIAN CHAPTER. BALANCING OF AIR SYSTEM SHALL BE AT FULL LOAD CONDITIONS.

2. THE BALANCING REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

a) FAN DATA SHEET:

1. MAKE, MODEL AND SERIAL NUMBER
2. MOTOR HORSEPOWER, VOLTAGE, RATED AMP AND RUNNING AMP
3. FAN PULLEY SIZE, MOTOR PULLEY SIZE AND PULLEY SIZE

b) AIR OUTLET SHEET:

1. OUTLET NUMBER, MAKE AND MODEL
2. AREA FACTOR, DESIGN VELOCITY AND CFM (L/S) AND ACTUAL VELOCITY AND CFM (L/S).
3. AIR TEMPERATURE SUPPLIED TO SPACE AT LAST SUPPLY AIR OUTLET OF EACH DUCT RUN.
4. IF HOOD IS USED, ACTUAL CFM (L/S) AND DESIGN CFM (L/S)

c) SCHEMATIC DRAWING:

1. SINGLE LINE DRAWING WITH AIR OUTLETS NUMBERED CORRESPONDING TO AIR OUTLET SHEETS.

2. PROVIDE A COPY OF THE AIR BALANCING REPORT TO LANDLORD PRIOR TO NEW STORE OPENING.

G) CLOSE OUT DOCUMENTS:

THE FOLLOWING INFORMATION MUST BE PROVIDED TO THE ENGINEER PRIOR TO FINAL SITE INSPECTION AND ISSUANCE OF THE ENGINEER"S FINAL SIGN OFF LETTER TO OBTAIN OCCUPANCY.

1. SPRINKLER SYSTEM MATERIALS TEST AND SAFETY CERTIFICATE STATING THAT THE FIRE PROTECTION SPRINKLER SYSTEM IS INSTALLED TO MEET NFPA 13 REQUIREMENTS.

2. AIR BALANCING REPORT

THE FOLLOWING INFORMATION MUST BE PROVIDED TO THE OWNER UPON PROJECT COMPLETION:

.1 LETTERS OF WARRANTY FROM THE MECHANICAL AND ELECTRICAL CONTRACTORS.

.2 AS BUILT DRAWINGS AND MANUALS.

H) MECHANICAL NOTES:

1. NOTE THE REMOVAL OF MECHANICAL WORK IS NOT PART OF THIS CONTRACT.

2. UNLESS NOTED OTHERWISE, ALL SANITARY DRAIN PIPES OF SIZE 3" (75 MM) AND SMALLER SHALL BE SLOPED AT 2 % AND DRAIN PIPES OF SIZE 4" (100 MM) AND LARGER SHALL BE SLOPED AT 1 %.

3. SIZES OF ACOUSTICALLY LINED DUCTWORK SHALL BE INSIDE CLEAR DIMESNSIONS.

4. ALL EXISTING SERVICES SHOWN ON PLAN ARE APPROXIMATE AND BASED ON SITE SURVEY. CONTRACTOR SHALL VERIFY ALL CONNECTIONS, DUCT SIZES AND LOCATIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ANY SERVICES NOT SHOWN ON THE DRAWINGS THAT ARE EXPOSED DURING CONSTRUCTION SHALL BE VERIFIED BY THE CONTRACTOR AS TO THE SOURCE AND ROUTING. REPORT TO THE ENGINEER WITH PROPOSED RESOLUTIONS FOR THE SERVICES THAT HAVE BEEN EXPOSED AT NO EXTRA COST TO CLIENT.

6. ANY WORK AFFECTING LANDLORD BASE BUILDING SUCH AS SPRINKLER SYSTEM, ROOF WORK, TERAZZO WORK OUTSIDE LEASED AREA OR ELECTRICAL WORK OUTSIDE LEASED AREA WILL BE REQUIRED TO BE PERFORMED BY A LANDLORD DESIGNATED OR LANDLORD APPROVED CONTRACTOR AND BE ENGAGED AND PAID BY THE TENANT

7. SUITABLE ACCESS MUST BE PROVIDED BY TENANT TO ALL EQUIPMENT CONCEALED BY THE WORK WHICH REQUIRES ROUTING MAINTENACCE OR CONTROL ADJUSTMENT.

8. LAYOUT SHOWN FOR CLARITY. COORDINATE INSTALLATION WITH ALL OTHER TRADES AND PROVIDE ADDITIONAL ELBOWS AND FITTINGS FOR OFFSETS AS REQUIRED, NOT ONLY TO FACILITATE THE INSTALLATION OF SERVICES IDENTIFIED HERE, BUT TO PERMIT COMPLETE INSPECTION AND MAINTENANCE OF ALL SERVICES.

9. CLEAN EXISTING REUSED ROOFTOP HVAC UNIT #RTU-3, OVERHAUL, REPLACE ALL BROKEN OR DAMAGED PARTS TO ENSURE PROPER OPERATION, REPLACE AIR FILTERS WITH NEW AND REBALANCE THE UNIT TO SUPPLY THE AIR QUANTITIES LISTED IN THE EQUIPMENT SCHEDULE.

10. RAISE EXISTING DUCTWORK AND PIPING IF NECESSARY TO SUIT NEW CEILING HEIGHTS.

11. EQUIVALENT DUCT SIZES MAY BE SUBSTITUTED IN LIEU OF THOSE SHOWN, IN ORDER TO AVOID INTERFERENCE WITH STRUCTURE AND OTHER MECHANICAL SERVICES. OBTAIN ENGINEER'S APPROVAL BEFORE FABRICATION OF DUCTS.

12. INSTALL TURNING VANES IN ALL 45 AND 90 DEGREE SQUARE ELBOWS, (AND RETURN AIR SYSTEMS ONLY WHERE SHOWN).

13. RUN ALL DUCTWORK AND PIPING AS HIGH AS POSSIBLE. ENSURE INSTALLATION IS NOT PRONE TO FREEZING.

14. IT IS THIS MECHANICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE CLEAR PASSAGE OF RETURN AIR BACK TO ALL RESPECTIVE AIR CONDITIONING SYSTEMS RELATED TO THIS PROJECT.

15. ALL ROOM THERMOSTATS SHALL BE MOUNTED AT 4'-0" (1220 MM) ABOVE FINISHED FLOOR, C/W VANDAL-PROOF COVER WITH ALLEN KEY LOCK.

16. ALL FLEXIBLE ROUND DUCT CONNECTIONS TO SUPPLY AIR DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK.

17. ALL FLEXIBLE ROUND DUCT CONNECTIONS TO RIGID DUCTWORK AND EQUIPMENT SHALL BE SCREWED AND TAPED.

18. MECHANICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL DUCTWORK WITH CEILING AND ROOF FRAMING MEMBERS.

19. SHUT-DOWNS OF EXISTING SYSTEMS REQUIRED FOR THIS INSTALLATION SHALL BE FULLY COORDINATED WITH THE BUILDING MANAGEMENT AND THIS WORK PERFORMED AS DIRECTED IN WRITING BY THE BUILDING MANAGEMENT. CONNECTION TO EXISTING SERVICES SHALL BE PERFORMED DURING OFF-WORK HOURS OR ON WEEKENDS IN PREMIUM TIME.

I) KITCHEN DUCTWORK

1. KITCHEN HOOD EXHAUST DUCTS SHALL BE 16 GAUGE ALL WELDED TO CONFORM TO NFPA 96 REQUIREMENTS, INCLUDING THE PROVISION OF ALL CLEANOUTS.

2. KITCHEN EXHAUST (16 GAUGE ALL WELDED) DUCTWORK RUNNING INSIDE THE BUILDING, UNDERSIDE OF ROOF AND EXTERIOR SHALL BE TOTALLY ENCLOSED IN TWO (2) LAYERS OF ULC APPROVED, 2 HOURS RATED, "3M FIRE MASTER DUCT WRAP SYSTEM" AS REQUIRED BY THE LATEST EDITION OF NFPA 96. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING/ PAYING FOR 3RD PARTY LIGHT TEST OF BLACK IRON.

3. WELDED KITCHEN EXHAUST DUCTWORK SHALL HAVE DUCTMATE 'SANDWICH' ACCESS DOORS INSTALLED AT 12 FT. (3.7 M) CENTRES. THE CONSTRUCTION SHALL COMPRISE OF:
a) 16 GAUGE BACKPLATE IN BLACK IRON.
b) NO INSULATION.
c) HIGH TEMPERATURE FIBREGLASS ROPE, ATTACHED TO FRONT (TOP) PLATE OF ACCESS DOOR.
d) FASTENED WITH WING NUTS.
e) INSTALL HIGH TEMPERATURE WASHERS BETWEEN FRONT PLATE AND WING NUTS.

4. KITCHEN EXHAUST CANOPIES SHALL BE SUPPLIED BY OWNER AND INSTALLED BY MECHANICAL CONTRACTOR.

5. ALL PIPING AND DUCTWORK SHALL BE INSTALLED TO PROVIDE CLEAR ROOM FOR EXHAUST CANOPY INSTALLATIONS.

6. MECHANICAL CONTRACTOR SHALL SMOKE TEST THE KITCHEN EXHAUST CANOPY/DUCT/FAN SYSTEMS IN THE PRESENCE OF THE HALTON, FIRE DEPARTMENT INSPECTOR, AND THE CFCC REPRESENTATIVE, BEFORE ACCEPTANCE. (H.V.A.C. TRADE).

7. ALL STAINLESS STEEL PROTECTIVE COVER FOR EXTERIOR DUCTWORK SHALL BE 18 GAUGE.

DRAWING LIST

M-1	MECHANICAL SPECIFICATIONS
M-2	MECHANICAL LEGEND AND SCHEDULES
M-3	MECHANICAL DEMOLITION PLAN-GROUND FLOOR
M-4	MECHANICAL DEMOLITION PLAN-ROOF
M-5	HVAC PLAN-GROUND FLOOR
M-6	HVAC PLAN-SECOND FLOOR
M-7	ROOF PLAN
M-8	GAS SCHEMATICS AND DETAILS
M-9	GROUND FLOOR PLUMBING PLAN
M-10	GROUND FLOOR SANITARY AND DRAINAGE PLAN
M-11	SECOND FLOOR PLUMBING AND DRAINAGE PLAN
M-12	MECHANICAL LOAD CALCULATION
M-13.0	MECHANICAL LOAD CALCULATION
M-14.0	MECHANICAL DETAILS
M-14.1	MECHANICAL DETAILS
M-15	PLUMBING AND DRAINAGE DETAILS

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project : FIREARMS OUTLET CANADA

725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name : MECHANICAL SPECIFICATIONS

Date: JAN 2025
Project No : 25016
Scale : AS NOTED
Drawn by : AL
Checked by : BZ
Drawing No : M-1

ROOF TOP UNIT SCHEDULE

UNIT REF.	MANUFACTURER MODEL No.	COOLING PERFORMANCE					HEATING CAPACITY (MBH)		FLOW RATE (CFM)	SP ("WG)	F/A (CFM)	POWER	HP	WEIGHT (LBS)	MOCP/MCA	REMARK
		TONS	TOTAL (MBH)	SENS.	ECON.	EER (BTU/W)	INPUT	OUTPUT								
RTU-1	LENNOX ZGB048ABH1J	4	45.5	–	–	11	150	120	1600	1		575/3/60	–	–	15A/10A	EXISTING RELOCATE
RTU-2	LENNOX KGA120S4BH2J	10	115	–	–	11	240	192	4000	1.6	–	575/3/60	–	–	20A/19A	EXISTING
RTU-3	CARRIER 48TCE06A2A1A0B0A0	5	59	–	–	13	115	93	2000	1	–	575/3/60	–	–	15A/12A	EXISTING
RTU-4	RHEEM RKNN-A048YM13E	4	48	–	–	13	135	109	1600	0.5	–	575/3/60	–	–	15A/12A	EXISTING
RTU-5	CARRIER 48TCE04A2A1A0B0A0	3	59	–	–	13	115	93	1200	0.8	–	575/3/60	–	–	15A/12A	EXISTING
RTU-6 (NEW)	LENNOX KGC102S4M HORIZONTAL DISCHARGE	8.5	97	–	–	11	180	86	3400	0.75	–	575/3/60	–	818	15A/130A	1-10
RTU-7 (NEW)	LENNOX KGC120S4M HORIZONTAL DISCHARGE	10	115	–	–	11	180	144	4000	0.75	1100	575/3/60	–	1224	25A/20A	1-10

NOTES:

1. FACTORY INSTALLED ECONOMIZER (DRYBULB).
2. FACTORY INSTALLED UNFUSED DISCONNECT SWITCH.
3. FACTORY INSTALLED (FIELD WIRED), WEATHERPROOF DUPLEX, 115 VOLT, 15 AMPERE GFCI TYPE RECEPTACLE.
4. R-410A REFRIGERANT.
5. PREMIUM EFFICIENCY SUPPLY FAN MOTORS.
6. FACTORY INSTALLED HUMIDITROL, DEHUMIDIFICATION SYSTEM.
7. FACTORY INSTALLED REFRIGERANT SERVICE VALVES, INCLUDING A CHARGING VALVE.
8. FACTORY INSTALLED COIL GUARDS.
9. MICROPROCESSOR BASED CONTROLS.
10. HINGED/GASKETED ACCESS PANELS.

ALL ROOF HVAC EQUIPMENT SHALL HAVE THE FOLLOWING OPTIONS:

1. THE UNIT SHALL BE C/W 2 SET OF FILTERS. ONE SET OF FILTER SHOULD BE INSTALLED DURING THE CONSTRUCTION. ANOTHER SET SHOULD BE INSTALLED UPON COMPLETION.
2. ALL NEW UNITS AND RELOCATED UNITS TO BE PROVIDED WITH NEW ROOF MOUNTING FRAME.

DIFFUSER AND GRILLE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	LOCATION	MODEL	SIZE	FRAME	FINISH	DAMPER	REMARKS
A	SUPPLY AIR SQUARE DIFFUSER	E.H. PRICE	CEILING	SPD - PLAQUE	24"x24" PANEL	TYPE 31	B12	VCR-8E	USE FRAME NO. 31 FOR LAY-IN T BAR CEILING. PROVIDE PLASTER FRAME "PFS" FOR DRYWALL CEILING
B	SUPPLY AIR SQUARE DIFFUSER	E.H. PRICE	CEILING	SPD - PLAQUE	12"x12" PANEL	TYPE 31	B12	VCR-8E	USE FRAME NO. 31 FOR LAY-IN T BAR CEILING. PROVIDE PLASTER FRAME "PFS" FOR DRYWALL CEILING
C	SUPPLY AIR ROUND DIFFUSER	E.H. PRICE	SEE REMARKS	RPD-PLAQUE	VARIES	SEE REMARKS	B12	VCR-8E	FOR DRYWALL CEILING APPLICATION OR EXPOSED MOUNTING, REFER TO PLAN
D	SUPPLY AIR REGISTER	E.H. PRICE	SEE REMARKS	520D/F/S/C/B12	VARIES	SEE REMARKS	B12	YES	FOR WALL OR DRYWALL CEILING APPLICATION. FOR EXPOSED MOUNTING, USE 520D/F/S/A//B12
E	RETURN AIR GRILLE	E.H. PRICE	CEILING	80/TB/B12	VARIES	SEE REMARKS	B12	NO	FOR DUCTED APPLICATION. FOR NON-DUCTED, USE 80 CORE ONLY. FOR DRYWALL CEILING, USE 80/C/C/B12
F	EXHAUST/RETURN AIR REGISTER	E.H. PRICE	CEILING	530D/F/L/C/B12	VARIES	SEE REMARKS	B12	YES	FOR WALL OR DRYWALL CEILING APPLICATION. FOR EXPOSED MOUNTING, USE 530D/F/S/A//B12
G	DOOR GRILLE	E.H. PRICE	DOOR	STG-1	VARIES	TYPE "BF"	B15	NO	STEEL CONSTRUCTION
H	LINEAR SLOT DIFFUSER	EH PRICE	CEILING	SDS100-XX	60"L	SEE REMARKS	B12	NO	1 SLOT WITH 1.5" SLOT WIDTH. MOUNTING TO BE BORDER CONCEALED PLASTER FRAME CONCEALED MOUNTING, WITH TAPE AND SPACKLE, FACTORY MITERED ENDS(STANDARD).

NOTES:
1. COLOUR TO BE SELECTED BY ARCHITECT.
2. APPROVED EQUIVALENT IS ACCEPTABLE.

KITCHEN AND BAR EQUIPMENT SCHEDULE

TAG	Quantity	DESCRIPTION	MODEL	B.F.P REQ	FILTERED	DCW	DHW	DIRECT WASTE	INDIRECT WASTE	REMARKS
2	2	3 DOOR BEVEREGE COOLER	PERLICK BBS84						3/4"	
4	1	190 LBS ICE MAKER C/W BIN	MANITOWAC NEO® 190 A C/W FILTERS	Y	3/8"				1/2"	
5	1	POUR OVER COFFEE MAKER AND HOT WATER DISPENSER	BUNN-O-MATIC CWTF15-2, PF	Y	1/4"					
7	1	TRADICTIONAL 2 HEAD ESPRESSO MACHINE	N/A	Y	3/8"				1-1/2"	
12	1	GLASSWASHER	MOYER DIEBEL DF	Y		1/2"	1/2"	1-1/2"		
14	2	SODA GUN	N/A							CONNECTED TO POP RACK?
15	2	UNDERBAR COCKTAIL STATION	PERLICK UCS48A	Y		1/2"	1/2"	1-1/2"	3/4"	Indirect to hub drain for ice chest, direct waste for blender sink.
18	1	5 HEADED BEER DISPENSING TOWER	N/A							CONNECTED TO BEER KEG LINE SYSTEM (28,38)
19	1	DIP TRAY C/W RINSER	N/A	Y		1/2"			3/4"	
36	1	carbonator	N/A	Y	3/8"					CONNECTED TO FILTERED WATER AND CO2 TANK
37	1	pop rack	N/A							CONNECTED TO CARBONATOR
58	1	HIGH-TEMP DISHWASHER	CHAMPION	Y		1/2"	3/4"		1.5"	drain temp kit required, refer to details

HOT WATER HEATER SCHEDULE

TAG	FIXTURE	MAKE/MODEL	CONNECTION SIZE				DESCRIPTION
			DRAIN	VENT	C.W.	H.W.	
HWT-1	PUBLIC HOT WATER TANK	AO SMITH/ BTH-120	3/4	3	1 1/2		GAS FIRED WATER HEATER. AO SMITH BTH-120, 60 GALLON TANK CAPACITY, 120,000BTU/H, 120 VOLT, 1 PHASE OR EQUIVALENT. 3/4" RECIRCULATION LINE. 3/4" GAS CONNECTION NPT.
HWT-2	KITCHEN HOT WATER TANK	AO SMITH/ BTH-150	3/4	3	1 1/2		GAS FIRED WATER HEATER. AO SMITH BTH-150, 100 GALLON TANK CAPACITY, 150,000BTU/H, 120 VOLT, 1 PHASE OR EQUIVALENT. 3/4" RECIRCULATION LINE. 3/4" GAS CONNECTION NPT.

HOT WATER CIRCULATION PUMP SCHEDULE

TAG	FIXTURE	MAKE/MODEL	USGPM	HD.(FT.)	HP	POWER	DESCRIPTION
RP-1	CIRCULATION PUMP	BELL&GOSSETT /NBF-9U-LF	4.7	6	1/40	120/1	SUPPLY AND INSTALL TIMER TOGETHER WITH THE PUMP. CONTROLLED VIA "BELL&GOSSETT" 113210 AUTOMATIC TIMER
NOTE	1. APPROVED EQUALS ARE ACCEPTABLE.						

SPLIT SYSTEM UNIT SCHEDULE

UNIT REF.	LOCATION	"MITSUBISHI" MODEL No.	TYPE	SEER EER	COOLING CAPACITY MIN/MAX (BTUH)	HEATING CAPACITY MIN/MAX (BTUH)	CFM	ESP ("WC)	POWER	MCA (AMP)	MOCP (AMP)	WEIGHT (LBS)	REMARKS
A/C-1	ELEV MACH RM	P SERIES PKA-A12HA7	WALL MOUNTED INDOOR UNIT	20.8 12.0	5,800/12,000	–	425	–	208/230/1/60	1	–	29	SEE NOTE #1 AND 4 BELOW
CU-1	ROOF	P SERIES PUY-A12NKA7	CONDENSING UNIT		–	–	1590	–	208/230/1/60	11	28	92	SEE NOTES #2 AND 3 BELOW

NOTES:

1. AIR CONDITIONER (A/C-1). SUPPLY AND INSTALL INDOOR UNIT 4" (100MM) BELOW U/S OF CEILING. POWER WIRING TO INDOOR UNIT TO BE FROM CONDENSING UNIT BY ELECTRICAL CONTRACTOR. PROVIDE NEW AIR FILTERS AND NEW REFRIGERANT PIPING. COOLING ONLY.
2. CONDENSING UNIT (CU-1) MOUNTING ON CONCRETE. CONFIRM LOCATION ON SITE WITH OWNER.
3. THIS CONTRACTOR ENSURE THAT THE OUTDOOR UNIT (CU-1) SHALL BE COMPLETE WITH LOW AMBIENT CONTROL.
4. C/W MITSUBISHI REDLINK MHK2, WALL MOUNTED WIRELESS REMOTE CONTROLLER KIT. PROGRAMMABLE OPERATION MODE; TEMPERATURE, FAN SPEED, AND AIR FLOW DIRECTION. C/W DUAL SET POINT FUNCTIONALITY, THE MHK2 CAN STORE A HEATING AND A COOLING TEMPERATURE AND SWITCH BETWEEN THEM AS NEEDED WHILE IN AUTO MODE. KIT INCLUDES: MRCH2 REMOTE CONTROLLER, MIFH2 WIRELESS RECEIVER AND MRC2 CABLE.

MAKE UP AIR UNIT SCHEDULE(NEW)

UNIT REF.	MANUFACTURER MODEL No.	HEATING CAPACITY (MBH)		COOLING CAPACITY (MBH)		FAN			MIN. F/A (CFM)	POWER	MCA	MOP	WEIGHT (LBS)	REMARKS
		INPUT	OUTPUT	TOTAL	SENSIBLE	CFM	ESP	TSP						
MUA-A (NEW)	SPRING AIR SYSTEM SAA12-DFOH	353	–	–	–	4243	0.45	–	4243	575/3/60	–	–	735	HORIZONTAL DISCHARGE, CURB MOUNTED (CURB WEIGHT 80LBS)

KITCHEN EXHAUST FAN DATA (EF-A)

ITEM	MODEL	VOLUME	TOTAL STATIC	REV RPM	Lw*	HP	ELECTRICAL	WEIGHT LBS
EF-A	SPRING AIR CP5210	4715 CFM	1.79" W.C.	1205	82.9	5.00	575V/3/60 6.1 FLA	720 lbs

ACCESSORIES

DISCONNECT	YES	MOTOR STARTER	YES	DISCHARGE NOZZLE	YES	ISOLATORS	NO

NOTES: **FABRICATED DISCHARGE NOZZLE.
MOTOR STARTER IS TELE LD30063A030 C/W LRD10.

THESE ARE TYPICAL DRAWINGS FOR DIMENSIONAL PURPOSES ONLY AND ARE CORRECT WITHIN LIMITS FOR NORMAL INSTALLATION REQUIREMENTS. THEY DO NOT NECESSARILY SHOW ACTUAL CONSTRUCTION. WARNING: DO NOT USE IN HAZARDOUS ENVIRONMENTS WHERE FAN'S ELECTRICAL SYSTEM COULD PROVIDE IGNITION TO COMBUSTIBLE OR FLAMMABLE MATERIAL. UNLESS UNIT IS SPECIFICALLY BUILT FOR ENVIRONMENTS. CAUTION: GUARDS MUST BE INSTALLED WHEN FAN IS WITHIN REACH OF PERSONNEL OR WITHIN SEVEN (7) FEET (2134mm) OF WORKING LEVEL OR WHEN DEEMED ADVISABLE FOR SAFETY.
* Lw IS SOUND POWER AT DISCHARGE

DISHWASHER EXHAUST FAN DATA (DW-EF)

ITEM	MODEL	VOLUME CFM	TOTAL STATIC in. W.C.	REV RPM	SONE	HP	ELECTRICAL
DW EF	SPRING AIR B-13BN	455 CFM	0.75" W.C.	1039	7.1	0.25	120V/1/60 5.6 FLA

ACCESSORIES

DISCONNECT	YES	MOTOR STARTER	YES	ROOF CURB	NO	ISOLATORS	NO

NOTE: DISCONNECT SWITCH SHIPS LOOSE FOR FIELD WIRING AND MOUNTING ON FAN.

CAUTION! GUARDS MUST BE INSTALLED WHEN FAN IS WITHIN REACH OF PERSONNEL OR WITHIN SEVEN (7) FEET (2134mm) OF WORKING LEVEL OR WHEN DEEMED ADVISABLE FOR SAFETY. — WEIGHT LBS: 134 lbs

BY-PASS BOX SCHEDULE

MANUFACTURER: E.H.PRICE

UNIT NO.	MODEL NO.	INLET SIZE	COOLING AIRFLOW (CFM) MIN	COOLING AIRFLOW (CFM) MAX	REMARKS
BP-1	LGB SERIES	10"DIA	0	800	1

NOTES:1. BY-PASS BOX, SINGLE DUCT TERMINAL UNIT, 10"Ø, 0-800 CFM C/W THERMOSTAT CONTROL AND CONTROL SEQUENCE 2502 AUTOMATIC CHANGE OVER.

EXHAUST FAN SCHEDULE (EXISTING)

TAG	DESCRIPTION	LOCATION	MAKE/MODEL	CAPACITY (CFM)	W.C.(INCH)	WATTS	AMP	SONES	RPM	POWER	WEIGHT (LBS)	REMARKS
EF-B	EXHAUST FAN	EX WASHROOM	GREENHECK/ GB-101-4X-QD-R3	N/A	N/A	N/A	N/A	N/A	N/A	120,208/1 /60	61	ON THE ROOF

EXHAUST FAN SCHEDULE (NEW)

TAG	DESCRIPTION	LOCATION	MAKE/MODEL	CAPACITY (CFM)	W.C.(INCH)	WATTS	AMP	SONES	RPM	POWER	WEIGHT (LBS)	REMARKS
EF-C	CENTRIFUGAL EXHAUST FAN	PUBLIC WASHROOMS	GREENHECK/ GB-098-6119 XQD	800	0.125	111.9	1.08	12	1670	120/1/60	54	1,2,3,6
EF-D	CENTRIFUGAL EXHAUST FAN	GARBAGE ROOM	GREENHECK/ GB-098-6119 XQD	600	0.75	126.82	1.22	10.4	1440	120/1/60	54	1,3,4,6
EF-E	IN LINE EXHAUST FAN	MECHANICAL ROOM	GREENHECK/ SQ-80-DGEX -QD	300	0.5	33	0.275	3.8	1050	120/1/60	38	1,4,5
EF-F	IN LINE EXHAUST FAN	ELECTRICAL ROOM	GREENHECK/ SQ-80-DGEX -QD	300	0.5	33	0.275	3.8	1050	120/1/60	38	1,4,5
EF-G	EXHAUST FAN	KITCHEN WASHROOM	GREENHECK/ SP-A200	120	0.625	50.8	0.47	4	900	120/1/60	24	1,4,5

NOTE

NOTES:
1. COORDINATE ELECTRICAL CONNECTION OF EXHAUST FAN WITH ELECTRICAL DIVISION.
2. FAN SHALL BE CONNECTED TO 24 HOUR TIME CLOCK ON DURING OCCUPIED HOURS/OFF DURING UNOCCUPIED HOURS. TIME CLOCK BY ELECTRICAL CONTRACTOR.
3. INSTALLED ON THE ROOF.
4. EXHAUST FAN AND MOTORIZED DAMPERS FOR BOTH FRESH AIR AND EXHAUST AIR OPENING TO BE CONNECTED TO 24 HOUR TIME CLOCK ON PERIODICALLY. TIME CLOCK BY ELECTRICAL CONTRACTOR.
5. CEILING MOUNTED.
6. COMPLETE WITH BACKDRAFT DAMPER.

NEW ELECTRIC HEATER SCHEDULE

MARK	MFR	MODEL	HEATING CAPACITY (BTU/HR)	CFM	MOTOR	ELECTRICAL INPUT KW	ELECTRICAL AMPS	ELECTRICAL VOLT/PH/HZ	REMARKS
UH-1,2,3	OUELLET	OAS02008AM	6,824	510	–	2	---	208/1/60	1
EFH-1	STELPRO	WF4008TW	13,661	160	–	4	---	208/1/60	2
BBH-1	STELPRO	B2003W	6,824	–	–	2	---	347/1/60	2
ARC-1	STELPRO	SDC0581CTW	17,060	1500	–	5	---	208/1/60	2

REMARKS:
1. HEATER C/W EXTERNAL WALL MOUNTED THERMOSTAT AND SHALL BE MOUNTED AT AN ANGLE TOWARDS THE DOOR.
2. HEATER SHALL BE SURFACE MOUNTED ON WALL WITH SURFACE ADAPTOR KIT AND C/W BUILT-IN THERMOSTAT

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	EXISTING PIPING TO BE REMOVED
	EXISTING EQUIPMENT TO BE REMOVED
	EXISTING PIPING (FAINT LINEWORK)
	EXISTING EQUIPMENT (FAINT LINEWORK)
	EXISTING RIGID DUCTWORK (FAINT LINEWORK)
(T)	EXISTING THERMOSTAT
	RIGID DUCTWORK
	ACOUSTICALLY LINED DUCTWORK
	FLEXIBLE ROUND DUCTWORK
	SPIN-ON FITTING WITH BALANCING DAMPER
UP DN	SUPPLY/FRESH AIR DUCT RISER
UP DN	RETURN/EXHAUST AIR DUCT RISER
	DUCT ELBOW WITH TURNING VANES
F/C	FLEXIBLE CONNECTOR
U/C	DOOR UNDERCUT (SIZE AS NOTED)
	SUPPLY AIR SQUARE DIFFUSER
	SUPPLY AIR ROUND DIFFUSER
	SUPPLY/RETURN AIR SLOT DIFFUSER
	SUPPLY/RETURN WALL/SIDE GRILLE/REGISTER
	RETURN/EXHAUST GRILLE
T	THERMOSTAT
TS	TEMPERATURE SENSOR
BD	BALANCING DAMPER
SD	SPLITTER DAMPER
F/D	FIRE DAMPER
BDD	BACK-DRAFT DAMPER
MD	MOTORIZED DAMPER
FE	DRY CHEMICAL FIRE EXTINGUISHER
( )	EXISTING SPRINKLER HEAD
	UPRIGHT TYPE SPRINKLER HEAD
	PENDANT TYPE SPRINKLER HEAD
	FLUSH TYPE SPRINKLER HEAD
	SIDEWALL SPRINKLER HEAD
D	FIRE LINE
SP	SPRINKLER PIPE
-	DOMESTIC COLD WATER PIPE
--	DOMESTIC HOT WATER PIPE
---	DOMESTIC HOT WATER RECIRC. PIPE
V	PLUMBING VENT PIPE
SAN	SANITARY DRAIN PIPE ABOVE SLAB
SAN	SANITARY DRAIN PIPE BELOW SLAB
ST	STORM DRAIN PIPE ABOVE SLAB
ST	STORM DRAIN PIPE BELOW SLAB
G	GAS PIPE
CD	CONDENSATE DRAIN PIPE
	BALL VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
CO	CLEANOUT
UP DN	PIPE RISER
	PIPE/DUCT CAP
S/A	SUPPLY AIR
R/A	RETURN AIR
E/A	EXHAUST AIR
F/A	FRESH AIR
DG	DOOR GRILLE
AFF	ABOVE FINISHED FLOOR
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
RWL	RAIN WATER LEADER
RD	ROOF DRAIN
LV	LAVATORY
WC	WATER CLOSET
(E)	DENOTES "EXISTING"
36"x24" 1200 B	SIZE OF DIFFUSER/GRILLE/REGISTER; TYPE OF DIFFUSER/GRILLE/REGISTER; AIR QUANTITY (CFM)

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER Q. P. ZHANG 100119933 MAY 27/2025 PROVINCE OF ONTARIO

Project :

FIREARMS OUTLET CANADA

725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

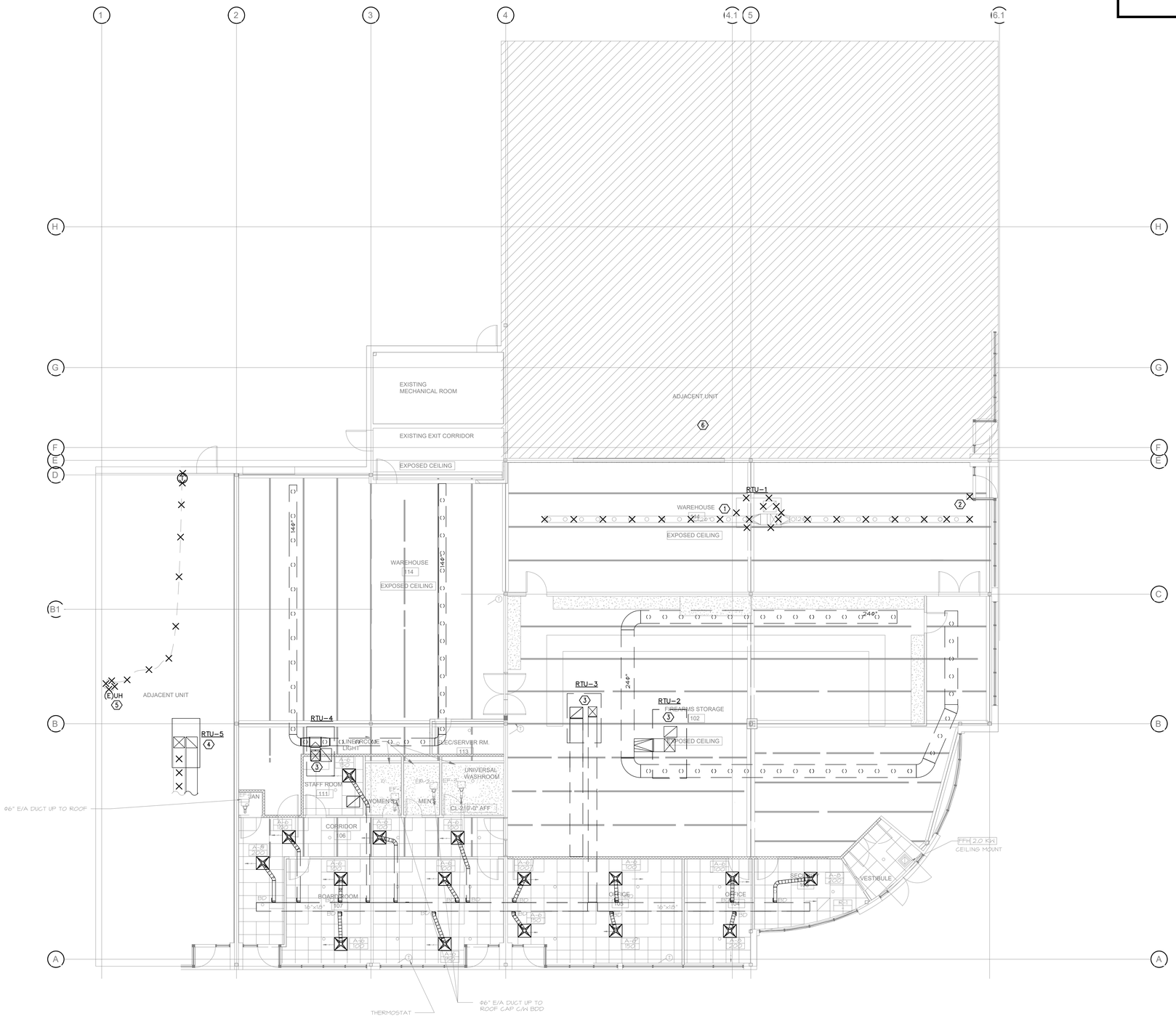
Drawing Name :

MECHANICAL LEGEND AND SCHEDULES

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-2
Checked by :	BZ		

CODED DEMOLITION NOTES

1. RTU–1 MAIN SUPPLY DUCTS AND RETURN AIR PLENUM TO BE REMOVED AND RELOCATED IN NEW PLAN.
2. THERMOSTAT FOR RTU–1 TO BE REMOVED.
3. EXISTING DUCTWORKS AND THERMOSTATS FOR ROOF TOP UNIT RTU–2, RTU–3, RTU–4 TO REMAIN.
4. EXISTING RTU–5 MAIN SUPPLY AIR DUCT TO BE REMOVED. RETURN AIR PLENUM TO REMAIN. RELOCATE THERMOSTAT FOR FUTURE USE. VERIFY EXACT LOCATION AND ORIENTATION ON SITE.
5. EXISTING GAS FIRE UNIT HEATER TO BE REMOVED ALONG WITH ASSOCIATED THERMOSTAT, GAS PIPING AND VENTING AND.
6. ALL MECHANICAL SYSTEMS IN ADJACENT TENANT SPACE TO BE REMOVED FOR DEMOLITION.



1 / M–3 GROUND FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'–0"

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

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2	MAR 28/2025	PROGRESS SET	AL
1	FEB 24/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

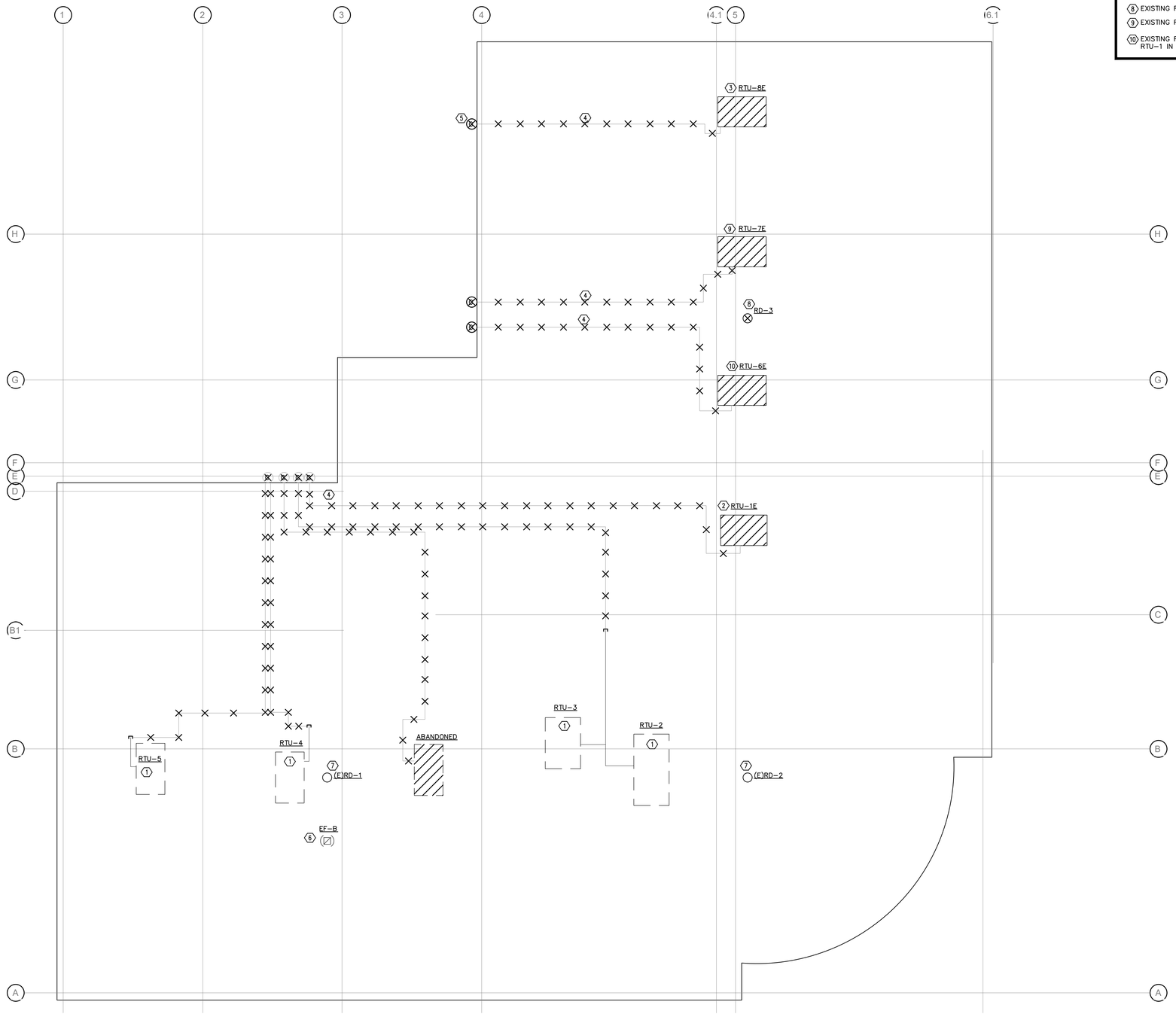
Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
MECHANICAL DEMOLITION PLAN GROUND FLOOR

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-3
Checked by :	BZ		

CODED DEMOLITION NOTES

1. EXISTING ROOF TOP UNIT RTU-2, RTU-3, RTU-4 AND RTU-5 TO REMAIN.
2. EXISTING ROOF TOP UNIT RTU-1E TO BE REMOVED. KEEP DUCT OPENING FOR NEW PLAN.
3. EXISTING ROOF TOP UNIT RTU-8E TO BE REMOVED.
4. GAS PIPE TO BE REMOVED AND CAPPED AS SHOWN. TYPICAL FOR ALL.
5. GAS METER TO BE REMOVED AND CAP OFF SUPPLY GAS PIPE. TYPICAL
6. EXISTING EXHAUST FAN EF-B GREENHECK GB-101-4X-QD-R3 TO REMAIN.
7. EXISTING ROOF DRAIN RD-1 AND RD-2 TO REMAIN.
8. EXISTING ROOF DRAIN RD-3 TO BE REMOVED.
9. EXISTING ROOF TOP UNIT RTU-7E TO BE REMOVED.
10. EXISTING ROOF TOP UNIT RTU-6E TO BE REMOVED AND STORED TO BE RELOCATED TO NEW PLAN AS RTU-1 IN SCHEDULE.



1/M-4 ROOF DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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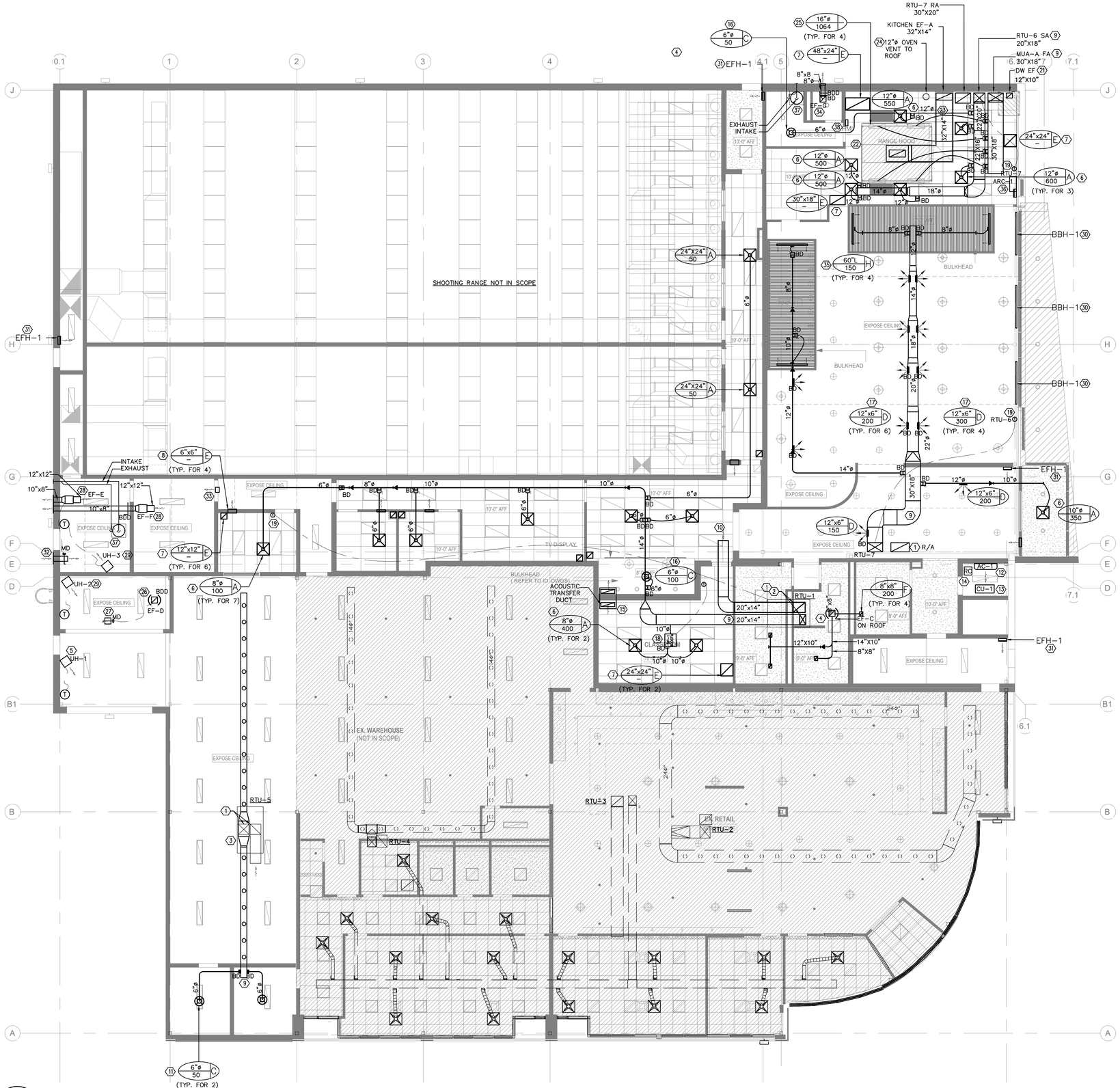
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
MECHANICAL DEMOLITION PLAN GROUND FLOOR

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-4
Checked by :	BZ		



1 / M-5 GROUND FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

CODED HVAC NOTES

1. ACOUSTICALLY LINED SUPPLY AND RETURN AIR PLENUMS UP THROUGH ROOF TO RTU ABOVE. COORDINATE EXACT LOCATION WITH EXISTING BUILDING STRUCTURE ON SITE.
2. MODIFY EXISTING ROOF OPENINGS TO SUIT NEW SUPPLY AND RETURN AIR RISERS THROUGH ROOF. CONFIRM EXACT LOCATIONS ON SITE.
3. SUPPLY AND INSTALL EXISTING SUPPLY AIR PLENUM AND DUCTWORK REMOVED FROM RTU-1 FOR RTU-5 AS SHOWN, EXISTING RETURN AIR PLENUM TO REMAIN AND BE RE-PURPOSED FOR WAREHOUSE EXPANSION, EXTEND DUCTWORK AS REQUIRED. CONFIRM EXACT LOCATIONS ON SITE.
4. 12"x12" EXHAUST AIR DUCT UP THROUGH ROOF TO EXHAUST FAN EF-C ABOVE.
5. SUPPLY AND INSTALL UNIT HEATER UH-1 AS SHOWN. INSTALL WITH WALL MOUNTED THERMOSTAT.
6. SUPPLY AND INSTALL NEW 24" x 24" SUPPLY AIR SQUARE DIFFUSER TYPE "A" AS NOTED ON DRAWING AND SCHEDULE. AIR BALANCE AS SHOWN. (TYPICAL FOR ALL)
7. SUPPLY AND INSTALL NEW 24" x 24" RETURN AIR GRILLE TYPE "E" AS NOTED ON DRAWING AND SCHEDULE. (TYPICAL FOR ALL)
8. SUPPLY AND INSTALL NEW 12" x 12" RETURN AIR GRILLE TYPE "E" AS NOTED ON DRAWING AND SCHEDULE. (TYPICAL FOR ALL)
9. SUPPLY AND INSTALL NEW MAIN DUCT, BRANCH AND FLEXIBLE DUCT CW/ DAMPERS AS SHOWN.
10. SUPPLY AND INSTALL NEW RETURN AIR PLENUM AND DUCT OPEN ENDED TO CEILING ABOVE LOBBY AS SHOWN.
11. SUPPLY AND INSTALL NEW 6"ø SUPPLY AIR ROUND DIFFUSER TYPE "C" AS NOTED ON DRAWING AND SCHEDULE. AIR BALANCE AS SHOWN. (TYPICAL FOR ALL)
12. SUPPLY AND INSTALL NEW INDOOR WALL MOUNTED 1.0 TONS A/C-1 UNIT BY CONTRACTOR C/W THERMOSTAT. AIR BALANCE SUPPLY AIR TO 425 CFM.
13. NEW CONDENSING UNIT "CU-1". CU TO BE FLOOR MOUNTED ON CONCRETE PAVERS WITH SCREENING ON THE ROOF LEVEL ABOVE ELEVATOR MACHINE ROOM. OUTDOOR UNIT SHOULD BE INSTALLED ABOVE THE SNOW LEVEL. ONLY MESCA SUPPLIED AND APPROVED SNOW GUARD/WND DEFLECTORS/WINDSCREENS AND ACCESSORIZED FOR PROPER FUNCTIONING OF THE UNIT. REFER TO ROOF PLAN.
14. WIRELESS WALL MOUNTED REMOTE CONTROL IN THE MACHINE ROOM ELEVATOR MACHINE ROOM. EXACT LOCATION TO BE COORDINATED.
15. SUPPLY AND INSTALL ACOUSTIC TRANSFER DUCT HIGH UP IN CEILING SPACE. REFER TO MECHANICAL DETAILS.
16. SUPPLY AND INSTALL NEW ROUND DIFFUSER TYPE "C" AS NOTED ON DRAWING AND SCHEDULE. AIR BALANCE AS SHOWN. (TYPICAL FOR ALL)
17. SUPPLY AND INSTALL NEW DUCT MOUNTED SUPPLY AIR GRILLE TYPE "D" AS NOTED ON DRAWING AND SCHEDULE. (TYPICAL FOR ALL)
18. SUPPLY AND INSTALL NEW BYPASS BOX BP-1 CW THERMOSTAT, 800 CFM.
19. SUPPLY AND INSTALL THERMOSTAT FOR ROOF TOP UNIT ON THE ROOF AS SHOWN. PROVIDE THERMAL INSULATED MOUNTING PAD WHEN THERMOSTAT IS ON EXTERIOR WALL.
20. SUPPLY AND INSTALL THERMOSTAT FOR ROOF TOP UNIT ON THE ROOF AS SHOWN. PROVIDE THERMAL INSULATED MOUNTING PAD WHEN THERMOSTAT IS ON EXTERIOR WALL.
21. CONNECT DISHWASHER EXHAUST DUCTWORK DW EF TO DISHWASHER EXHAUST HOOD. VERIFY EXACT LOCATION AND SIZE ON SITE.
22. INSTALL KITCHEN EXHAUST HOOD SUPPLIED BY SPRING AIR SYSTEM. PROVIDE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 96, REFER TO FIRE SUPPRESSION DETAIL IN M13.1FOR FURTHER DETAILS.
23. FIRE RATED (NFPA-96) KITCHEN EXHAUST DUCT FROM KITCHEN EXHAUST HOOD CONNECTED TO EXHAUST FAN EF-A .
24. SUPPLY AND INSTALL 12" DIAMETER EXHAUST VENT FOR PIZZA OVEN TO ROOF. VERIFY LOCATION AND CONNECTION TO PIZZA OVEN ON SITE. EXHAUST TO BE CONTROLLED BY SWITCH, COORDINATE LOCATION ON SITE.
25. 16" DIAMETER FLEXIBLE DUCT TO BE CONNECTED TO BUILT IN EXHAUST HOOD DIFFUSER AS SHOWN. AIR BALANCE EVENLY AS SHOWN. TYPICAL FOR 4.
26. SUPPLY AND INSTALL EXHAUST FAN EF-D FOR GARBAGE ROOM ON THE ROOF, 600 CFM. EXACT LOCATION TO BE VERIFIED ON SITE.
27. SUPPLY AND INSTALL GOOSENECK WITH MOTORIZED DAMPER CONNECTED TO EXHAUST FAN CONTROLS. EXACT LOCATION TO BE VERIFIED ON SITE.
28. SUPPLY AND INSTALL INLINE EXHAUST FAN EF-E FOR MECHANICAL EF-F FOR ELECTRICAL ROOM MOUNTED IN WALL AS SHOWN, 300 CFM. EXACT LOCATION TO BE VERIFIED ON SITE.
29. SUPPLY AND INSTALL UNIT HEATER UH-2,3 AS SHOWN. INSTALL WITH WALL MOUNTED THERMOSTAT.
30. NEW STELPRO B2008W 2KW/208V BASEBOARD HEATER BBH-1.
31. SUPPLY AND INSTALL FORCE FLOW HEATER EFFH-1 4KW/208V/1ph STELPRO WF4008TW.
32. SUPPLY AND INSTALL NEW FRESH AIR LOUVER THROUGH EXTERIOR WALL HIGH UP IN CEILING WITH OPEN ENDED DUCT. MOTORIZED DAMPER CONNECTED TO EXHAUST FAN EF-E.
33. SUPPLY AND INSTALL 10"X8" LOUVER ABOVE DOOR.
34. SUPPLY AND INSTALL EXHAUST FAN EF-G. INSTALL NEW DUCTS TO OUTSIDE AS SHOWN AND PROVIDE 8"X8" EXHAUST LOUVER FOR EXTERNAL WALL OPENING.
35. SUPPLY AND INSTALL NEW 60" LENGTH LINEAR DIFFUSER TYPE "H" AS NOTED ON DRAWING AND SCHEDULE. AIR BALANCE AS SHOWN. (TYPICAL FOR ALL)
36. SUPPLY AND INSTALL NEW AIR CURTAIN ARC-1 SURFACE MOUNTED. REFER TO MECHANICAL SCHEDULE.
37. INSTALL INTAKE AND EXHAUST VENT KIT FOR WATER HEATER. VERIFY EXACT LOCATION ON SITE.
38. LOCATION OF SPRING AIR HMI INTERFACE. COORDINATE WITH ELECTRICAL.

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
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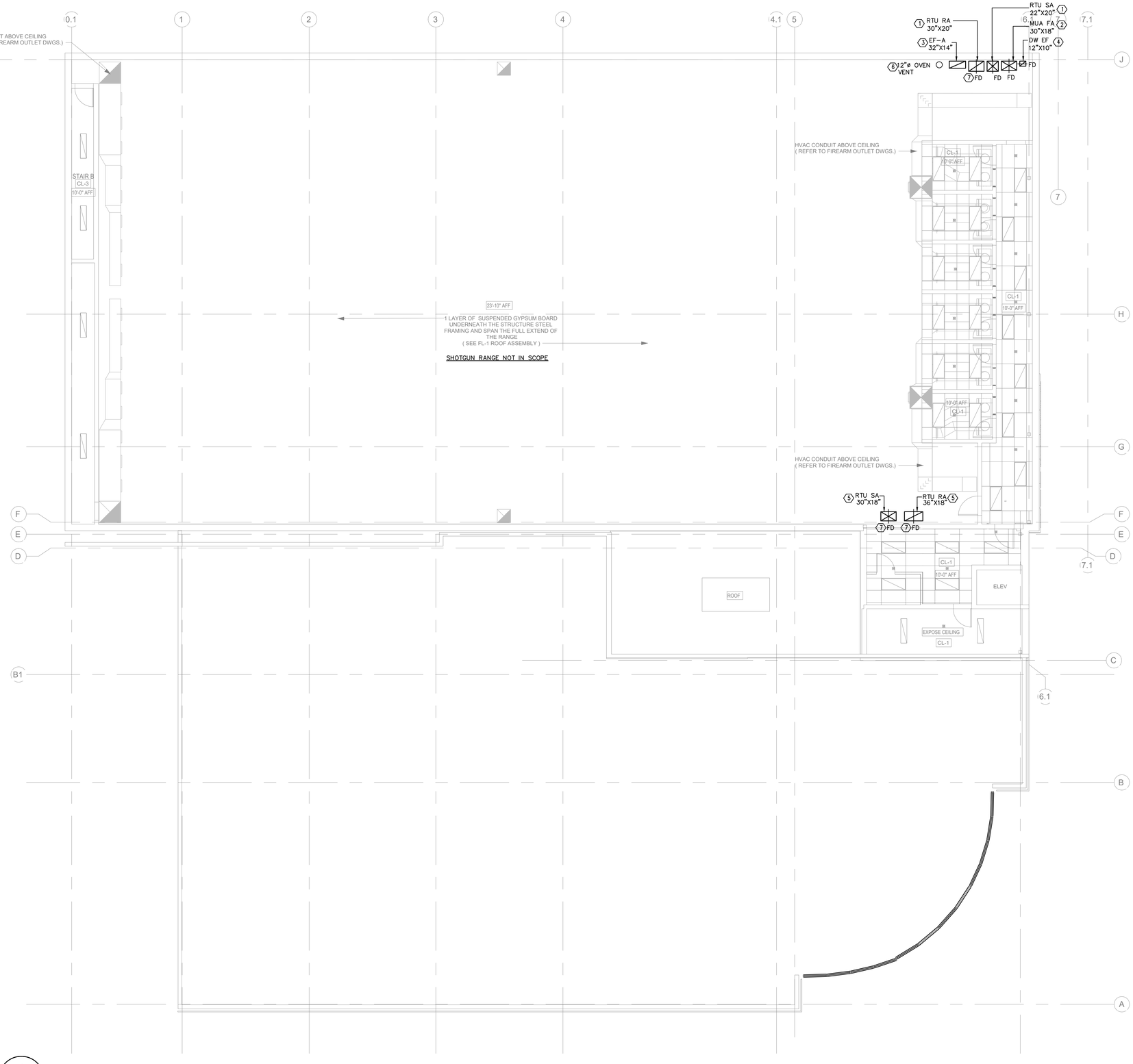
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
GROUND FLOOR HVAC PLAN

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-5
Checked by :	BZ		



1 / M-6 SECOND FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

CODED HVAC NOTES

1. SUPPLY AND INSTALL SUPPLY AIR AND RETURN AIR DUCTWORK OPENING FOR RTU-7 FROM ROOF DOWN TO KITCHEN CEILING SPACE AS SHOWN. PROVIDE INTERNAL INSULATION ON THE FIRST 10'-0" OF RETURN AND SUPPLY DUCTWORK
2. SUPPLY AND INSTALL SUPPLY AIR DUCTWORK OPENING FOR KITCHEN MAKEUP AIR UNIT MUA-A FROM ROOF DOWN TO KITCHEN CEILING SPACE AS SHOWN. PROVIDE INTERNAL INSULATION ON THE FIRST 10'-0" OF SUPPLY DUCTWORK
3. SUPPLY AND INSTALL EXHAUST AIR DUCTWORK OPENING FOR KITCHEN EXHAUST FAN EF-A FROM ROOF DOWN TO KITCHEN CEILING SPACE AS SHOWN.
4. SUPPLY AND INSTALL EXHAUST AIR DUCTWORK OPENING FOR DISHWASHER EXHAUST FAN DW EF FROM ROOF DOWN TO KITCHEN CEILING SPACE AS SHOWN.
5. SUPPLY AND INSTALL SUPPLY AIR AND RETURN AIR DUCTWORK OPENING FOR RTU-6 FROM ROOF DOWN TO LOBBY OPEN CEILING SPACE AS SHOWN. PROVIDE INTERNAL INSULATION ON THE FIRST 10'-0" OF RETURN AND SUPPLY DUCTWORK
6. SUPPLY AND INSTALL 12" EXHAUST VENT UP TO ROOF.
7. DUCT PENETRATION SHOULD BE RETAINED BY STRUCTURAL ENGINEER.

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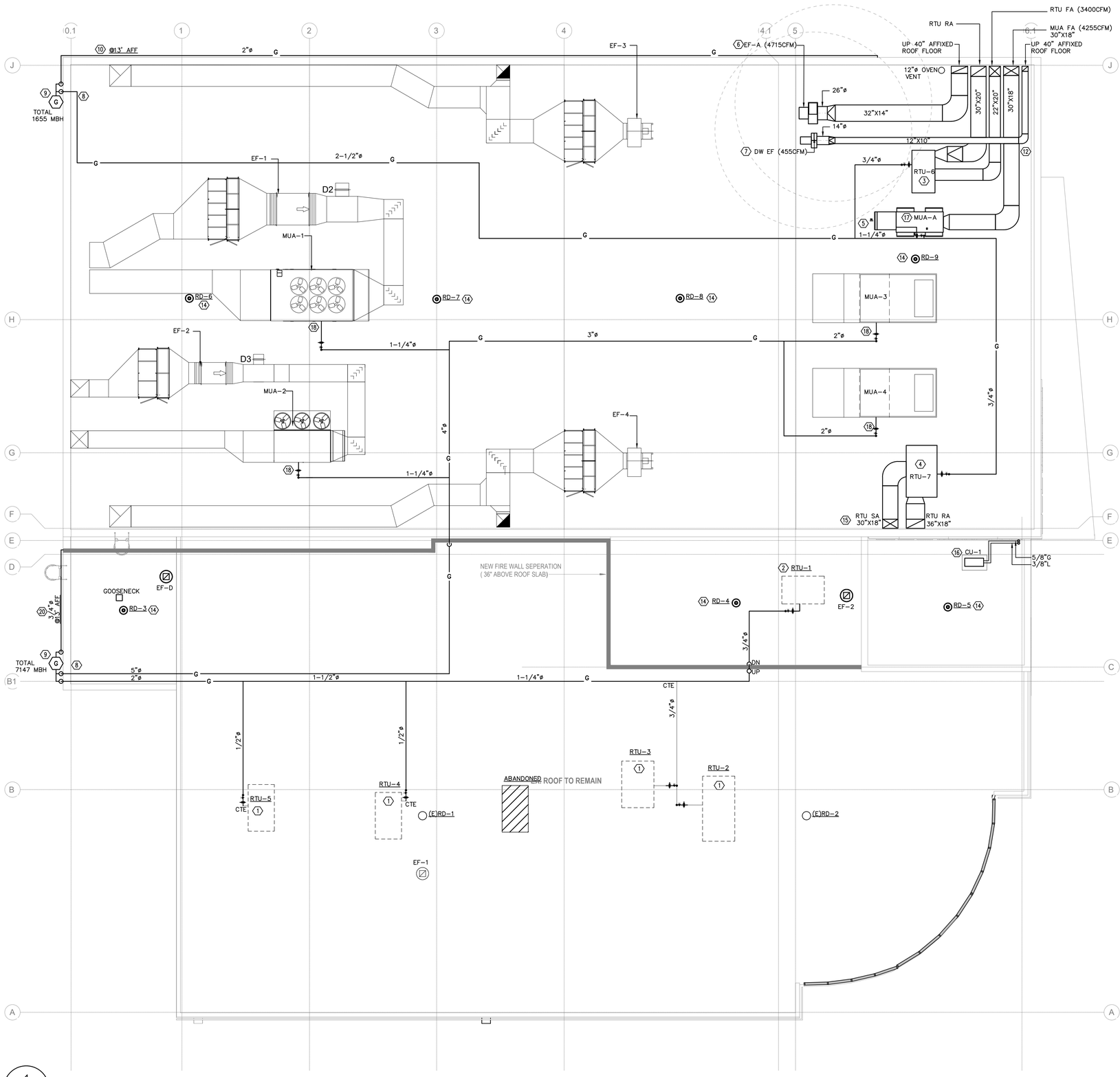
LICENSED PROFESSIONAL ENGINEER
D. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
SECOND FLOOR HVAC PLAN

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-6
Checked by :	BZ		



1 M-7 ROOF MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

GENERAL ROOF NOTES

1. PROVIDE CONNECTION TO GAS FIRED EQUIPMENT ON ROOF C/W PRESSURE SHUT-OFF VALVE, UNION DIRT TRAP AND SUPPORTS. PAINT ALL GAS LINES WITH 2 COATS OF POLYMER YELLOW PAINT.
2. ROOF EQUIPMENT THAT REQUIRE MAINTENANCE OR SERVICE TO BE MOUNTED AT A MIN. OF 1800MM(6FEET) FROM ROOF EDGE WHERE PARAPET IS LESS THAN 1067MM(42")HIGH. INSTALL UNITS TO MEET MANUFACTURER REQUIRED CLEARANCES.

CODED ROOF NOTES

① EXISTING ROOF TOP UNIT TO REMAIN. INSPECT, CLEAN AND LUBRICATE UNIT. NOTIFY TENANT OF ANY MAJOR PROBLEMS. REPLACE BELTS AND ADJUST SHEAVES IF REQUIRED. INSTALL A NEW SET OF FILTERS AT COMPLETION OF PROJECT AND ONE (1) ADDITIONAL SET. VERIFY UNIT LOCATION AND ORIENTATION ON SITE. REPORT ANY DISCREPANCIES IMMEDIATELY. CONNECT ALL EXISTING GAS LINE TO NEW MAIN GAS LINE.

② EXISTING RTU-6E IN DEMO PLAN TO BE DENOTED AS RTU-1 IN NEW PLAN AND SCHEDULE AND REINSTALLED IN EXISTING OPENING IN THE LOCATION AS SHOWN IN DRAWING. VERIFY EXACT LOCATION ON SITE.

③ SUPPLY AND INSTALL NEW ROOF TOP UNIT RTU-6. INSTALL A NEW SET OF FILTERS AT COMPLETION OF PROJECT AND ONE (1) ADDITIONAL SET. CONNECT DUCTWORK TO OPENING.

④ SUPPLY AND INSTALL NEW ROOF TOP UNIT RTU-7. INSTALL A NEW SET OF FILTERS AT COMPLETION OF PROJECT AND ONE (1) ADDITIONAL SET. CONNECT DUCTWORK TO OPENING.

⑤ ENSURE FRESH AIR INTAKES ARE MIN. 10' RADIAL DISTANCE AWAY FROM EXHAUST PORTS.

⑥ INSTALL KITCHEN EXHAUST FAN EF-A SUPPLIED BY SPRING AIR SYSTEM ON ROOF. INSTALL BASED ON FIRE RATED NFPA96 STANDARDS FOR 2 STORIES, EXHAUST DUCT TO GO 40" UP FROM ROOF LEVEL AND EXHAUST FAN TO BE MOUNTED ON CURB. REFER TO MECHANICAL DETAILS.

⑦ INSTALL DISHWASHER EXHAUST FAN DW EF SUPPLIED BY SPRING AIR SYSTEM ON ROOF. INSTALL BASED ON FIRE RATED NFPA96 STANDARDS FOR 2 STORIES, EXHAUST DUCT TO GO 40" UP FROM ROOF LEVEL AND EXHAUST FAN TO BE MOUNTED ON CURB. REFER TO MECHANICAL DETAILS.

⑧ INCOMING GAS SERVICE FROM BELOW CONNECTED TO GAS METER AT GRADE.

⑨ SUPPLY AND INSTALL NEW GAS METER WITH 2 MANIFOLD.

⑩ GAS SERVICE UP TO 13" ABOVE FINISH FLOOR LEVEL AND RUN ALONG THE EXTERIOR WALL TO KITCHEN SPACE.

⑫ 1-1/2"ø VENT ROOF PENETRATIONS FROM GREASE INTERCEPTORS. VERIFY EXACT LOCATION ON SITE.

⑬ SUPPLY AND INSTALL ROOF MOUNTED CENTRIFUGAL EXHAUST FAN FOR GARBAGE ROOM, AIR BALANCE TO 200 CFM.

⑭ NEW ROOF DRAIN. REFER TO DRAINAGE DRAWINGS FOR DETAIL.

⑮ SUPPLY AND INSTALL PLUMBING VENT ROOF PENETRATION. VERIFY EXACT LOCATION ON SITE.

⑯ SUPPLY AND INSTALL CONDENSING UNIT CU-1 FOR ELEVATOR MACHINE ROOM.

⑰ INSTALL KITCHEN MAKEUP AIR UNIT MUA-A SUPPLIED BY SPRING AIR SYSTEM ON ROOF. CONNECT DUCTWORK TO OPENING AS SHOWN IN DRAWING. INSTALL A NEW SET OF FILTERS AT COMPLETION OF PROJECT AND ONE (1) ADDITIONAL SET

⑱ MUA-1 TO 4 DONE BY SHOOTING RANGE ENGINEERS. REFER TO SHOOTING RANGE HVAC DRAWINGS FOR DETAILS AND SCHEDULE. CONNECT TO GAS LINE AS SHOWN.

⑲ EF-1 TO 4 DONE BY SHOOTING RANGE ENGINEERS. REFER TO SHOOTING RANGE HVAC DRAWINGS FOR DETAILS AND SCHEDULE.

⑳ GAS SERVICE UP TO 13" ABOVE FINISH FLOOR LEVEL AND RUN ALONG THE EXTERIOR WALL TO WATER HEATER IN MECHANICAL ROOM.

RESTAURANT METER GAS SUMMARY

TAG	DESCRIPTION	MBH
64	FRYERS GAS X 2	220
70	SALAMANDER BROILER	40
71	8 BURNER RANGER	206
73	36" CHAR-BROILER	90
77	36" GRIDDLE	60
81	PASTA COOKER	80
82	PIZZA OVEN	168
MUA-A	KITCHEN MUA	353
RTU-6	KITCHEN RTU	180
RTU-7	RESTAURANT/BAR RTU	108
HWT-2	RESTAURANT HOT WATER HEATER	150
TOTAL		1655

FIREARM METER GAS SUMMARY

TAG	DESCRIPTION	MBH
RTU-1	NEW OFFICE/CLASS RTU	150
RTU-2	EXISTING SALES RTU	240
RTU-3	EXISTING OFFICE RTU	115
RTU-4	EXISTING BOH RTU	135
RTU-5	NEW BOH RTU	115
MUA-1	1ST FLOOR RANGE F/A	1321
MUA-2	1ST FLOOR RANGE F/A	715
MUA-3	2ND FLOOR RANGE F/A	2118
MUA-4	2ND FLOOR RANGE F/A	2118
HWT-1	PUBLIC HOT WATER HEATER	120
TOTAL		7147

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LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
MECHANICAL ROOF PLAN

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-7
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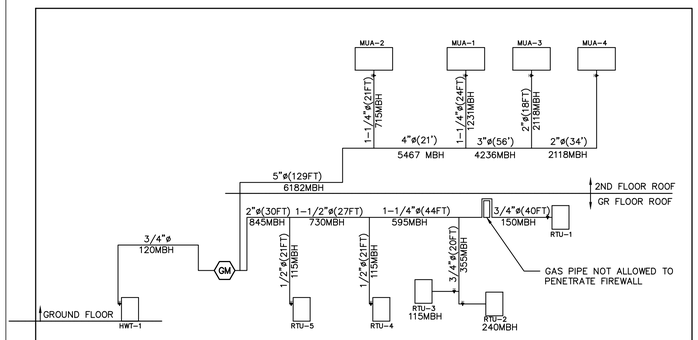
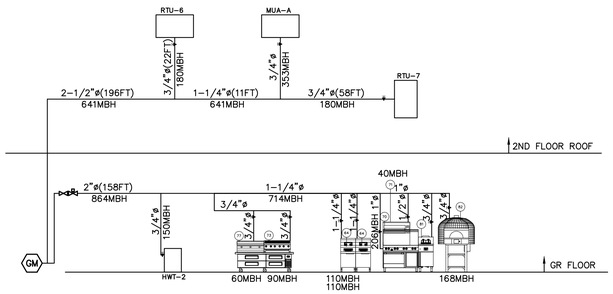
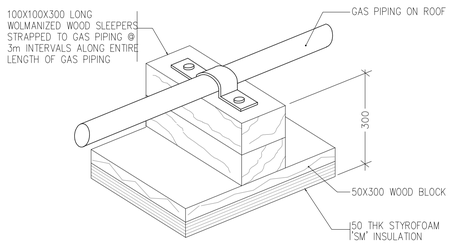


1 / M-8 NATURAL GAS PIPE SCHEMATIC – FIREARM OUTLET
N.T.S.



2 / M-8 NATURAL GAS PIPE SCHEMATIC – RESTAURANT
N.T.S.



NOTE:

SUPPORTS TO BE SPACED IN ACCORDANCE WITH CODE REQUIREMENTS AND ON EITHER SIDE OF EACH FITTING.

3 / M-8 GAS PIPE SUPPORT DETAIL
N.T.S.

PLUMBING FIXTURE AND DRAINAGE SCHEDULE

TAG	FIXTURE	MAKE/MODEL	CONNECTION SIZE				DESCRIPTION
			DRAIN	VENT	C.W.	H.W.	
L-1	LAV	DIVERTA A327114000	3"ø	1 1/2"ø	–	–	600 ×460 ×134 MM (23 10/16 ×18 2/16 ×6 5/16 PO) VITREOUS CHINA WALL–HUNG LAVATORY OR ON VANITY, SQUARE SHAPE, 600 × 460 ×134 MM (23 10/16 ×18 2/16 ×6 5/16 IN), REAR OVERFLOW, DRILLED SINGLE HOLE. CONCEALED WALL HUNG CARRIER CA–1224/ONA A32768600A
	FAUCET	ZURN ZG6953–CWB–N	–	–	1/2"ø	1/2"ø	HARDWIRED ELECTRONIC SENSOR FAUCET WITH CERAMIC DISC CARTRIDGE AND MOTOR GEAR–DRIVEN OPERATION, BLUETOOTH, 1.9 L/MIN. (0.5 USGPM) VANDAL RESISTANT LAMINAR SPOUT OUTLET, SINGLE HOLE INSTALLATION, POLISHED CHROME FINISH, INFRARED CONVERGENCE TYPE PROXIMITY SENSOR, ON–DEMAND ACTIVATION WITH A 30 SECONDS RUN TIME, IN–LINE FILTER, PRE–MIXED WATER SUPPLY. INCLUDES 4 "AA" BATTERIES AS BATTERY BACK–UP TO FAUCET DURING POWER OUTAGES, BRAIDED STAINLESS STEEL HOSE SUPPLIES. SUPPLIED WITH 85 IN CABLE WIRE (CWB). STANDARDS: ASME A112.18.1/CSA B125.1
L-2	LAV	DIVERTA A327114000	3"ø	1 1/2"ø	–	–	500 ×380 ×170 MM (16 3/8 ×11 5/8 ×6 3/4 PO) VITREOUS CHINA DROP–IN LAVATORY OR UNDERMOUNT, 500 ×380 ×170 MM (16 3 3/4 IN), SQUARE SHAPE, SELF–RIMMING, REAR OVERFLOW, NO HOLE DRILLINGS.
	FAUCET	ZURN ZG6953–CWB–N	–	–	1/2"ø	1/2"ø	HARDWIRED ELECTRONIC SENSOR FAUCET WITH CERAMIC DISC CARTRIDGE AND MOTOR GEAR–DRIVEN OPERATION, BLUETOOTH, 1.9 L/MIN. (0.5 USGPM) VANDAL RESISTANT LAMINAR SPOUT OUTLET, SINGLE HOLE INSTALLATION, POLISHED CHROME FINISH, INFRARED CONVERGENCE TYPE PROXIMITY SENSOR, ON–DEMAND ACTIVATION WITH A 30 SECONDS RUN TIME, IN–LINE FILTER, PRE–MIXED WATER SUPPLY. INCLUDES 4 "AA" BATTERIES AS BATTERY BACK–UP TO FAUCET DURING POWER OUTAGES, BRAIDED STAINLESS STEEL HOSE SUPPLIES. SUPPLIED WITH 85 IN CABLE WIRE (CWB). STANDARDS: ASME A112.18.1/CSA B125.1
WC–1	WATER CLOSET (STANDARD)	KOHLER K–PR84325–T4H–NA	4"ø	1 1/2"ø	1"ø	–	2–1/8" (54 MM) FULLY GLAZED TRAPWAY 11" ×8–1/4" (279 MM ×210 MM) WATER SURFACE. THE REDESIGN REPLACES THE FLUSHING ENGINE WITH THE ULTRA PLATFORM, ALLOWING THIS BOWL TO OPERATE AT 1.0 TO 1.6 GPF. FLUSH VALVE ZER6000AV–TM–HET–HW HARDWIRED OPERATED EXPOSED QUIET FLUSH VALVE FOR WATER CLOSETS, TPE CHLORAMINE RESISTANT SEAL DIAPHRAGM WITH TRIPLE FITTER BY–PASS, ADA COMPLIANT OSCILLATING HANDLE, CONTROL STOP WITH VANDAL RESISTANT STOP CAP, CAST WALL FLANGE, 38 MM (1 1/2 IN) VACUUM BREAKER TUBE, POLISHED CHROME FINISH, DUAL ACTION OF THE CERAMIC DISC CARTRIDGE AND MOTOR GEAR–DRIVEN OPERATION, TOP MOUNT AUTOMATIC DETECTION WITH MECHANICAL MANUAL OVERRIDE BUTTON, POLYCARBONATE HIGH RESISTANT CASING WITH A METALLIC CHROME COVER, LUMINATING ACTION WITH LOW FREQUENCY SONOR, 4.8 L (1.28 GAL). MUST BE INSTALLED WITH ELECTRICAL POWER CONVERTER 120 VAC/6 VDC (P6000–HW6). Z5956SS–AM: SOLID PLASTIC ELONGATED SEAT FOR SUPER–INTENSIVE USE WITH ANTI–MICROBIAL PROTECTION, OPEN FRONT, COVERLESS, MOLDED BUMPER GUARD, STAINLESS STEEL CHECK HINGES AND FASTENERS. (WHITE). Z1201–NL4/NR4: EZCARRY™ SINGLE HORIZONTAL SIPHON JET WATER CLOSET CARRIER WITH 102 MM (4 IN) NO–HUB LEFT FLOW FITTING, COMPLETE WITH 51 MM (2 IN) VENT CONNECTION, ADJUSTABLE/REVERSIBLE GASKETED FACEPLATE, FLOOR MOUNTED FOOT SUPPORT; ALL CAST IRON. COMPLETE WITH ADJUSTABLE ABS COUPLING WITH INTEGRAL TEST CAP DESIGNED TO INCREASE FLOW VELOCITY AND LINE CARRY, FIXTURES BOLTS, STUD PROTECTORS, REAR ANCHOR TIE DOWN AND BONDED NEO–SEAL GASKET. (https: //www.zurn.ca/media–library/web_documents/pages/technicalinformation/carrier/c10–pdf.aspx)
U–1	URINAL	ZURN Z5755–U	3"ø	1 1/2"ø	1"ø	–	FLUSH VALVE: ZER6003AV–TM–ULF–HW. CONCEALED WALL HUNG URINAL CAIRER Z1221. VITREOUS CHINA WALL–HUNG OMNIFLO URINAL, WASHDOWN ACTION, WATER CONSUMPTION BETWEEN 3.8 L (0.83 IMP. GAL.) AND AS LITTLE AS 0.5 L (1/8 US GAL) PER FLUSH, GRAVITY FLUSH, INTEGRAL PRIVACY SCREEN, INTEGRAL TRAP 19 MM (3/4 IN) TOP SPUD CONNECTION, DN 2 IN FEM. IPS BACK OUTLET, WALL HOOKS, BASIN FRONT AT 361 MM (14 1/4 IN) FROM FINISHED WALL. VANDAL RESISTANT STAINLESS STEEL STRAINER INCLUDED.
CO	FLOOR CLEANOUT	ZURN ZXN1612–SP–VP–AR	4"ø	–	–	–	CAST IRON FLOOR CLEANOUT WITH A 165 MM (6 1/2") IN DIAM. BODY WITH A 102 MM (4") IN DIAM. THREADED THROAT TO RECEIVE ADJUSTABLE 130 MM (5 1/8") IN DIAM. NICKEL BRONZE STRAINER COMBINED WITH A SLIP–PROOF EXTRA HEAVY DUTY TRAFFIC COVER. ABS THREADED SEAL PLUG INSIDE BODY. VANDAL–PROOF SCREWS AND ACID–RESISTANT COATING.
	COLUMN CLEANOUT	ZURN Z1445 4"	4"ø	–	–	–	COLUMN CLEANOUT WITH 102 MM (4") CAST IRON BODY WITH GAS AND WATER–PROOF ABS CAP.
HD	HUB DRAIN	ZN415–S	4"ø	–	–	–	CAST IRON HUB DRAIN C/W REVERSIBLE CLAMP COLLAR WITH LATERAL OPENINGS ON TOP BODY WITH 102MM DIA. THREADED THROAT, AND ADJUSTABLE ROUND STRAINER BELL TYPE STRAINER. USED AS OPEN DRAIN.
FD	FLOOR DRAIN	ZURN ZN415–B5–P	3"ø	–	–	–	CAST IRON FLOOR DRAIN, C/W REVERSIBLE CLAMP COLLAR W/ LATERAL OPENINGS ON TOP, 102MM DIA. BODY, ADJUSTABLE ROUND STRAINER, ROUND POLISHED NICKEL BRONZE TRAFFIC GRATE AND TRAP PRIMER PROTECTION.
RD	ROOF DRAIN	WATTS/#RD–200	6"	–	–	–	EPOXY COATED, 9–1/4" (235 MM) DIAMETER, CAST IRON BODY, FLASHING CLAMP AND INTEGRAL GRAVEL STOP, WITH SELF–LOCKING 8" (203 MM) DIAMETER POLYETHYLENE DOME, NO HUB OUTLET.
TSP–1	TRAP SEAL PRIMER	P.P.P PTS–4	–	–	3/4"ø	–	TRAP SEAL PRIMER ACTIVATED BY A 3/4" (19 MM) NORMALLY CLOSED SOLENOID VALVE, 3/4" (19 MM) DIAMETER CONNECTION ANTI-SIPHON ATMOSPHERIC VACUUM BREAKER. TRAP PRIMER SHALL INCLUDE FLUSH MOUNTED CABINET WITH ACCESS DOOR, FOR 1-4 CONNECTIONS.
TSP–2	TRAP SEAL PRIMER	P.P.P PTS–1320	–	–	3/4"ø	–	TRAP SEAL PRIMER ACTIVATED BY A 3/4" (19 MM) NORMALLY CLOSED SOLENOID VALVE, 3/4" (19 MM) DIAMETER CONNECTION ANTI-SIPHON ATMOSPHERIC VACUUM BREAKER. TRAP PRIMER SHALL INCLUDE FLUSH MOUNTED CABINET WITH ACCESS DOOR, FOR 13-20 CONNECTIONS.
TSP–3	TRAP SEAL PRIMER	P.P.P PR–500	–	–	3/4"ø	–	FOR 1 OR 2 CONNECTIONS WITH STAINLESS STEEL SEAT AND INTEGRAL VACUUM BREAKER. NOTE: PRIMER VALVES SHALL NOT BE PLACED CLOSER THAN 40 FEET (12.3M) APART WHEN USING THE SAME POTABLE WATER SUPPLY LINE.
ED	ELEVATOR PIT DRAIN	WATTS BV–600	4"ø	–	–	–	WATTS BV–600 EPOXY COATED CAST IRON PIT DRAIN WITH BACKWATER VALVE WITH BRONZE SEAT AND FLAPPER, SECURED GRATE AND NO HUB OUTLET. INSTALLS AT WALL/FLOOR JUNCTION, SERVICEABLE BRONZE SEAT AND FLAPPER, NO HUB OR THREADED OUTLET, ANGLE GRATE REDUCES BLOCKAGE FROM DEBRIS
NFHB–1	NON FREEZE HOSE BIB	ZURN Z1320XL	–	–	3/4"ø	–	ENCASED NON–FREEZE WALL HYDRANT, REMOVABLE OPERATING KEY, BRASS BODY, COPPER CASING, ALL BRONZE INTERIOR COMPONENTS, CERAMIC DISC ROD ASSEMBLY, INTEGRAL BACKFLOW PREVENTER, DN 3/4 IN MALE IP OR SWEAT FEM. INLET, BRASS HINGED BOX WITH NICKEL BRONZE BOX. OFFERED FOR WALL THICKNESS STARTING AT 10 IN (254 MM), 12 IN (305 MM) TO 14 IN (356 MM). – ADDITIONAL OPTIONS AVAILABLE. CL: CYLINDER LOCK
#39	MOP SINK	ADVANCE TABCO CUSTOM MADE	3"ø	1 1/2"ø	1/2"ø	1/2"ø	SELECTION BY KITCHEN CONSULTANT. 16"×20"×12"SINK BOWL WITH DRAIN SLOTTED SIDE PANELS FOR VENTILATION SINGLE LEFT–HINGED DOOR FIXED STAINLESS STEEL UTILITY SHELF 2 MOP HOLDERS (1 ON EACH SIDE) DOOR PREPUNCHED AND CAPPED FOR OPTIONAL SU–27 DOOR LOCK.
#15	COMP BAR SINK	PERLICK UCS48A	3"ø	1 1/2"ø	1/2"ø	1/2"ø	SELECTION BY KITCHEN CONSULTANT. COMP SINK BAR COMES WITH UNDERBAR COCKTAIL STATION. ALL STAINLESS CONSTRUCTION, MANY DIFFERENT UNDERBAR UNITS ARE COMBINED INTO ONE PRE–ASSEMBLED UNIT, 10 CIRCUIT COLD PLATES ARE STANDARD ON ALL PRECONFIGURED STATIONS, SODA CHASES ARE STANDARD ON ALL STATIONS TO RUN SODA LINES UP FROM THE COLD PLATE. HOT AND COLD WATER CONNECTION: TS SERIES: 3/8 O.D. COPPER SUPPLY TUBES.TSD SERIES: 1/2"IPS SHANKS AND NUTS. ICE CHEST: DRAIN CONNECTION – 1/2"NPS MALE.
#11	HAND SINK	PERLICK TSF12HS	3"ø	1 1/2"ø	1/2"ø	1/2"ø	SELECTION BY KITCHEN CONSULTANT. ALL STAINLESS STEEL, BACKSPLASH STAINLESS STEEL 6HIGH (4"HIGH OPTIONAL) WITH 1"RETURN AT THE TOP, FASTENED AND SEALED TO HAND SINK TOP LEGS 1–5/8"TUBULAR, STAINLESS STEEL WITH 1"ADJUSTABLE THERMOPLASTIC FEET BOWL DRAWN. ALL HORIZONTAL AND VERTICAL EDGES 1–1/2"RADIUS WITH BALLED CORNERS. FURNISHED WITH 1–1/2"STAINLESS STEEL DRAIN SOCKET. 10"×14"×9–1/4"DEEP. FAUCETS ARE TO BE HEAVY DUTY CONSTRUCTION, CHROME PLATED, LEAD FREE, AND HAVE THE LEADS ATTACHED FOR EASY HOOKUP.
#50	WALL MOUNTED HAND SINK	OMCAN 37867	3"ø	1 1/2"ø	1/2"ø	1/2"ø	SELECTION BY KITCHEN CONSULTANT. MADE OF HIGH 20 GAUGE 304 QUALITY STAINLESS STEEL. COMES WITH A 6 1/2"BACKSPLASH AND MOUNTING BRACKETS FAUCET. INCLUDES SIDE SPLASHES. BOWL DIMENSION 14"X10"X6" GROSS DIMENSION 17"X18"X14."
#46	COMP PREP SINK	CUSTOM MADE	3"ø	1 1/2"ø	1/2"ø	1/2"ø	CUSTOM SELECTION BY KITCHEN CONSULTANT.
#59	3–COMP SINK	CUSTOM MADE	4"ø	1 1/2"ø	1/2"ø	1/2"ø	CUSTOM SELECTION BY KITCHEN CONSULTANT.
#12	GLASS DISHWASHER	MOYER DIEBEL DF	2"ø	1 1/2"ø	–	1/2"ø	SELECTION BY KITCHEN CONSULTANT. 1,200 GLASSES PER HOUR, 12" CLEARANCE ACCEPTS TALLER STEMWARE, COOL WATER RINSE ENSURES STEADY SUPPLY OF CLEAN, COOL GLASSES READY FOR IMMEDIATE USE, REDUCING LABOR AND BREAKAGE. BUILT–IN THREE PUMP INJECTION SYSTEM USES IODINE OR CHLORINE SANITIZER, UPPER AND LOWER WASH AND RINSE ARMS FOR SUPERIOR WASH RESULTS, POLYPROPYLENE ROTARY CONVEYOR ELIMINATES CHIPPING OF STEMWARE, BUILT–IN MIXING VALVE FOR CONTROLLING RINSE TEMPERATURE, INTERNAL UPPER DRAIN SCREEN FOR IMPROVED FILTRATION AND EASE OF CLEANING, SELF–FLUSHING WASH CHAMBER REDUCES MAINTENANCE, CABINET PROVIDES CONVENIENT STORAGE FOR CHEMICALS, NO STEAM GENERATED BEHIND THE BAR, INCLUDES 6' NEMA 6–15P CORD AND PLUG.
#58	HIGH TEMPERATURE HOOD TYPE DISHWASHER	CHAMPION DH-6000	2"ø	1 1/2"ø	1/2"ø	3/4"ø	SELECTION BY KITCHEN CONSULTANT. INCLUDE DRAIN WATER TEMPERING: 1/2NPT COLD WATER CONNECTION REQUIRED, DRAIN WATER TEMPERING HEIGHT AT 5". 1/2"NPT DRAIN CONNECTION FROM BACKFLOW PREVENTER TO FUNNEL DRAIN. 3/4" NPT HOT WATER 110° – 140°F 20–22 PSI FLOW PRESSURE. FEATURES HMI CONTROLS, RINSE SENTRY, AUTO START, UP TO 60 RACKS/HOUR, 0.73 US GALS/RACK [2.76 LITERS/RACK, 0.61 IMP. GALS/RACK]. MAX 15 GPM DRAIN FLOW. USE COPPER DRAIN PIPE.
#81	GAS PASTA COOKER	GARLAND CGPC	1 1/2"ø	–	–	1/4"ø	SELECTION BY KITCHEN CONSULTANT. NATURAL GAS, MAX RATING FOR INCOMING HW CONNECTION: 80 PSI, 180F. OPEN, EASY–TO–CLEAN COOKPOT DESIGN, HIGH–EFFICIENCY INFRARED BURNERS WITH ELECTRONIC IGNITION –UP TO 80,000 BTU (23.4 KW), 15 GALLONS (57 LITRE) WATER CAPACITY, 18×24"×8"(457 ×610 ×203 MM) COOKPOT, CAN COOK UP TO 7.22 LBS OF DRY PASTA, CONTROLLER WITH PROGRAMMABLE TIMER, ELECTRONIC COMPONENTS ARE SEPARATED FROM THE HEATING SOURCE AND PROTECTED FROM MOISTURE, LARGE OVERFLOW DRAIN, 1–1/4"(32 MM) DRAIN VALVE, AUTO–FILL/STARCH SKIMMER, STAINLESS STEEL CONSTRUCTION, 6(152 MM) STEEL LEGS WITH 1"ADJUSTMENT, PLATE RAIL DRAIN, BELLY BAR.

1. THE PLUMBER SHALL REFER TO THE INTERIOR DESIGN DRAWINGS FOR THE PLUMBING FIXTURE SPECIFICATIONS. PLUMBER TO PROVIDE ALL ADDITIONAL MATERIAL AND EQUIPMENT (ANGLE STOPS, VALVES, TRAPS, ESCUTHEONS, LAVATORY WALL HANGERS,FLEXIBLE WATER SUPPLY, TOILET SEATS AND COVERS, ETC.) REQUIRED FOR PROPER INSTALLATION AND OPERATION OF THE PLUMBING FIXTURES.

2. OR APPROVED EQUIVALENT.

KITCHEN GAS EQUIPEMENT SCHEDULE

TAG	Quantity	DESCRIPTION	MODEL	BTU	NPT
64	2	FRYERS GAS	FRYMASTER 1814E	110,000	1-1/4"
70	1	SALAMANDER BROILER	GARLAND GFIR36	40,000	1/2"
71	1	8 BURNER RANGER	GARLAND G48-2G36RS	206,000	1"
73	1	36" CHAR-BROILER	GARLAND GTBG36-AB36	90,000	3/4"
77	1	36" GRIDDLE	GARLAND GD-36G	60,000	3/4"
81	1	PASTA COOKER	GARLAND CGPC	80,000	3/4"
82	1	PIZZA OVEN	MARRA FORNI	168,000	3/4"

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

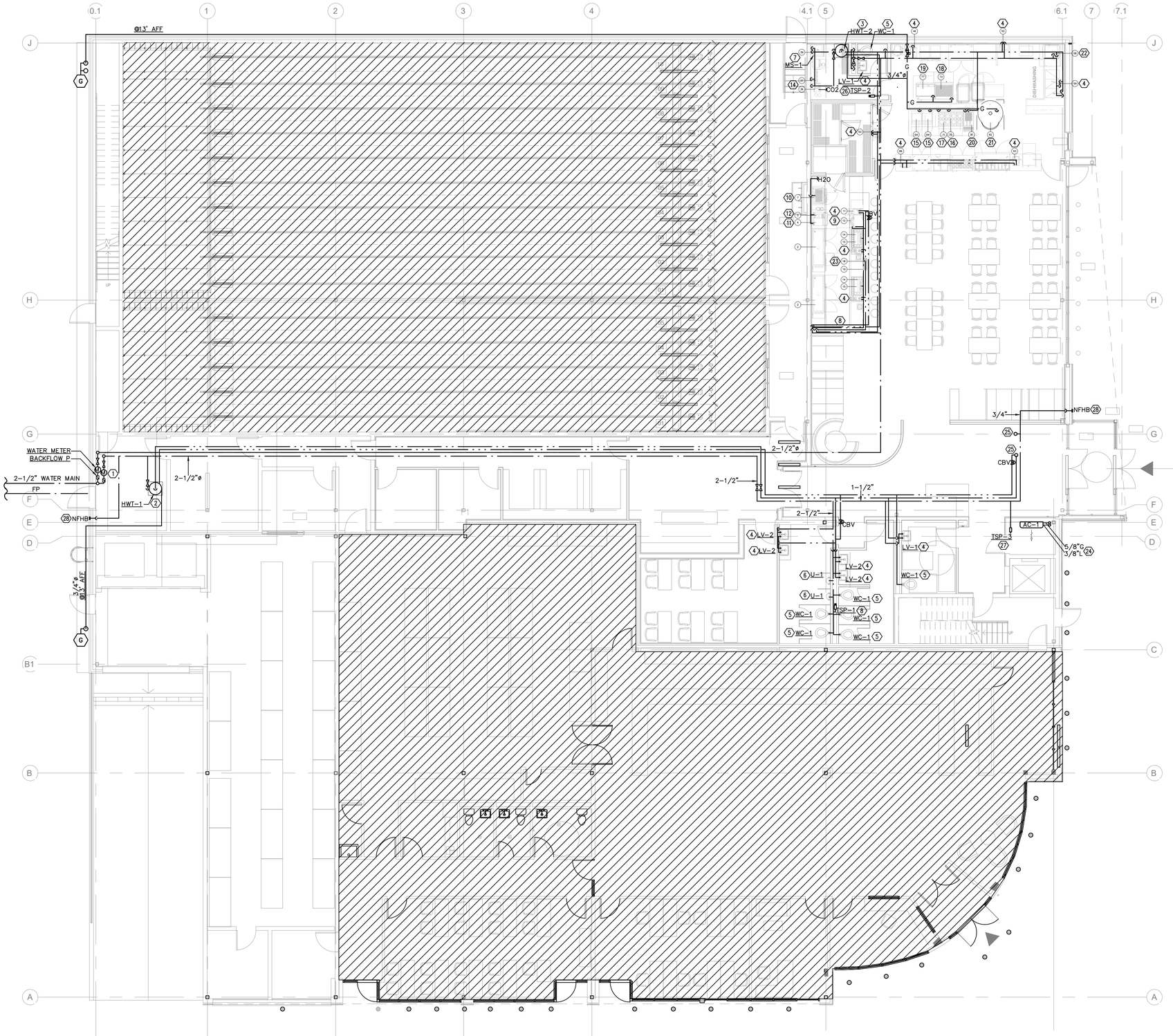
No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
GAS SCHEMATICS AND DETAILS AND PLUMBING SCHEDULE

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-8
Checked by :	BZ		



1 M-8 GROUND FLOOR PLAN – WATER
SCALE: 1/8" = 1'-0"

PLUMBING AND DRAINAGE GENERAL NOTES

1. PROVIDE ALL BELOW SLAB DRAINAGE, VENT AND DOMESTIC PIPE WORK.
2. SANITARY AND WATER SERVICES LOCATIONS SHOWN ABOVE FOR REFERENCE ONLY. PRIOR TO TENDERING OF ANY WORK, THIS CONTRACTOR TO VERIFY ON SITE LOCATION OF EXISTING SANITARY, WATER & VENTING LINES. EXACT POINT OF CONNECTIONS, DIRECTION OF FLOW & DISTANCE TO BE VERIFIED. REPORT ANY DISCREPANCIES IMMEDIATELY.
3. TRENCHING / PENETRATIONS OF FLOOR IS TO BE APPROVED BY CLIENT PRIOR TO DO ANY WORK. X-RAY SLAB. (ONLY IF REQUIRED). WORK TO BE COORDINATED ON SITE. OWNER TO COORDINATE WITH LANDLORD.
4. PRIOR TO ANY WORK CONFIRM WITH CLIENT AND WHAT IS TENANTS SCOPE OF WORK. PRIOR TO COMMENCING ANY WORK ENSURE PERMISSION FROM THE OWNER TO DO THIS WORK. REPORT ANY DISCREPANCIES IMMEDIATELY.
5. SIZE AND LOCATION OF EXISTING PIPING SHOWN IS APPROXIMATE. CONTRACTOR TO VERIFY SIZE LOCATION, DIRECTION OF FLOW AND INVERT ELEVATION PRIOR TO COMMENCING ANY WORK. ADVISE PROJECT MANAGER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
6. PROVIDE VENTING IN ACCORDANCE WITH LOCAL PLUMBING CODE. GROUP VENTING FROM PLUMBING FIXTURES AND CONNECT TO EXISTING VENT CONNECTION PROVISION.
7. CO-ORDINATE EXACT ROUTING OF PLUMBING SERVICES THROUGH COUNTERS ON SITE WITH MILLWORK CONTRACTOR.
8. REMOVE AND CAP UNUSED WATER AND SANITARY DRAIN LINES.
9. ENSURE EQUIPMENT INSTALLATIONS CONFORMS TO LATEST SEISMIC RESTRAINT CODES AND REGULATIONS OF LOCAL AUTHORITY HAVING JURISDICTION.
10. IF THERE IS ANY DISCREPANCIES FROM THIS PLAN, PROVIDE CLIENT WITH AS BUILT MARK UP OF EXISTING/CONDITION IN THIS SPACE. RECORD PLUMBING EQPT(S) MAKE/MODEL AND LOCATION(S). REPORT ANY DISCREPANCIES IMMEDIATELY.
11. REFER TO LANDLORD'S TENANT'S "CONSTRUCTION RULES AND REGULATIONS". MANUAL FOR WORK TO BE DONE ON BASE BUILDING AND COORDINATE WITH OWNER. OWNER TO INFORM AND COORDINATE SCHEDULE AND WORK WITH LANDLORD.
12. MAINTAIN FIRE RATING AT WHERE APPLICABLE FOR ALL PIPING PENETRATIONS. PROVIDE FIRE STOPPING AND WATERPROOFING IN ALL PENETRATIONS. PROVIDE FIRE STOPPING AND WATERPROOFING IN ALL FLOOR SLEEVES.(TYPICAL) PROVIDE ULC LISTING IF REQUIRED. FLOOR SLEEVES.(TYPICAL) PROVIDE ULC LISTING IF REQUIRED. COORDINATE WITH FIRE STOPPING SUPPLIER.
13. PROVIDE HEAT TRACING AND INSULATE ALL PIPING AS REQUIRED WITH MIN. R-12 INSULATION IF REQUIRED. USE XFR DRAINAGE PIPING IF REQUIRED AND IF APPLICABLE.
14. PROVIDE NEW ISOLATION SHUTOFF VALVES ON DCW & DHW CONNECTIONS ON ALL NEW PLUMBING FIXTURES WITH ADEQUATE ACCESS. PROVIDE ADEQUATE ACCESS TO DCW ISOLATION SHUT OFF VALVE.
15. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING BACKFLOW PREVENTORS FOR POTABLE WATER SUPPLY TO ALL LOCATIONS WHERE REQUIRED BY LOCAL MUNICIPALITY, MUNICIPAL INSPECTOR AND/OR EQUIPMENT SUPPLIER.
16. FOR COUNTER TOP EQUIPMENT PROVIDE WATER AT 7" A.F.F. WITH FINAL CONNECTION TO EQUIPMENT ABOVE COUNTER TOP VIA NOTED FLEXIBLE HOSE UNLESS OTHERWISE NOTED.
17. NO PEX PIPING TO BE USED BOTH INSIDE AND OUTSIDE OF WALL CAVITIES. USE COPPER PIPES AND SUPPORTS THAT WILL ALLOW CONTINUOUS INSULATION.

CODED PLUMBING NOTES

(1) CONNECT WATER MAIN TO 2 SEPARATE WATER METER LINE THAT COMES WITH BACK FLOW PREVENTOR AND BALL VALVE. SUPPLY WATER LINE TO BE SIZED TO 2-1/2"

(2) SUPPLY AND INSTALL NEW FLOOR MOUNTED HOT WATER HEATER WITH CW, HW, AND RECIRCULATION LINE AS SHOWN.

(3) SUPPLY AND INSTALL NEW FLOOR MOUNTED HOT WATER TANK HEATER WITH CW, HW LINE AS SHOWN.

(4) 1/2"ø COLD AND HOT WATER PIPES DN. TO LAVATORY/SINK

(5) 1/2"ø COLD WATER PIPE DN. TO WATER CLOSET

(6) 3/4"ø COLD WATER PIPE DN. TO URINAL

(7) 1/2"ø COLD AND HOT WATER PIPES DN. TO MOP SINK

(8) SUPPLY AND INSTALL NEW 4 MANIFOLD TRAP PRIMER TSP-1 FOR WASHROOM FLOOR DRAINS. VERIFY CONNECTION AND ROUTING ON SITE.

(9) 1/2"ø COLD AND HOT WATER PIPES TO GLASSWASHER (#12)

(10) 3/8"ø FILTER WATER TO ESPRESSO MACHINE (#7). SPECIFICATIONS TO BE CONFIRMED WITH OWNER. FILTERED WATER CONNECTION TO BE CONFIRMED.

(11) 3/8"ø FILTER WATER TO ICE MAKER MACHINE (#4). FILTERED WATER CONNECTION TO BE CONFIRMED.

(12) 1/4"ø FILTER WATER TO COFFEE MAKER/HOT WATER DISPENSER (#5). FILTERED WATER CONNECTION TO BE CONFIRMED.

(13) 1/2"ø COLD WATER PIPES DN. TO PASTA COOKER (#81)

(14) 3/8"ø FILTER WATER AND CO2 TANK TO CARBONATOR (#36). CARBONATOR OUTLET TO BE CONNECTED WITH POP RACK (#37). SPECIFICATIONS TO BE CONFIRMED WITH OWNER. FILTERED WATER CONNECTION TO BE CONFIRMED.

(15) 1-1/4" NPT GAS PIPES DN. TO GAS FRYERS (#64)

(16) 1/2" NPT GAS PIPES DN. TO SALAMANDER BROILER (#70)

(17) 1" NPT GAS PIPES DN. TO 8 BURNER RANGER (#71)

(18) 3/4" NPT GAS PIPES DN. TO 36" CHAR-BROILER (#73)

(19) 3/4" NPT GAS PIPES DN. TO 36" GRIDDLE (#77)

(20) 3/4" NPT GAS PIPES DN. AND 1/2" HOT WATER DN. TO PASTA COOKER (#81)

(21) 3/4" NPT GAS PIPES DN. TO PIZZA OVEN (#82)

(22) 1/2"ø COLD WATER TO DRAIN WATER TEMPERING VALVE AND 3/4"ø HOT WATER TO DISHWASHER (#58)

(23) 1/2"ø COLD WATER TO DIP TRAY C/W RINSER

(24) SUPPLY AND INSTALL LIQUID REFRIGERANT PIPE 3/8" O.D. AND GAS REFRIGERANT PIPE 5/8" O.D. GO UP FROM FROM INDOOR UNIT TO OUTDOOR CU-1 ON THE ROOF. COORDINATE REFRIGERATION LINE SET INSTALLATION AND ROUTING WITH OWNER PRIOR TO INSTALL. WEATHER PROOF SEAL PIPE PENETRATION THROUGH ROOF.

(24) SUPPLY AND INSTALL LIQUID REFRIGERANT PIPE 3/8" O.D. AND GAS REFRIGERANT PIPE 5/8" O.D. GO UP FROM FROM INDOOR UNIT TO OUTDOOR CU-1 ON THE ROOF. COORDINATE REFRIGERATION LINE SET INSTALLATION AND ROUTING WITH OWNER PRIOR TO INSTALL. WEATHER PROOF SEAL PIPE PENETRATION THROUGH ROOF.

(25) CW AND HOT WATER CONNECTION TO GO UP TO SECOND FLOOR.

(26) SUPPLY AND INSTALL NEW 20 MANIFOLD TRAP PRIMER TSP-2 FOR RESTAURANT AND KITCHEN FLOOR AND HUB DRAINS. VERIFY CONNECTION AND ROUTING ON SITE.

(27) SUPPLY AND INSTALL NEW TRAP PRIMER TSP-3 FOR ELEVATOR PIT SANITARY LINE. VERIFY CONNECTION AND ROUTING ON SITE.

(28) SUPPLY AND INSTALL NEW NON FREEZE HOSE BIB NFHB-1 TO EXTERIOR WALL AS SHOWN. REFER TO PLUMBING SCHEDULE AND DETAIL.

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

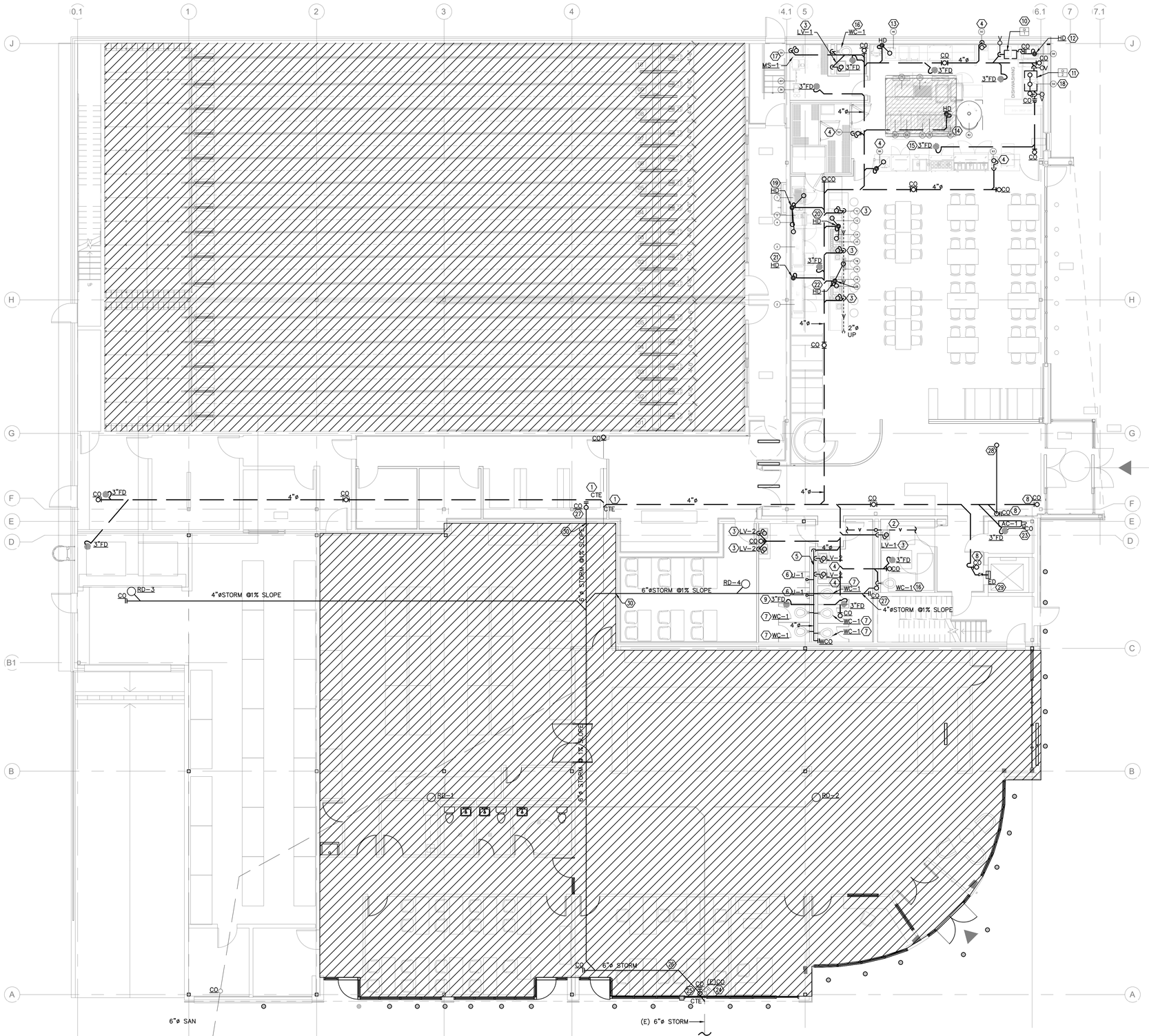
No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENCED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
PLUMBING PLAN

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-9
Checked by :	BZ		



1 / M-9 GROUND FLOOR PLAN – DRAINAGE
SCALE: 1/8" = 1'-0"

CODED DRAINAGE NOTES

1. 4" SANITARY DRAIN PIPE BELOW FLOOR SLAB TO BE CONNECTED TO EXISTING SANITARY MAIN IN THIS AREA. VIDEO SCOPE EXISTING UNDERGROUND SANITARY MAIN AND DETERMINE EXACT CONNECTION POINT AND PIPE INVERT.
2. 3"ø PLUMBING VENT UP TO ROOF TERMINAL FOR THIS TENANT SANITARY VENTING SYSTEM.
3. 1 1/4"ø SANITARY DRAIN FROM LAVATORY/SINK DN. AND 1 1/4" VENT UP
4. 1 1/2"ø SANITARY DRAIN FROM LAVATORY DN. TO WASTE SYSTEM BATTERY AND 1 1/4" VENT UP
5. COMBINED ABOVE GROUND 4" WASTE SYSTEM BATTERY CONNECTED TO FIXTURE SUPPORTS. EACH FIXTURE SUPPORT FITTING COMES WITH 2" VENT. INSTALL WALL CLEANOUT AT THE END OF BATTERY SYSTEM. REFER TO MECHANICAL DETAILS.
6. SANITARY FROM URINAL TO COMBINED ABOVE GROUND 4" WASTE SYSTEM BATTERY WITH FIXTURE SUPPORT.
7. SANITARY FROM FLUSH VALVE WATER CLOSET TO COMBINED ABOVE GROUND 4" WASTE SYSTEM BATTERY WITH FIXTURE SUPPORT.
8. SUPPLY AND INSTALL NEW FLOOR CLEANOUT. TYPICAL FOR ALL
9. SUPPLY AND INSTALL NEW 3" FLOOR DRAIN. TYPICAL FOR ALL.
10. GREASE INTERCEPTOR GI 1 RECESSED IN SLAB FOR DISHWASHER. VENT AS PER MANUFACTURER RECOMMENDATION.
11. GREASE INTERCEPTOR GI 2 RECESSED IN SLAB FOR COMPARTMENT SINKS (#59) IN DISHWASHING AREA. VENT AS PER MANUFACTURER RECOMMENDATION.
12. 4"ø HUB DRAIN TO DISHWASHER DW–1. 1" ø DRAIN FROM EQUIPMENT TO BE CONNECTED TO DRAIN WATER TEMPERING AT 5" AND TERMINATE AT MINIMUM 1" FROM HUB DRAIN. REFER TO MECHANICAL DETAILS.
13. 4"ø HUB DRAIN FOR COMPARTMENT SINK (#46). TERMINATE 1 1/4" ø DRAIN FROM EQUIPMENT AT MINIMUM 1" FROM HUB DRAIN
14. 4"ø HUB DRAIN FOR PASTA COOKER (#81). TERMINATE 1"ø DRAIN FROM EQUIPMENT AT MINIMUM 1" FROM HUB DRAIN.
15. SUPPLY AND INSTALL NEW 3" FLOOR DRAIN. CONNECT TO GREASE INTERCEPTOR GI–2 AS SHOWN.
16. 4"ø SANITARY DRAIN FROM WATER CLOSET DN. AND 1 1/2" VENT UP
17. 3"ø SANITARY DRAIN FROM MOP SINK MS–1 DN. AND 1 1/2" VENT UP
18. 3"ø SANITARY DRAIN FROM 3 COMPARTMENT SINKS (#59) DN. TO GREASE INTERCEPTOR GI–2 AND 1 1/2" VENT UP
19. 4"ø HUB DRAIN FOR ESPRESSO MACHINE (#7), ICE MAKER (#4) AND 3 DOOR BEVERAGE COOLER (#2). TERMINATE 1ø" DRAIN FROM ESPRESSO MACHINE, 1/2ø" FROM ICE MAKER AND 3/4ø" CONDENSATE DRAIN FROM COOLER AT MIN. 1" ABOVE HD
20. 4"ø HUB DRAIN FOR GLASS DISHWASHER (#12) AND COCKTAIL MIX UNIT (#15). TERMINATE 1 1/2ø" DRAIN FROM GLASS DISHWASHER AND 3/4ø" DRAIN FROM MIX UNIT AT MIN. 1" ABOVE HD
21. 4"ø HUB DRAIN FOR 3 DOOR BEVERAGE COOLER (#2). TERMINATE 3/4ø" CONDENSATE DRAIN FROM COOLER AT MIN. 1" ABOVE HD
22. 4"ø HUB DRAIN FOR DIP TRAY (#19) AND COCKTAIL MIX UNIT (#15). TERMINATE 3/4ø" DRAIN FROM DIP TRAY AND MIX UNIT AT MIN. 1" ABOVE HD
23. EXTEND NEW 3/4" OD COPPER CONDENSATE DRAIN PIPE OPEN DRAIN TO FLOOR DRAIN IN ELEVATOR MACHINE ROOM.
24. EXISTING STORM DRAINAGE SIZE AND LAYOUT FOR ROOF DRAIN RD–1 AND RD 2 TO BE CONFIRMED. EXACT LOCATION OF STORM RISER TO BE CONFIRMED ON SITE.
25. CONNECT NEW STORM WATER WASTE PIPE RISER TO EXISTING STORM WATER WASTE PIPE UNDERGROUND. VERIFY LOCATION ON SITE.
26. SUPPLY AND INSTALL NEW STORM WATER WASTE PIPE TO NEW ROOF DRAINS AS SHOWN. COORDINATE EXACT LOCATION ON SITE.
27. SUPPLY AND INSTALL NEW CLEANOUTS FOR STORM DRAIN PIPE AS SHOWN ON DRAWING. TYPICAL FOR ALL.
28. SANITARY TO GO UP TO SECOND FLOOR. COORDINATE LOCATION ON SITE.
29. SUPPLY AND INSTALL NEW ELEVATOR PIT DRAIN ED AS SHOWN. CONTRACTOR TO VERIFY INVERT OF THE EXISTING SANITARY LINE IS ABLE TO ACHIEVE 1% SLOPE. REPORT TO THE ENGINEER IMMEDIATELY IF THERE IS ISSUE.
30. ROOF DRAIN PIPE PENETRATING THROUGH FIRE RATED WALL TO USE FIRE RATED CAULKING AS PER NFPA CODE.

GREASE INTERCEPTOR SCHEDULE

DWG REF	SERVING	MANUF	MODEL	CAPACITY (LBS)	FLOW RATE (GPM)	INLET (nse)	OUTLET (nse)	DIMENSIONS	REMARKS
GI–1	HIGH T DISHWASHER	ZURN	GT2700–15	20	15	3"	3"	21 3/4"L X 10 3/4"W X 13 3/8"H	CORROSION–RESISTANT COATED FABRICATED STEEL WITH 90–HUB CONNECTIONS, FLOW DIFFUSING BAFFLE, INTERNAL TRAP, AND VENTED INLET FLOW CONTROL DEVICE.
GI–2	3 COMPARTMENT SINK	ZURN	GT2700–75	150	75	4"	4"	40 1/4"L X 28 5/8"W X 18 1/2"H	

APPROVED MANUFACTURERS:
JOHN MATTS

Dish Area - Grease Interceptor GI-1 Calculation

Fixture Description	Fixture TAG	# of Fixtures	WIDTH (IN)	LENGTH (IN)	DEPTH (IN)	TOTAL VOLUME AT FULL CAPACITY (GALLON)	TOTAL VOLUME AT 75% CAPACITY (GALLON)	2	DRAINAGE FLOW RATE IN MINUTE DRAIN TIME	NOTES
Dishwasher	SB	1					15		7.50	
							FULL LOAD TOTAL		7.50	GPM
						SIZE OF GREASE INTERCEPTOR REQUIRED			7.50	
						SIZE OF GREASE INTERCEPTOR DESIGNED			15.00	

Dish Area - Grease Interceptor GI-2 Calculation

Fixture Description	Fixture TAG	# of Fixtures	WIDTH (IN)	LENGTH (IN)	DEPTH (IN)	TOTAL VOLUME AT FULL CAPACITY (GALLON)	TOTAL VOLUME AT 75% CAPACITY (GALLON)	2	DRAINAGE FLOW RATE IN MINUTE DRAIN TIME	NOTES
3 Compartment prep sink	SI	3	18	27	16	100.99	75.74		37.87	
Floor Drain	FD	1				37.50			37.50	
							FULL LOAD TOTAL		75.37	GPM
						SIZE OF GREASE INTERCEPTOR REQUIRED			75.37	
						SIZE OF GREASE INTERCEPTOR DESIGNED			75.00	

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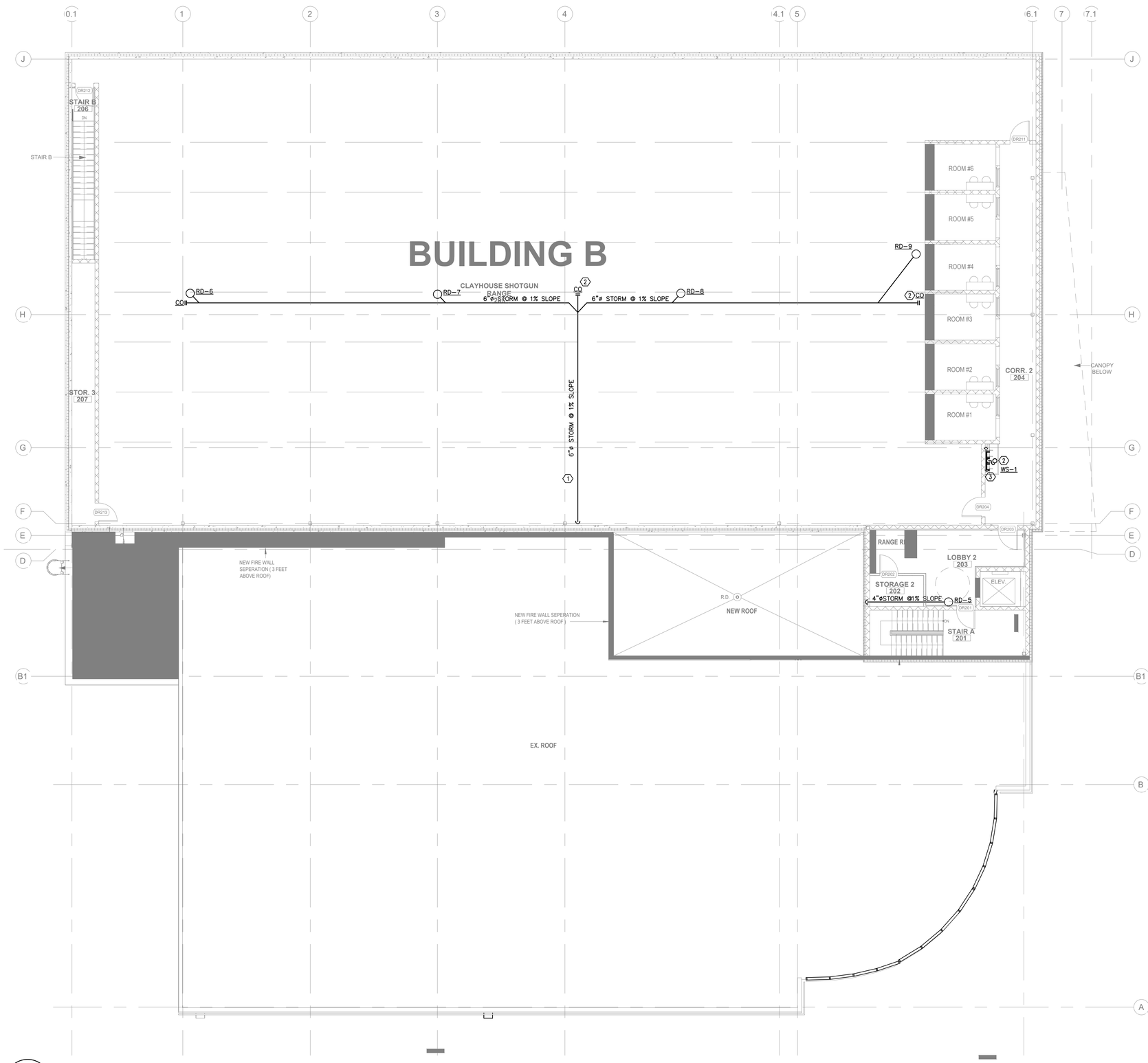
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
D. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
SANITARY AND DRAINAGE PLAN

Date JAN 2025 | Project No : 25016
Scale : AS NOTED
Drawn by : AL | Drawing No : M-10
Checked by : BZ



1 / M-11 SECOND FLOOR PLAN – PLUMBING AND DRAINAGE
SCALE: 1/8" = 1'-0"

CODED PLUMBING AND DRAINAGE NOTES

1. SUPPLY AND INSTALL NEW STORM WATER WASTE PIPE TO NEW ROOF DRAINS AS SHOWN. COORDINATE EXACT LOCATION ON SITE.
2. SUPPLY AND INSTALL 4 FAUCET WASH STATION SINK WS-1 AS SHOWN ON DRAWING. CONNECT TO SANITARY LINE FROM FIRST FLOOR AND VENT LINE TO ROOF. COORDINATE EXACT LOCATION ON SITE.
3. SUPPLY AND INSTALL 4 FAUCET WASH STATION SINK WS-1 AS SHOWN ON DRAWING. CONNECT TO CW AND HW CONNECTIONS COMING UP FROM FIRST FLOOR. COORDINATE LOCATION ON SITE.

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3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 24/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
SECOND FLOOR PLUMBING AND DRAINAGE PLAN

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-11
Checked by :	BZ		

Design Weather Parameters

Design Parameters:

City Name	Ajax	
Location	Ontario	
Latitude	43.9	Deg.
Longitude	79.0	Deg.
Elevation	95.0	ft
Summer Design Dry-Bulb	86.0	°F
Summer Coincident Wet-Bulb	73.4	°F
Summer Daily Range	21.0	°F
Winter Design Dry-Bulb	-4.0	°F
Winter Design Wet-Bulb	-5.0	°F
Atmospheric Clearness Number	1.00	
Average Ground Reflectance	0.20	
Soil Conductivity	0.800	BTU/(hr·ft·°F)
Local Time Zone (GMT +/- N hours)	5.0	hours
Consider Daylight Savings Time	No	
Simulation Weather Data	N/A	
Current Data is	User Modified	
Design Cooling Months	January to December	

Air System Sizing Summary for HVAC RTU-1

Air System Information

Air System Name	RTU-1	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	1208.3 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Central Cooling Coil Sizing Data

Total coil load	2.7	Tons	Load occurs at	Aug 1500	
Total coil load	32.0	MBH	OA DB / WB	86.0 / 73.4	°F
Sensible coil load	19.7	MBH	Entering DB / WB	81.9 / 69.4	°F
Coil CFM at Aug 1500	695	CFM	Leaving DB / WB	55.5 / 54.6	°F
Max block CFM	695	CFM	Coil ADP	52.6	°F
Sum of peak zone CFM	695	CFM	Bypass Factor	0.100	
Sensible heat ratio	0.617		Resulting RH	58	%
CFM/Ton	260.6		Design supply temp.	55.0	°F
ft²/Ton	453.1		Zone T-stat Check	1 of 1	OK
BTU/(hr·ft²)	26.5		Max zone temperature deviation	0.0	°F
Water flow @ 10.0 °F rise	N/A				

Central Heating Coil Sizing Data

Max coil load	22.2	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	695	CFM	BTU/(hr·ft²)	18.4	
Max coil CFM	695	CFM	Ent. DB / Lvg DB	43.0 / 72.7	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	695	CFM	Fan motor BHP	0.14	BHP
Standard CFM	693	CFM	Fan motor kW	0.11	kW
Actual max CFM/ft²	0.58	CFM/ft²	Fan static	0.75	in wg

Air System Sizing Summary for HVAC RTU-5

Air System Information

Air System Name	RTU-5	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	1790.7 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Central Cooling Coil Sizing Data

Total coil load	2.8	Tons	Load occurs at	Aug 1600	
Total coil load	34.0	MBH	OA DB / WB	85.4 / 73.2	°F
Sensible coil load	31.7	MBH	Entering DB / WB	77.8 / 70.7	°F
Coil CFM at Aug 1600	3085	CFM	Leaving DB / WB	68.3 / 67.6	°F
Max block CFM	3085	CFM	Coil ADP	67.2	°F
Sum of peak zone CFM	3085	CFM	Bypass Factor	0.100	
Sensible heat ratio	0.933		Resulting RH	77	%
CFM/Ton	1088.4		Design supply temp.	55.0	°F
ft²/Ton	631.8		Zone T-stat Check	1 of 1	OK
BTU/(hr·ft²)	19.0		Max zone temperature deviation	0.0	°F
Water flow @ 10.0 °F rise	N/A				

Central Heating Coil Sizing Data

Max coil load	92.6	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	3085	CFM	BTU/(hr·ft²)	51.7	
Max coil CFM	3085	CFM	Ent. DB / Lvg DB	64.9 / 92.8	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	3085	CFM	Fan motor BHP	0.63	BHP
Standard CFM	3075	CFM	Fan motor kW	0.50	kW
Actual max CFM/ft²	1.72	CFM/ft²	Fan static	0.75	in wg

Zone Sizing Summary for HVAC RTU-1

Air System Information

Air System Name	RTU-1	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	1208.3 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	695	695	0.58	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	15.0	Jul 1300	1.0	1208.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
GUN LOCKERS AND CORRIDOR	1	2.0	Jul 1300	91	0.0	358.1	0.26
OFFICES TOTAL (3)	1	3.3	Jul 1300	155	0.0	253.7	0.61
RANGE RECEPTION	1	3.6	Jul 1300	165	0.0	342.8	0.48
CLASSROOM	1	6.1	Jul 1300	283	1.0	253.7	1.12

Zone Sizing Summary for HVAC RTU-5

Air System Information

Air System Name	RTU-5	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	1790.7 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	3085	3085	1.72	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	22.8	Aug 1800	76.4	1790.7

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
WAREHOUSE EXPANSION	1	17.8	Aug 1800	1339	33.2	1573.8	0.85
LOADING DOCK	1	5.0	Aug 1800	1746	43.2	216.9	8.05

Ventilation Sizing Summary for HVAC RTU-5

1. Summary

Ventilation Sizing Method: Sum of Space OA Airflows
Design Ventilation Airflow Rate: 237 CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (ft²)	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/ft²)	Required Outdoor Air (CFM)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1									
WAREHOUSE EXPANSION	1	1573.8	3.0	1339.5	10.00	0.12	0.0	0.0	218.9
LOADING DOCK	1	216.9	1.0	1745.6	5.00	0.06	0.0	0.0	18.0
Totals (incl. Space Multipliers)				**3085.1**					**236.9**

Ventilation Sizing Summary for HVAC RTU-1

1. Summary

Ventilation Sizing Method: Sum of Space OA Airflows
Design Ventilation Airflow Rate: 265 CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (ft²)	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/ft²)	Required Outdoor Air (CFM)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1									
GUN LOCKERS AND CORRIDOR	1	358.1	2.0	91.4	5.00	0.06	0.0	0.0	31.5
OFFICES TOTAL (3)	1	253.7	3.0	155.1	5.00	0.06	0.0	0.0	30.2
RANGE RECEPTION	1	342.8	5.0	165.1	5.00	0.06	0.0	0.0	45.6
CLASSROOM	1	253.7	19.0	283.4	7.50	0.06	0.0	0.0	157.7
Totals (incl. Space Multipliers)				**694.9**					**265.0**

Air System Design Load Summary for HVAC RTU-1

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 86.0 °F / 73.4 °F			HEATING OA DB / WB -4.0 °F / -5.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	0 ft²	0	-	0 ft²	0	-
Roof Transmission	254 ft²	205	-	254 ft²	937	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	349 ft²	0	-	349 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1812 W	4329	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	650 W	2218	-	0	0	-
People	29	7455	7695	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 0%	710	0	10%	94	0
>> Total Zone Loads	-	14917	7695	-	1031	0
Zone Conditioning	-	15130	7695	-	904	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	479	-	0	0	-
Plenum Lighting Load	30%	1855	-	0	0	-
Return Fan Load	695 CFM	0	-	695 CFM	0	-
Ventilation Load	265 CFM	1879	4573	265 CFM	21680	0
Supply Fan Load	695 CFM	386	-	695 CFM	-386	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	19730	12268	-	22198	0
Central Cooling Coil	-	19730	12268	-	0	0
Central Heating Coil	-	0	-	-	22198	-
>> Total Conditioning	-	19730	12268	-	22198	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Design Load Summary for HVAC RTU-5

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 85.4 °F / 73.2 °F			HEATING OA DB / WB -4.0 °F / -5.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	1830 ft²	7973	-	1830 ft²	31356	-
Roof Transmission	1791 ft²	1176	-	1791 ft²	6612	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	160 ft²	339	-	160 ft²	3648	-
Floor Transmission	370 ft²	0	-	370 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	3473 W	8295	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	1130	1570	0	0	0
Infiltration	-	1897	301	-	27812	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 0%	1040	0	10%	6943	0
>> Total Zone Loads	-	21850	1871	-	76371	0
Zone Conditioning	-	21614	1871	-	75268	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	2745	-	0	0	-
Plenum Lighting Load	30%	3555	-	0	0	-
Return Fan Load	3085 CFM	0	-	3085 CFM	0	-
Ventilation Load	237 CFM	2089	419	237 CFM	19024	0
Supply Fan Load	3085 CFM	1715	-	3085 CFM	-1715	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	31719	2290	-	92577	0
Central Cooling Coil	-	31719	2295	-	0	0
Central Heating Coil	-	0	-	-	92577	-
>> Total Conditioning	-	31719	2295	-	92577	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
D. P. THANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :

FIREARMS OUTLET CANADA

725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :

MECHANICAL
LOAD
CALCULATIONS

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-12
Checked by :	BZ		

Air System Sizing Summary for HVAC RTU–7

Air System Information

Air System Name	RTU-7	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	2443.0 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Central Cooling Coil Sizing Data

Total coil load	9.9	Tons	Load occurs at	Jul 1600	
Total coil load	118.5	MBH	OA DB / WB	85.4 / 73.2	°F
Sensible coil load	72.6	MBH	Entering DB / WB	80.5 / 69.0	°F
Coil CFM at Jul 1600	2768	CFM	Leaving DB / WB	56.1 / 55.2	°F
Max block CFM	2768	CFM	Coil ADP	53.4	°F
Sum of peak zone CFM	2768	CFM	Bypass Factor	0.100	
Sensible heat ratio	0.613		Resulting RH	58	%
CFM/Ton	280.4		Design supply temp.	55.0	°F
ft²/Ton	247.5		Zone T-stat Check	1 of 1	OK
BTU/(hr ft²)	48.5		Max zone temperature deviation	0.0	°F
Water flow @ 10.0 °F rise	N/A				

Central Heating Coil Sizing Data

Max coil load	137.9	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	2768	CFM	BTU/(hr ft²)	56.4	
Max coil CFM	2768	CFM	Ent. DB / Lvg DB	42.6 / 88.9	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	2768	CFM	Fan motor BHP	0.57	BHP
Standard CFM	2759	CFM	Fan motor kW	0.45	kW
Actual max CFM/ft²	1.13	CFM/ft²	Fan static	0.75	in wg

Zone Sizing Summary for HVAC RTU–7

Air System Information

Air System Name	RTU-7	Number of zones	1
Equipment Class	PKG ROOF	Floor Area	2443.0 ft²
Air System Type	SZCAV	Location	Ajax, Ontario

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Peak zone sensible load
Sizing Data	Calculated	Space CFM Sizing	Coincident space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	2768	2768	1.13	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	59.6	Jul 1400	55.7	2443.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
FRONT VESTIBULE	1	7.1	Jul 1400	329	23.6	111.7	2.95
DINING AND BAR	1	48.9	Jul 1400	2270	32.1	1773.9	1.28
LOBBY	1	3.6	Jul 1400	169	0.0	557.4	0.30

Ventilation Sizing Summary for HVAC RTU–7

1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows
Design Ventilation AirflowRate ..... 1044 CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (ft²)	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/ft²)	Required Outdoor Air (CFM)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1									
FRONT VESTIBULE	1	111.7	0.0	329.0	5.00	0.06	0.0	0.0	6.7
DINING AND BAR	1	1773.9	88.0	2269.8	7.50	0.18	0.0	0.0	979.3
LOBBY	1	557.4	5.0	169.4	5.00	0.06	0.0	0.0	58.4
Totals (incl. Space Multipliers)				2768.1					1044.4

Air System Design Load Summary for HVAC RTU–7

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 85.4 °F / 73.2 °F			HEATING OA DB / WB -4.0 °F / -5.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	442 ft²	15103	-	442 ft²	-	-
Wall Transmission	544 ft²	1691	-	544 ft²	9326	-
Roof Transmission	98 ft²	78	-	98 ft²	363	-
Window Transmission	442 ft²	1791	-	442 ft²	19288	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	68 ft²	1041	-	68 ft²	2402	-
Floor Transmission	1971 ft²	0	-	1971 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	3665 W	8752	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	93	26115	26035	0	0	0
Infiltration	-	1311	2006	-	19223	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 0%	2794	0	10%	5060	0
>> Total Zone Loads	-	**58677**	**28041**	-	**55663**	**0**
Zone Conditioning	-	58324	28041	-	55213	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	182	-	0	0	-
Plenum Lighting Load	30%	3751	-	0	0	-
Return Fan Load	2768 CFM	0	-	2768 CFM	0	-
Ventilation Load	1044 CFM	8782	17832	1044 CFM	84209	0
Supply Fan Load	2768 CFM	1539	-	2768 CFM	-1539	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**72578**	**45873**	-	**137883**	**0**
Central Cooling Coil	-	72578	45877	-	0	0
Central Heating Coil	-	0	-	-	137883	-
>> Total Conditioning	-	**72578**	**45877**	-	**137883**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

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LICENSED PROFESSIONAL ENGINEER
Q. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
MECHANICAL
LOAD
CALCULATION

Date	JAN 2025	Project No :	25016
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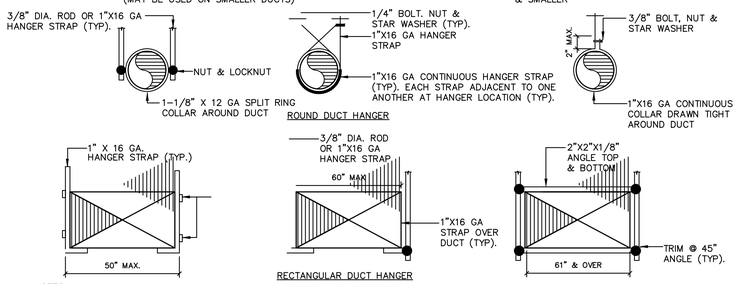
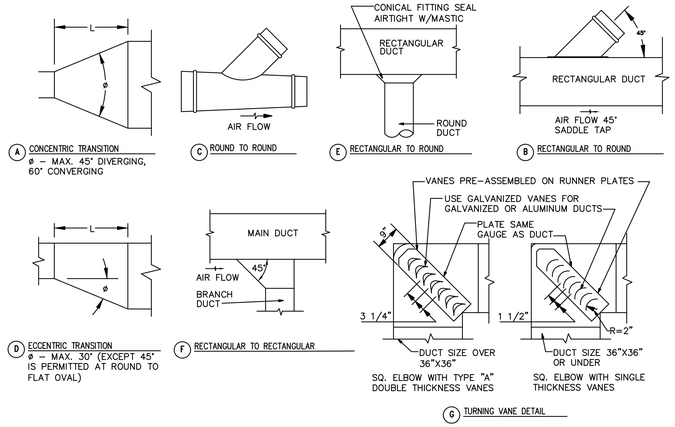
Drawn by :	AL	Drawing No :	M-13
Checked by :	BZ		



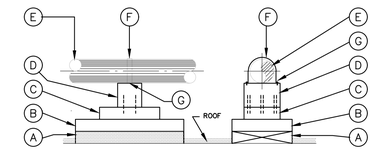
NOTES:

1. REFER TO SPECIFICATIONS FOR HANGER SPACING.
2. ATTACHMENTS TO OVERHEAD STRUCTURE SHALL BE MADE IN ACCORDANCE WITH STRUCTURAL ENGINEERS REQUIREMENTS AND WEIGHT LIMITATIONS. ALL ATTACHMENT METHODS TO STRUCTURE SHALL BE SUBMITTED TO STRUCTURAL ENGINEER FOR REVIEW.
3. PROVIDE SWAY AND SEISMIC BRACING FOR TWICE THE CODE REQUIREMENTS (WHERE REQUIRED).

1 M-13 DUCT HANGERS DETAIL
N.T.S.



2 M-13 DUCT DETAILS
N.T.S.



ARTICLE SUPPLIED BY THE GENERAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR

- A 24" * 24" * 1" (610 * 610 * 25 MM) THICK BLUE COLOUR STYROFOAM INSULATION PLACED ON FINISHED ROOF
- B 24" * 24" * 1/4" (610 * 610 * 6.5 MM) OUTDOOR USE TYPE CREOSOTED PLYWOOD
- C 2" (50 MM) H * 8" (200 MM) W * 18" (460 MM) LONG CREOSOTED CEDAR PLANK
- D 4" (100 MM) H * 4" (100 MM) W * 18" (460 MM) LONG CREOSOTED CEDAR BLOCK

BOND TOGETHER WITH GALVANIZED NAIL

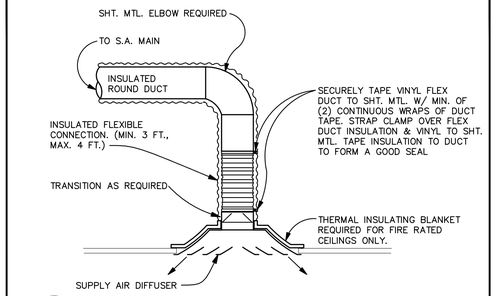
ARTICLES SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR

- E GAS PIPE, ASTM A-53 SCHEDULE 40 PIPE
- F GRINNEL MODEL 262 WROUGHT IRON. OVERSIZE STRAPS TO ALLOW FOR PIPE MOVEMENT
- G CADIUM PLATED NO. 14, 2" (50 MM) LONG WOOD SCREWS

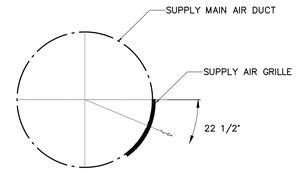
NOTES:

1. FOR 1" (25 MM) DIA. PIPE, PIPE SUPPORTS TO BE 7'-0" (2.13 M) APART AND FOR 1 1/4" (32 MM) PIPE DIA. AND OVER TO BE 9'-0" (2.75 M) APART. PROVIDE SUPPORTS WITHIN 2'-0" (0.61 M) FROM BENDS AND TAKE-OFFS.
2. ALL GAS PIPING AND STRAPS TO BE PAINTED WITH NON-CORROSIVE YELLOW PAINT TO GAS COMPANY'S REQUIREMENTS.
3. PROVIDE SWING JOINTS ON ALL GAS PIPING TAKE-OFFS

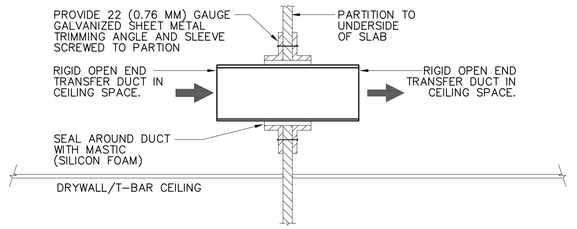
3 M-11 DETAIL OF ROOF MOUNTED GAS PIPE SUPPORT
N.T.S.



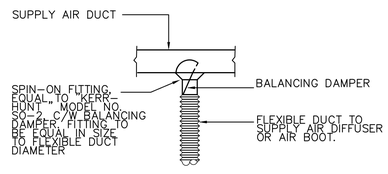
4 M-13 DIFFUSER MOUNTING DETAIL
N.T.S.



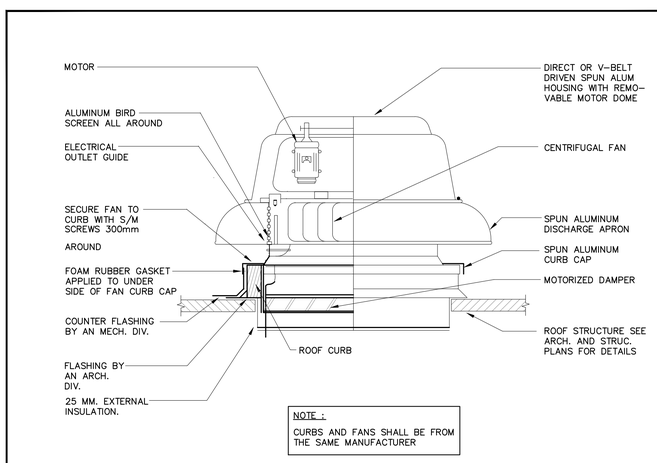
5 M-13 SPIRAL DUCT GRILLE SIDE MOUNTING DETAIL
N.T.S.



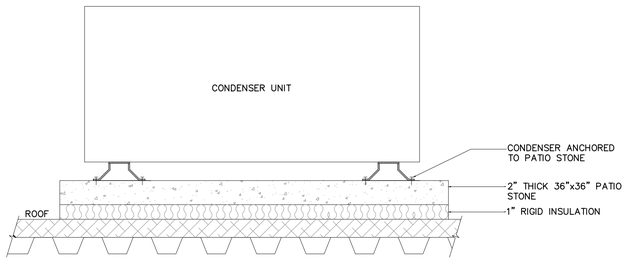
6 M-13 TRANSFER AIR DUCT DETAIL
N.T.S.



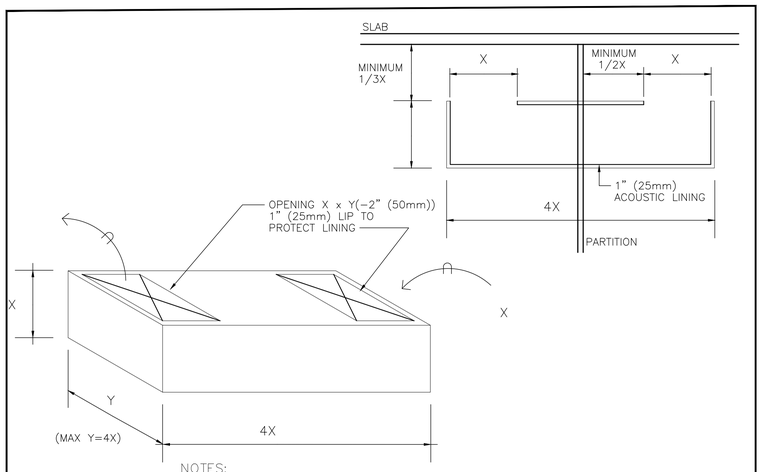
7 M-13 SPIN-ON FITTING DETAIL
N.T.S.



8 M-13 ROOF MOUNTED CENTRIFUGAL EXHAUST FAN DETAIL
N.T.S.



8 M-13 CONDENSING UNIT SUPPORT ON ROOF DETAIL
N.T.S.



NOTES:

TOTAL FREE AREA NOTED ON DRAWINGS. CONTRACTOR TO PROVIDE MULTIPLE TRANSFER AIR DUCTS OF SMALLER DIMENSIONS TO SUIT SITE CONDITIONS AS REQUIRED

9 M-13 ACOUSTIC TRANSFER DUCT DETAIL (DIMENSION)
N.T.S.

THOMAS A. FEKETE LIMITED
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MARKHAM ONTARIO L3R 1A3
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LICENSED PROFESSIONAL ENGINEER B. P. ZHANG 100119933 MAY 27/2025 PROVINCE OF ONTARIO

Project :

FIREARMS OUTLET CANADA

725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :

MECHANICAL DETAILS

Date	JAN 2025	Project No :	25016
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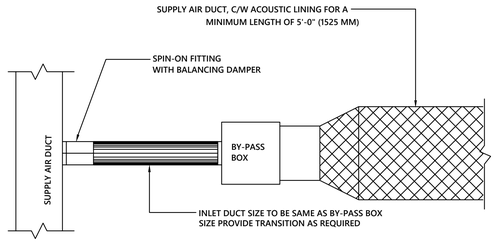
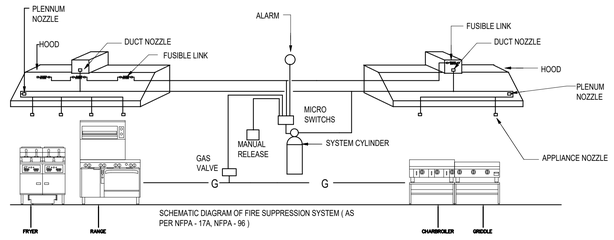
Checked by :	BZ		



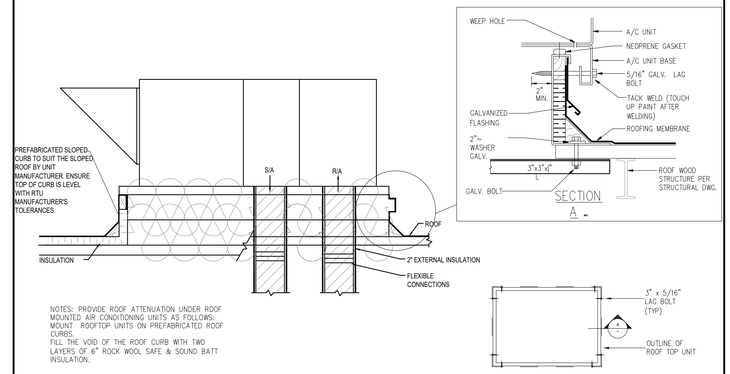
1 M-13.1 BYPASS BOX INSTALLATION DETAIL
N.T.S.



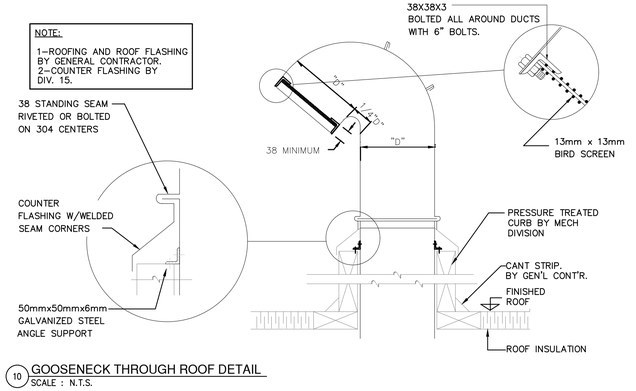
SCHEMATIC DIAGRAM OF FIRE SUPPRESSION SYSTEM (AS PER NFPA - 17A, NFPA - 96)

THE FIRE SUPPRESSION SYSTEM TO BE WET CHEMICAL ULC APPROVED BY MANUFACTURER'S REPRESENTATIVE. SYSTEM TO BE C/W CHROME DISCHARGE NOZZLES WHERE PIPING IS EXPOSED, TANK AND CYLINDER SYSTEM, REMOTE PULL STATION AND FIRE LINKAGES. FIRE PROTECTION INSTALLER TO SUPPLY GAS VALVE AS REQUIRED, SHIPPED LOOSE & INSTALLED BY MECHANICAL CONTRACTOR. SYSTEM TO BE DESIGNED AND LISTED IN ACCORDANCE WITH UL300 OR ULC/ORDC1254.6-1995. PROVIDE SHOP DRAWINGS OF FIRE SUPPRESSION SYSTEM, APPROVED & SEALED BY A LICENSED PROFESSIONAL ENGINEER.

2 M-13.1 FIRE SUPPRESSION SYSTEM
N.T.S.

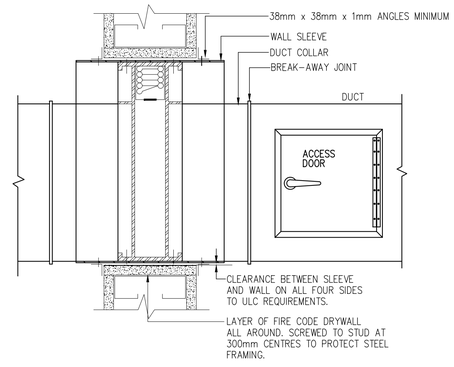


3 M-13.1 ROOF TOP UNIT INSTALLATION DETAIL
N.T.S.

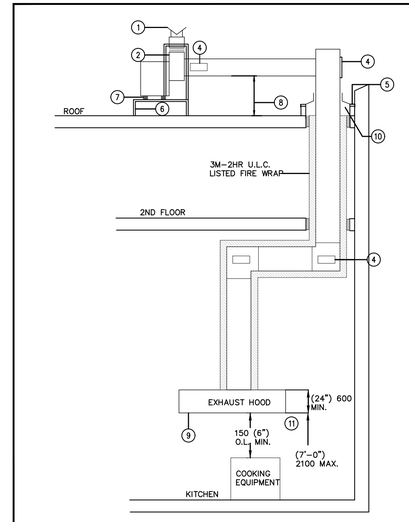


10 GOOSENECK THROUGH ROOF DETAIL
SCALE : N.T.S.

4 M-13.1 GOOSENECK INSTALLATION DETAIL
N.T.S.



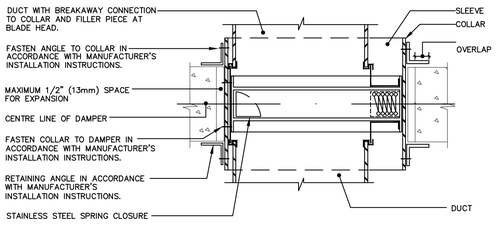
5 M-13.1 VERTICAL FIRE DAMPER IN DRYWALL PARTITION
N.T.S.



NOTES:

1. UPWARD DISCHARGE COMPLETE WITH WATERPROOF CAP. MINIMUM 3000 (10') FROM OUTLET, TO ADJACENT BUILDINGS, PROPERTY LINES OR AIR INTAKES.
2. BACKWARD INCLINED NON-OVERLOAD FAN, FAN MOTOR AND BEARING SHALL BE OUT-OF-AIR STREAM.
3. RESERVED.
4. CLEAN-OUT COMPLETE WITH NON-COMBUSTIBLE GASKET AT EVERY CHANGE OF DIRECTION
5. METAL COUNTER FLASHING BY THIS TRADE, ROOF CURB BY OTHERS.
6. NON-COMBUSTIBLE STRUCTURE SUPPORT
7. NON-COMBUSTIBLE VIBRATION ISOLATORS -REFER TO FLOOR PLAN AND/OR SPECIFICATION.
8. 1000 (40") MINIMUM DIMENSION FROM FINISHED ROOF TO SUCTION SIDE OF THE EXHAUST (UNLESS OTHERWISE NOTED.)
9. a) ZERO INCHES CLEARANCE TO STRUCTURE WALL WHEN PROTECTED BY WONDER BOARD OR ANY OTHER EQUIVALENT MATERIAL. (BY OTHER TRADE).
   b) 18 INCHES CLEARANCE FROM DRYWALL OR ANY OTHER COMBUSTIBLE MATERIAL.
10. a) 450 (18") CLEARANCE FROM COMBUSTIBLE MATERIAL.
    b) CLEARANCE CAN BE REDUCED TO 75 (3") WHEN COMBUSTIBLE MATERIALS IS 22 GAUGE SHEET METAL ON 25 (1") MINERAL WOOL BATS REINFORCED WITH WIRE MESH OR EQUIVALENT.
11. PROVIDE EXTINGUSHING SYSTEM FOR PROTECTION OF DUCT, GREASE REMOVAL DEVICES, HOOD AND COOKING EQUIPMENT IN ACCORDANCE WITH N.F.P.A. 96, PROVIDE MANUAL GAS VALVE & INTERLOCK TO EXTINGUSHING SYSTEM. DO ALL NECESSARY INTERLOCKING

6 M-13.1 KITCHEN EXHAUST SYSTEM DETAIL
N.T.S.



NOTES:

1. FIRE DAMPERS TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. INSPECT FLOOR OPENINGS PRIOR TO DAMPER INSTALLATION TO VERIFY SIZE OF OPENING AND PROPER PREPARATION. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PREPARATION OF OPENINGS IN STUD FRAMED PARTITIONS OR WALLS.
3. INSTALL DAMPER IN PLANE OF FIRE SEPARATION.
4. INSTALL DAMPER SQUARE AND PLUMB.
5. DO NOT CAST DAMPER IN PLACE.
6. DO NOT CAULK OR SEAL DAMPER TO WALL. ENSURE THAT EXPANSION CLEARANCES ARE KEPT.
7. DO NOT FASTEN RETAINING ANGLES OR DAMPER DIRECTLY TO WALL.
8. CYCLE DAMPER AFTER INSTALLATION TO ENSURE FREE MOVEMENT

7 M-13.1 DETAIL OF TYPE B FIRE DAMPER INSTALLATION - HORIZONTAL
N.T.S.

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PROVINCE OF ONTARIO

Project :
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725 WESTNEY ROAD SOUTH,
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Drawing Name :
MECHANICAL DETAILS

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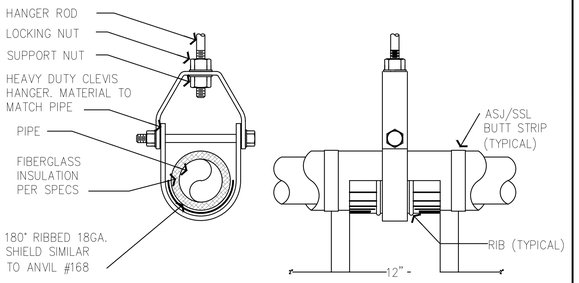
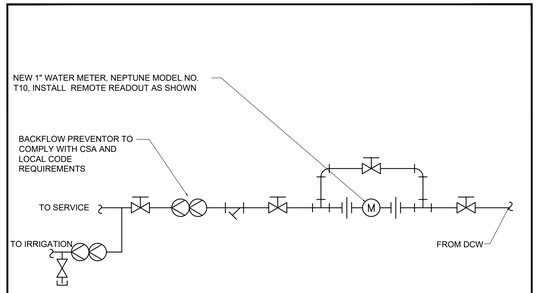
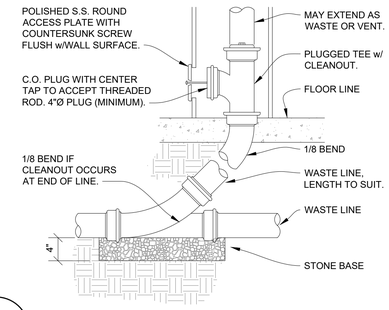


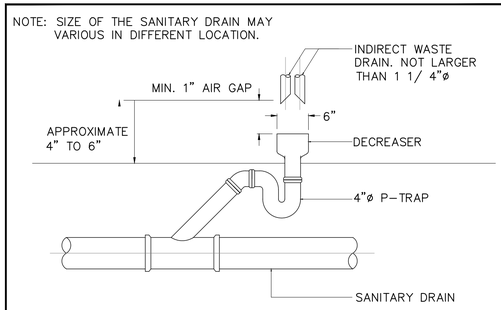
1 / M-14 INSULATED PIPE SUPPORT DETAIL
N.T.S.



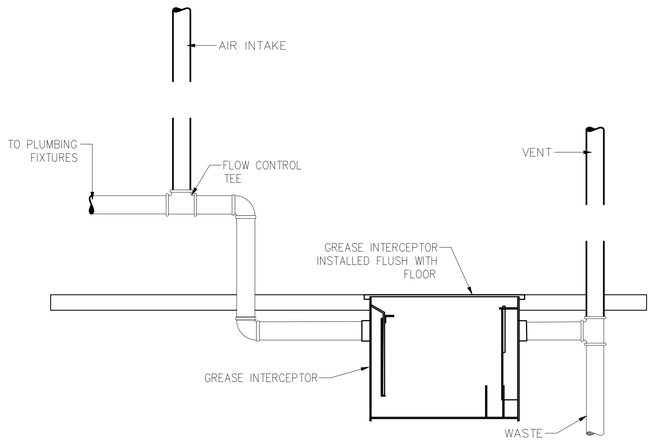
2 / M-14 WATER METER DETAIL
N.T.S.



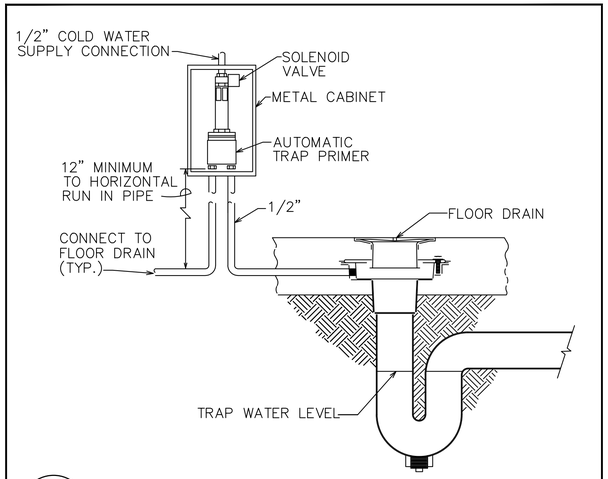
3 / M-14 WALL CLEANOUT DETAILS
N.T.S.



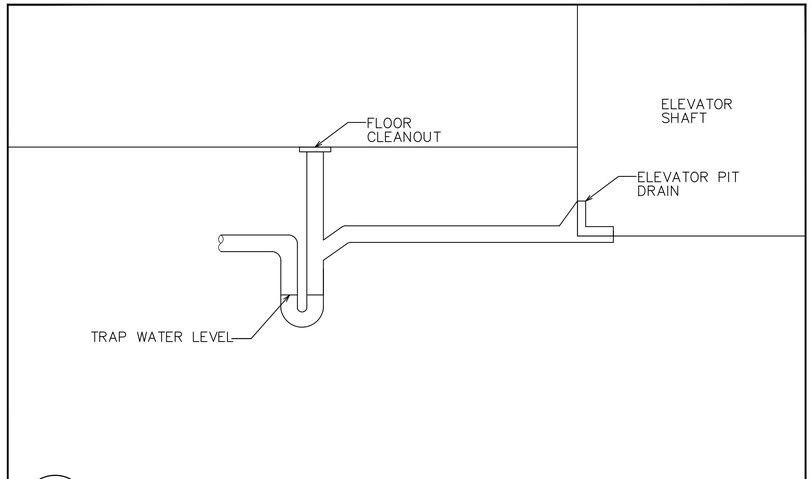
4 / M-14 HUB DRAIN DETAIL
N.T.S.



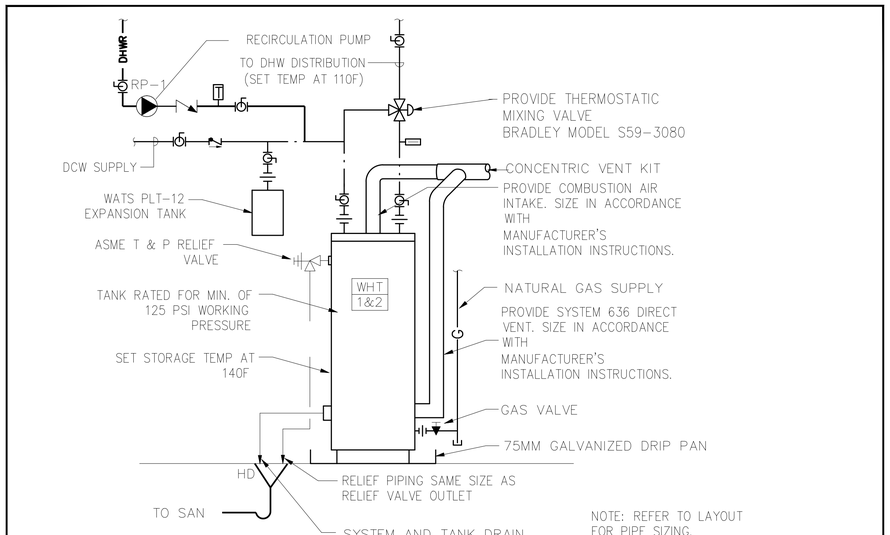
5 / M-14 GREASE INTERCEPTOR DETAIL
N.T.S.



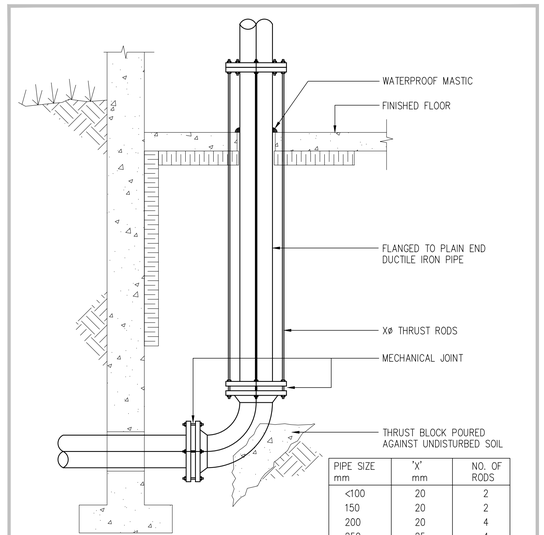
6 / M-14 TRAP PRIMER DETAIL
N.T.S.



7 / M-14 ELEVATOR PIT SANITARY DETAIL DETAIL
N.T.S.



8 / M-14 DOMESTIC HOT WATER TANK DETAIL: GAS FIRED, FLOOR MOUNTED
N.T.S.



PIPE SIZE mm	"X" mm	NO. OF RODS
<100	20	2
150	20	2
200	20	4
250	25	4
300	25	4

1 / M-8 WATER SERVICE ENTRY DETAIL – N.T.S.

THOMAS A. FEKETE LIMITED
7181 WOODBINE AVE. UNIT 229
MARKHAM ONTARIO L3R 1A3
PH.: (905) 946 4260 FAX: (905) 946 0901

Job No : 25016

No.	Date:	Issued/Revision:	By
5	JUNE 6/2025	ISSUE FOR TENDER	AL
4	MAY 27/2025	ISSUE FOR PERMIT	AL
4	MAY 1/2025	PROGRESS SET #3	AL
3	APR 17/2025	PROGRESS SET #2	AL
2	MAR 28/2025	PROGRESS SET	AL
1	FEB 26/2025	ISSUED FOR 30% COORDINATION	AL

LICENSED PROFESSIONAL ENGINEER
G. P. ZHANG
100119933
MAY 27/2025
PROVINCE OF ONTARIO

Project :
FIREARMS OUTLET CANADA
725 WESTNEY ROAD SOUTH,
AJAX, ONTARIO L1S 7J7

Drawing Name :
PLUMBING AND DRAINAGE DETAILS

Date	JAN 2025	Project No :	25016
Scale :	AS NOTED		
Drawn by :	AL	Drawing No :	M-15
Checked by :	BZ		