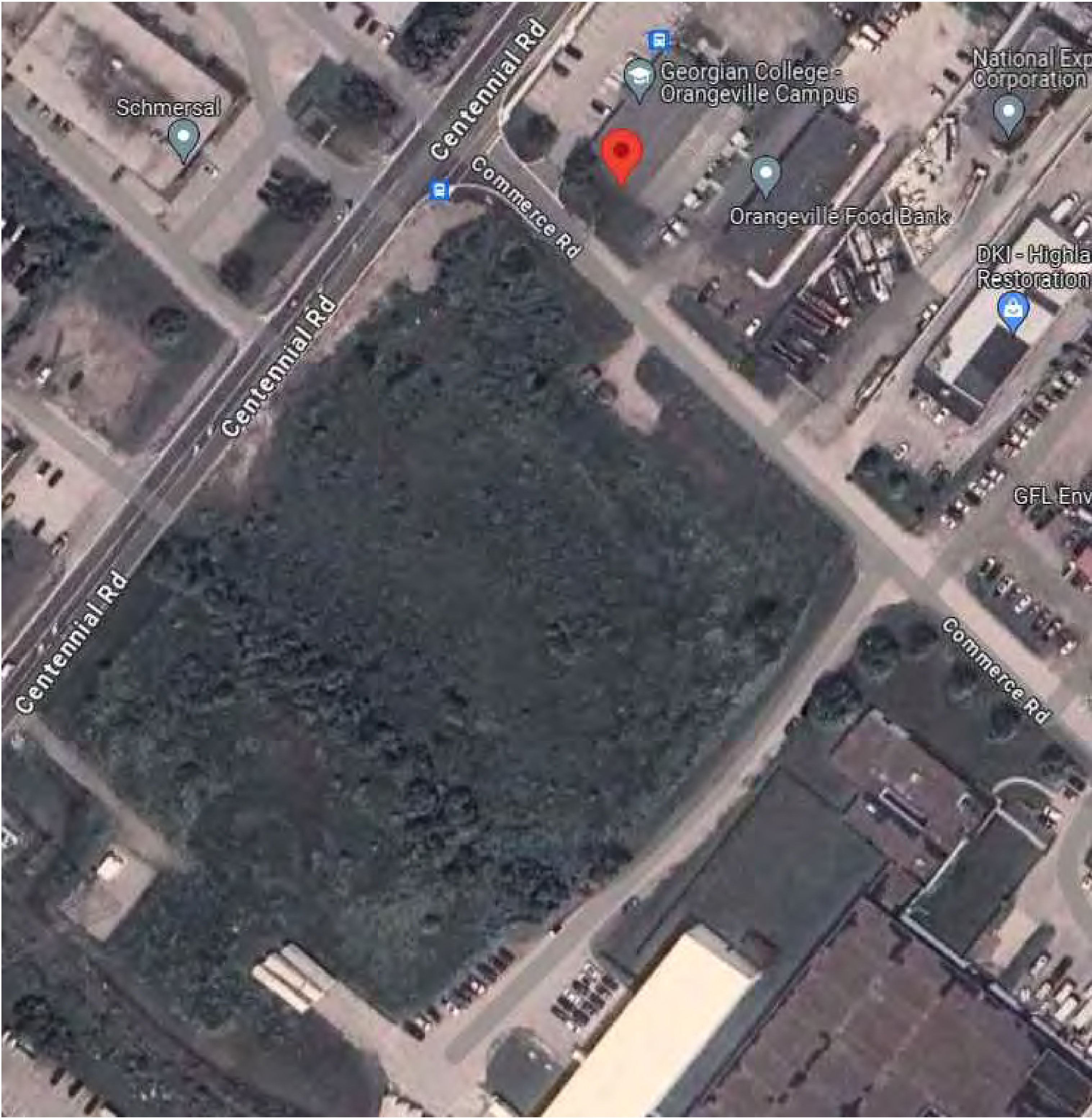


MECHANICAL

ALAIMO ARCHITECTURE INC.

10 COMMERCE ROAD, ORANGEVILLE, ON

JULY 02, 2025 - RCEL PROJECT NO.: 2341A-23



GENERAL NOTES AND TYPICAL DETAILS

THE GENERAL NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL ELECTRICAL CONDITIONS NOT SPECIFICALLY DETAILED OR REFERENCED ON MECHANICAL DRAWINGS.

THESE NOTES, DETAILS AND DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS.

THESE DRAWINGS ARE FOR THE USE OF THE CONSULTANT'S CLIENT ONLY. ALL INFORMATION SHOWN APPLIES TO THIS PROJECT ONLY AND REFLECT THE BEST JUDGEMENT OF THE CONSULTANT IN LIGHT OF THE AVAILABLE INFORMATION AT THE TIME OF PREPARATION. DECISIONS OR ACTIONS MADE BY THIRD PARTIES BASED ON THE DRAWINGS ARE THE SOLE RESPONSIBILITY OF SUCH PARTIES.

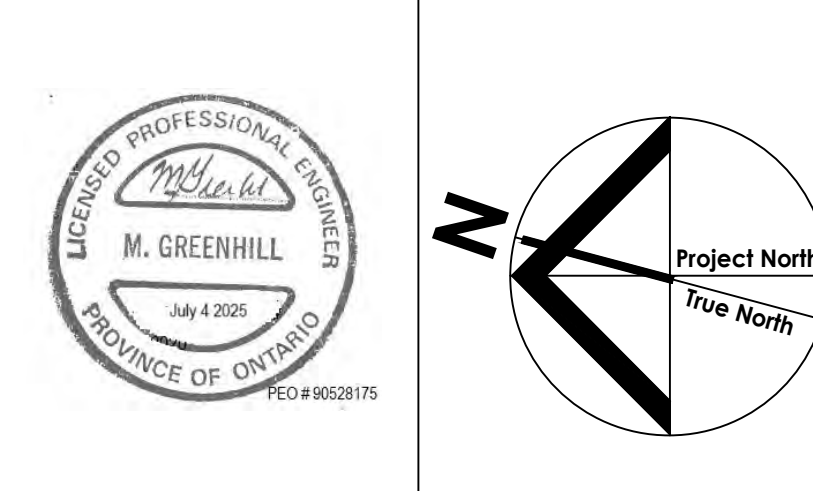
THESE DRAWINGS ARE THE PROPERTY OF THE CONSULTANT AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION.

CODES AND STANDARDS

DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE LATEST ONTARIO BUILDING CODE.

PROJECT CITY: ORANGEVILLE, ON

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Drawing Title

COVER PAGE

Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

Scale
N.T.S
Issued by
MG
File No.
2341A-23
Plot Date
2024-05-10

GENERAL REQUIREMENTS:

1. GENERAL SCOPE OF WORK
- 1.1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND SUPPORTS AS WELL AS SUPERVISION TO PROVIDE A COMPLETE INSTALLATION, TESTED AND IN WORKING ORDER, AS SHOWN ON THE DRAWINGS.
- 1.2. SUPPLY AND INSTALL ALL ITEMS, ARTICLES, MATERIALS, LABOR, EQUIPMENT, TOOLS, NECESSARY TO COMPLETE ALL THE MECHANICAL SYSTEMS SHOWN ON MECHANICAL DRAWINGS AND HANDOVER TO OWNER A COMPLETE AND OPERATING INSTALLATION.
- 1.3. THE CONTRACTOR SHALL PERFORM THE WORK STIPULATED IN THE CONTRACT AND ANY OR ALL CONTRACT CHANGES AND CHANGE DIRECTIVES, AND SHALL FURNISH, UNLESS OTHERWISE PROVIDED IN THE CONTRACT, EVERYTHING NECESSARY FOR THE PROPER PERFORMANCE AND COMPLETION OF THE WORK. ALL WORK SHALL BE FULLY TESTED, COMMISSIONED AND IN GOOD WORKING ORDER AT TIME OF HAND-OVER TO OWNER.
- 1.5. OBTAIN ALL REQUIRED PERMITS, ARRANGE FOR AUTHORITY'S INSPECTION, PAY ALL REQUIRED FEES AND OBTAIN ALL REQUIRED INSPECTION CERTIFICATE(S) AND SUBMIT FINAL INSPECTION CERTIFICATES TO OWNER. ALL WORK SHALL BE IN ACCORDANCE WITH LAWS AND REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION. PROVIDE THE EQUIPMENT WITH APPLICABLE CSA, CGA AND ULG LABELS.
- 1.6.1. SPECIFICATIONS
- 1.6.2. COMPLY WITH THE GENERAL SECTIONS AND APPLICABLE SECTIONS OF THE GENERAL CONTRACT SPECIFICATIONS.

6. WARRANTY
- 6.1. WARRANT ALL WORKMANSHIP AND MATERIALS INCLUDED IN THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. DURING THE GUARANTEE PERIOD SHALL BE RESPONSIBLE TO PROMPTLY REPAIR, REPLACE, CORRECT ANY DEFECTIVE EQUIPMENT, MATERIAL OR WORKMANSHIP AT NO ADDITIONAL COST TO THE OWNER.
- 6.2. ASSUME FULL RESPONSIBILITY FOR LAYOUT OF ALL WORK AND FOR ANY DAMAGE CAUSED TO OWNER OR OTHERS BY IMPROPER CARRYING OUT OF THE WORK.

7. DRAWINGS
- 7.1. MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND INTERIOR DRAWINGS. DRAWINGS SHOW GENERAL INTENT OF THE WORK AND PROPOSED ROUTING ONLY.
- 7.3. CONTRACTOR SHALL BE CONFIRMING REQUIRED HEAD ROOM CLEARANCE DURING PIPE AND DUCT ROUTING.
- 7.4. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS BY FIELD MEASURE BEFORE PROCEEDING WITH THE WORK.
- 7.5. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING POSSIBLE INTERFERENCES AND INFORMING THE ENGINEER.
- 7.6. BEFORE FABRICATION 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 THIS CONTRACTOR'S EXPENSE.

- 7.7. THE DRAWINGS SHALL BE CONSIDERED TO SHOW THE GENERAL CHARACTER AND SCOPE OF THE WORK AND NOT THE EXACT DETAILS OF THE INSTALLATION. THE INSTALLATION SHALL BE COMPLETE WITH ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIVE INSTALLATION.
- 7.8. THE LOCATION, ARRANGEMENT AND CONNECTION OF EQUIPMENT AND MATERIAL AS SHOWN ON THE DRAWINGS REPRESENT A CLOSE APPROXIMATION TO THE INTENT AND REQUIREMENTS OF THE CONTRACT. THE RIGHT IS RESERVED BY THE CONSULTANT TO MAKE REASONABLE CHANGES REQUIRED TO ACCOMMODATE CONDITIONS ARISING DURING THE PROGRESS OF THE WORK, AT NO EXTRA COST TO THE OWNER.
- 7.9. BEFORE PROCEEDING WITH THE INSTALLATION, THE CONTRACTOR SHALL REVIEW THE MANUFACTURER'S RECOMMENDATION INSTALLATION PROCEDURE AND DETAILS AND CO-ORDINATE WITH ALL OTHER TRADES.
- 7.10. IN ORDER TO SHOW MORE CLEARLY THE ARRANGEMENT OF THE WORK, PLANS AND SECTIONS DO NOT SHOW EVERY VALVE, THERMOMETER, PRESSURE GAUGE OR OTHER SYSTEM ACCESSORY. REFER TO THE MECHANICAL STANDARDS DETAILS AND TO THE SPECIFICATIONS TO DETERMINE THE REQUIREMENTS.
- 7.11. CERTAIN DETAILS INDICATED ON THE DRAWINGS ARE GENERAL IN NATURE AND SPECIFIC LABELED DETAIL REFERENCES TO EACH AND EVERY OCCURRENCE OF USE ARE NOT INDICATED. HOWEVER, SUCH DETAILS SHALL BE APPLICABLE TO EVERY OCCURRENCE ON THE DRAWINGS.

- 7.12. ALL PIPING AND DUCTWORK IN FINISHED AREAS SHALL BE CONCEALED IN CEILING SPACES AND SHAFTS OR CHASED INTO WALLS. NO EXPOSED PIPING OR DUCTWORK SHALL BE LEFT IN FINISHED AREAS UNLESS SPECIFICALLY REVIEWED BY THE CONSULTANT. NO PIPING SHALL BE CONCEALED IN OUTSIDE WALLS.
- 7.13. PIPES, EXHAUST FANS OR OTHER MECHANICAL EQUIPMENT MOUNTED ON ROOF, OR HOUSING FOR SUCH EQUIPMENT, SHALL NOT BE CLOSER TO THE EDGE OF ROOF THAN A DISTANCE EQUAL TO THE HEIGHT OF THE PIPE, HOOD OR EQUIPMENT, UNLESS SPECIFICALLY REVIEWED BY THE CONSULTANT.
- 7.14. THE ACTUAL LOCATION OF THERMOSTATS, SWITCHES, ETC. SHALL BE REVIEWED BY THE ARCHITECT BEFORE INSTALLATION.
- 7.15. LEAVE AREAS CLEAR OF PIPING AND DUCTS WHERE SPACE IS INDICATED RESERVED FOR FUTURE EQUIPMENT AND EQUIPMENT FOR OTHER TRADES.
- 7.16. LEAVE AREAS CLEAR AND PROVIDE SPACE FOR LEFT FOR REMOVAL OF COILS AND SERVICING OF EQUIPMENT, WITH MINIMUM INCONVENIENCE TO THE OPERATION OF SYSTEMS.

3. SITE CONDITION INSPECTION
- 3.1. EXAMINE SITE CONDITIONS AND ALL RELEVANT DRAWINGS TO ENSURE THAT WORK CAN BE SATISFACTORILY CARRIED OUT AS SHOWN. IF SITE EXAMINATION REVEALS ANY DIFFICULTIES THAT WILL PREVENT THE WORK FROM BEING CARRIED OUT AS DESIGNED, THESE MUST BE INDICATED IN THE TENDER PRICE AND BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH WORK OR MAKING ANY ADJUSTMENTS TO WORK TO SUIT EXISTING CONDITION AND IN CONFORMANCE WITH DESIGN INTENT.
- 3.2. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DIFFICULTIES, INTERFERENCES AND SITE CONSTRAINTS THAT MAY BE IDENTIFIED DURING THE CONSTRUCTION PERIOD.
- 3.3. VERIFY VOLTAGE ON SITE, BEFORE ORDERING ANY EQUIPMENT, INFORM THE ENGINEER IF THERE ARE ANY DISCREPANCIES.
- 3.4. MECHANICAL CONTRACTOR SHALL CONFIRM EXACT LOCATION OF ALL CITY MECHANICAL SERVICES.

4. PROTECTION OF OPENINGS
- 4.1. PROTECT EQUIPMENT AND SYSTEMS OPENINGS FROM DIRT, DUST, AND OTHER FOREIGN MATERIALS WITH MATERIALS APPROPRIATE TO SYSTEM.
- 4.2. IT IS NOT PERMITTED TO USE THE BUILDING HVAC SYSTEM FOR TEMPORARY HEATING AND VENTILATION DURING CONSTRUCTION. KEEP ALL REGISTERS, DIFFUSERS, OPENINGS COVERED DURING CONSTRUCTION.

1. CLEANING
- 1.1. CLEAN PREMISES DAILY AT THE END OF EACH WORK DAY.
- 1.2. DO NOT ACCUMULATE EQUIPMENT, TOOLS, DEBRIS AND WASTE MATERIALS ON SITE. REMOVE FROM SITE DAILY.
- 1.3. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE ONCE WORK IS COMPLETE.
- 1.4. ALL MATERIALS TO BE DISPOSED OF CONSTRUCTION SITE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

7. OPEN FLAMES AND WELDING
- 7.1. HOT WORK PERMIT MUST BE VISIBLE AT ALL TIMES.
- 7.2. ADEQUATE NUMBER OF FIRE EXTINGUISHERS MUST BE PROVIDED DURING THE OPEN FLAME PROCESS.
- 7.3. WELDING SHALL BE UNDERTAKEN BY A COMPANY CERTIFIED BY CANADIAN WELDING BUREAU UNDER REQUIREMENTS OF DIVISION 1 OR DIVISION 2.1 OF W-1.

8. MATERIALS
- 8.1. USE ONLY NEW CSA AND ULG CERTIFIED EQUIPMENT AND MATERIALS UNLESS OTHERWISE INDICATED.
- 8.2. ONLY FIRST CLASS WORKMANSHIP WILL BE ACCEPTED WITH RESPECT TO STANDARD PRACTICES, SAFETY, ACCESSIBILITY, DURABILITY AND NEATNESS OF INSTALLATION WORK.
- 8.3. WHERE A CERTAIN MANUFACTURER'S EQUIPMENT HAS BEEN SPECIFIED BY NAME OR MODEL NUMBER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PERFORMANCE AND THE QUALITY MEETS THE SPECIFIED EQUIPMENT AND THAT THE SAME ACCESS OR MAINTENANCE SPACE IS AVAILABLE FOR AN ALTERNATE MANUFACTURER'S EQUIPMENT THAT IS USED, AND THAT PIPING, DUCT AND ELECTRICAL CONNECTIONS CAN BE MADE AT NO EXTRA COST.

9. EQUIPMENT SUPPORTS
- 9.1. EQUIPMENT SUPPORTS NOT SUPPLIED BY EQUIPMENT MANUFACTURER, FABRICATE FROM STRUCTURAL GRADE STEEL MEETING REQUIREMENTS OF SECTION 0520, STRUCTURAL, STEEL, FOR BUILDING. SUBMIT STRUCTURAL CALCULATIONS WITH SHOP DRAWINGS.
- 9.2. MOUNT BASE MOUNTED EQUIPMENT ON CHAMFERED EDGE HOUSEKEEPING PADS, MINIMUM OF 100 MM HIGH AND 50 MM LARGER THAN EQUIPMENT DIMENSIONS ALL AROUND.

1. SHOP DRAWINGS
- 1.1. SUBMIT 3 COPIES OF SHOP DRAWINGS, UNLESS OTHERWISE INDICATED, FOR ENGINEER'S REVIEW.
- 1.2. CO-ORDINATE ALL DIMENSIONS AND REQUIREMENTS WITH EQUIPMENT SHOP DRAWINGS.
- 1.3. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR ENGINEER'S REVIEW COVERING ALL RELEVANT DETAILS, DIMENSIONS AND PERFORMANCE.
- 1.4. SHOP DRAWINGS AND PRODUCT DATA SHALL SHOW:
1. MOUNTING ARRANGEMENTS.
2. OPERATING AND MAINTENANCE CLEARANCES, E.G. ACCESS DOOR SWING SPACES.

- 1.5. SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE CONTRACTOR AND THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO CONSULTANT / ENGINEER FOR REVIEW.
- 1.6. SHOP DRAWINGS AND PRODUCT DATA SHALL BE ACCOMPANIED BY:
1. DETAILED DRAWINGS OF BASES, SUPPORTS, AND ANCHOR BOLTS.
2. ACOUSTICAL SOUND POWER DATA, WHERE APPLICABLE.
3. POINTS OF OPERATION ON PERFORMANCE CURVES.
4. MANUFACTURER TO CERTIFY AS TO CURRENT MODEL PRODUCTION.
5. CERTIFICATION OF COMPLIANCE TO APPLICABLE CODES.

- 1.7. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CHECK ELECTRICAL AND MECHANICAL REQUIREMENT IF EQUIVALENT PRODUCTS USED OTHER THAN SPECIFIED IN THE DRAWINGS.
2. SLEEVES
1. PIPE SLEEVES: AT POINTS WHERE PIPES PASS THROUGH MASONRY, CONCRETE OR FIRE RATED ASSEMBLIES.
2. SCHEDULE 40 STEEL PIPE.
3. SLEEVES WITH ANNULAR FIN CONTINUOUSLY WELDED AT MIDPOINT, THROUGH FOUNDATION WALLS.
2. WHERE SLEEVE EXTENDS ABOVE FINISHED FLOOR.
4. SIZES: MINIMUM 1/4" INCH LARGER ALL AROUND, BETWEEN SLEEVE AND UNINSULATED PIPE OR BETWEEN SLEEVE AND INSULATION.
5. TERMINATE SLEEVES FLUSH WITH SURFACE OF CONCRETE AND MASONARY WALLS. CONCRETE FLOORING GRADE AND 1" INCH ABOVE OTHER FLOORS.
6. FILL VOIDS AROUND PIPES.
1. CAULK BETWEEN SLEEVE AND PIPE IN FOUNDATION WALLS AND BELOW GRADE FLOORS WITH WATERPROOF, FIRE RETARDANT NON-HARDENING MASTIC.
2. WHERE SLEEVES PASS THROUGH WALLS OR FLOORS, PROVIDE SPACE FOR FIRESTOPPING, WHERE PIPES/DUCTS PASS THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS, MAINTAIN FIRE RATING INTEGRITY.
3. ENSURE NO CONTACT BETWEEN COPPER TUBE OR PIPE AND FERROUS SLEEVE.
4. FULLY FILL USE SLEEVES WITH LIME PLASTER OR OTHER EASILY REMOVABLE FILLER.
5. COAT EXPOSED EXTERIOR SURFACES OF FERROUS SLEEVES WITH HEAVY APPLICATION OF ZINC RICH PAINT TO CG55 / 1 GP 181MM-AMDT MAR 76.

7. PREPARATION FOR FIRESTOPPING

- 7.1. FIRESTOPPING MATERIAL AND INSTALLATION WITHIN ANNULAR SPACE BETWEEN PIPES, DUCTS, INSULATION AND ADJACENT FIRE SEPARATION.
- 7.2. UNINSULATED UNHEATED PIPES NOT SUBJECT TO MOVEMENT: NO SPECIAL PREPARATION.
- 7.3. UNINSULATED HEATED PIPES SUBJECT TO MOVEMENT: WRAP WITH NONCOMBUSTIBLE SMOOTH MATERIAL TO PERMIT PIPE TO MOVE WITHOUT DAMAGING FIRESTOPPING MATERIAL.
- 7.4. INSULATED PIPES AND DUCTS: ENSURE INTEGRITY OF INSULATION AND VAPOUR BARRIER AT FIRE SEPARATION.

8. ESCUTCHEONS

1. ON PIPES PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILINGS IN FINISHED AREAS.
2. CHROME OR NICKEL-PLATED BRASS OR TYPE 302 STAINLESS STEEL, ONE-PIECE TYPE WITH SET SCREWS.
3. OUTSIDE DIAMETER TO COVER OPENING OR SLEEVE.
4. INSIDE DIAMETER TO FIT AROUND FINISHED PIPE.

5. TESTS

- 5.1. GIVE 24 H WRITTEN NOTICE OF DATE FOR TESTS.
- 5.2. INSULATE OR CONCEAL WORK ONLY AFTER TESTING AND APPROVAL BY CONSULTANT.
- 5.3. CONDUCT TESTS IN PRESENCE OF CONSULTANT WHERE REQUESTED.
- 5.4. BEAR COSTS INCLUDING RETESTING AND MAKING GOOD.
- 5.5. PIPING:
- 5.5.1. GENERAL: MAINTAIN TEST PRESSURE WITHOUT LOSS FOR 4 H UNLESS OTHERWISE SPECIFIED.
- 5.5.2. HYDRAULICAL / TEST HYDROPNIC PIPING SYSTEMS AT 1 1/2 TIMES SYSTEM OPERATING PRESSURE OR MINIMUM 800 KPA, WHICHEVER IS GREATER.
- 5.5.3. TEST NATURAL GAS SYSTEMS TO CAN1, B149, 1, 1M88 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- 5.5.4. TEST DRAINAGE, WASTE AND VENT PIPING TO NATIONAL BUILDING CODE AND AUTHORITIES HAVING JURISDICTION.
- 5.5.5. TEST DOMESTIC HOT, COLD AND RECIRCULATION WATER PIPING AT 1 1/2 TIMES SYSTEM OPERATING PRESSURE OR MINIMUM 800 KPA, WHICHEVER IS GREATER.
- 5.5.6. TEST FIRE SYSTEMS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION AND AS SPECIFIED ELSEWHERE.
- 5.6. EQUIPMENT: TEST AS SPECIFIED IN RELEVANT SECTIONS.
- 5.7. PRIOR TO TESTS, ISOLATE ALL EQUIPMENT OR OTHER PARTS WHICH ARE NOT DESIGNED TO WITHSTAND TEST PRESSURES OR TEST MEDIUM.

6. PAINTING

- 6.1. APPLY AT LEAST ONE COAT OF CORROSION RESISTANT PRIMER PAINT TO FERROUS SURFACES AND SITE FABRICATED WORK.
- 6.2. PRIME AND TOUCH UP MARKED FINISHED PAINTWORK TO MATCH ORIGINAL.
- 6.3. RESTORE TO NEW CONDITION, FINISHES WHICH HAVE BEEN DAMAGED TOO EXTENSIVELY TO BE MERELY PRIMER AND TOUCHED UP.

7. DIELECTRIC COUPLINGS

- 7.1. SHALL BE COMPATIBLE WITH AND TO SUIT PRESSURE RATING OF PIPING SYSTEM.
- 7.2. JOINER PIPES OF DISSIMILAR METALS ARE JOINED.
- 7.3. PIPES NPS 2 AND UNDER: ISOLATING UNIONS.
- 7.4. PIPES NPS 2 1/2 AND OVER: ISOLATING FLANGES.

8. RISER / SYSTEM ISOLATION VALVE & DRAIN VALVES
- 8.1. FOR ANY WATER SYSTEM, PROVIDE ISOLATION VALVES AT EACH RISER, AND AT EACH HORIZONTAL BRANCH LONGER THAN 10 FT.
- 8.2. PROVIDE DRAIN VALVES AT LOW POINTS AND AT SECTION ISOLATING VALVES.
- 8.3. THE ISOLATION VALVES AND DRAIN VALVES SHALL BE OF MINIMUM NPS 3/4 SIZE BRONZE, WITH HOSE END MALE THREAD AND COMPLETE WITH CAP AND CHAIN.

9. DRAIN VALVES

- 9.1. LOCATE AT LOW POINTS AND AT SECTION ISOLATING VALVES UNLESS OTHERWISE SPECIFIED.
- 9.2. MINIMUM NPS 3/4 UNLESS OTHERWISE SPECIFIED: BRONZE, WITH HOSE END MALE THREAD AND COMPLETE WITH CAP AND CHAIN.

10. FLEX PIPE CONNECTOR

- 10.1. PIPE CONNECTORS, WHERE SHOWN, FOR WATER, SHALL BE HYDROFLEX HOSE, ETL APPROVED AND MANUFACTURED WITH BRAIDED SHEATH, WITH BRANDED SHEATH CORRUGATED METAL AND SHEATH SHALL BE OF BRONZE OR STAINLESS STEEL WITH THREADED ENDS FOR 50 MM (2 IN.) PIPE SIZE AND SMALLER AND FLANGED ENDS FOR LARGER SIZES.
- 10.2. TOTAL LENGTH OF CONNECTOR SHALL VARY FROM A MINIMUM OF 300 MM (12 IN.) TO 250 MM (1 IN.) DEFLECTION, AND UP TO 350 MM (18 IN.) FOR 50 MM (2 IN.) OR GREATER DEFLECTION.
- 10.4. MINIMUM WORKING PRESSURE AT 21 ° DEG. C. (70 DEG. F.) SHALL BE 1200 KPA (175 PSI) BASED ON MAXIMUM WORKING PRESSURE NOT EXCEEDING BURST PRESSURE.

11. EXPANSION JOINT

- 11.1. EXPANSION JOINT, GUIDES AND ANCHORS: UNITED FLEXIBLE, FLEXONICS OR HYDROFLEX, SPECIFICALLY DESIGN FOR THE SYSTEM IN WHICH THEY ARE INSTALLED.
- 11.2. EXPANSION JOINTS FOR 75 MM (3 IN.) DIAMETER PIPE AND LARGER: PACKLESS BELLOWS TYPE WITH EQUALIZING RIDGES, STAINLESS STEEL BELLOWS, LIMIT STOPS, INTERNAL, TELESCOPING SLEEVES AND CARBON STEEL SCHEDULE WITH BEVELED WELDING ENDS, OR FLANGED TO SUIT INSTALLATION.
- 11.3. EXPANSION JOINTS FOR 50 MM (2 IN.) DIAMETER PIPE AND SMALLER: PACKLESS BELLOWS TYPE WITH STAINLESS STEEL BELLOWS, ANTI-TORQUE DEVICE, LIMIT STOPS, GUIDES AND THREADED PIPE ENDS.
- 11.4. FURNISH AND ASSEMBLE, INSPECTION AND DATA REPORT FURNISH WITH EACH EXPANSION JOINT, FOR THE FOLLOWING WORKING PRESSURES AND TEMPERATURES.
- 11.5. UNLESS OTHERWISE SPECIFIED, EXPANSION JOINTS SHALL HAVE A SUFFICIENT NUMBER OF CORRUGATIONS TO ABSORB THE EXPANSION BETWEEN ANCHORS IN THE PIPE PLUS NOT LESS THAN 25% SAFETY FACTOR FOR A TEMPERATURE RANGE FROM -17 DEG. (OF J) AMBIENT TEMPERATURE TO THE MAXIMUM OPERATING TEMPERATURE OF THE PIPE.

12. EXCAVATION AND BACKFILL

- 12.1. ALL EXCAVATION FOR MECHANICAL AND ELECTRICAL SERVICES WITHIN AND OUTSIDE THE BUILDING SHALL BE BY THE GENERAL DIVISION. CONFIRM THIS ITEM IN WRITING TO THE GENERAL CONTRACTOR AT THE TIME OF BIDDING SO THAT THE PRICE OF THIS WORK MAY BE INCLUDED IN THE TENDER. FAILURE TO INFORM WILL RESULT IN MECHANICAL AND ELECTRICAL TRADES PAYING FOR THIS EXCAVATION AT NO ADDITIONAL COST TO THE OWNER.
- 12.2. ALL BACKFILL FOR MECHANICAL AND ELECTRICAL SERVICES WITHIN THE BUILDING SHALL BE BY THE RESPECTIVE TRADES.
- 12.3. BACKFILL MATERIAL, WITHIN THE BUILDING SHALL BE GRANULAR "B" MATERIAL COMPACTED TO 95% PROCTOR DENSITY.
- 12.4. PROCTOR TESTS SHALL BE BY THE GENERAL DIVISION, WHERE COMPACTION TESTS FAIL TO MEET SPECIFIED DENSITY, TESTS SHALL BE REDONE AT THE EXPENSE OF THE TRADE RESPONSIBLE.

13. DELIVERY, STORAGE, AND HANDLING

- 13.1. ALL EQUIPMENT DELIVERED TO SITE SHALL BE STORED AND HANDLED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- 13.2. CONTRACTOR SHALL BE RESPONSIBLE FOR TIMELY SUBMITTAL OF SHOP DRAWINGS AND COORDINATING THE SHIPMENT OF THE EQUIPMENT IN TIMELY FASHION SO THAT EQUIPMENT MAY BE INSTALLED PER PROJECT SCHEDULE. IN CASE THE EQUIPMENT OR STRUCTURES AND SITE CONSTRUCTION STATUS DOES NOT ALLOW ITS INSTALLATION AND EQUIPMENT REQUIRE STORAGE, THE CONTRACTOR WILL PAY FOR ITS STORAGE AND HANDLING AT NO ADDITIONAL COST TO THE OWNER.

14. ROOF FLASHING

- 14.1. SUPPLY ROOF FLASHINGS, THIMBLES AND ROOF CURBS FOR ALL TYPES OF PENETRATIONS DUE TO PIPES, DUCTS AND ANY OTHER ITEM PROVIDING IN MECHANICAL SECTIONS. ROOF FLASHING AND CURBS SHALL BE PRE-FINISHED AND SHALL BE SUITABLE FOR THE TYPE OF ROOF WHERE SUCH PENETRATIONS OCCUR. ROOF FLASHINGS AND ROOF CURBS SHALL BE SUPPLIED BY MECHANICAL CONTRACTOR AND INSTALLED BY ROOFING CONTRACTOR.

15. TIMELY COMPLETION OF THE PROJECT AND QUALITY CONTROL

- 15.1. MECHANICAL CONTRACTOR IS FULLY RESPONSIBLE TO MANAGE THE WORK OF ALL ITS TRADES IN TERMS OF CORRECTNESS, QUALITY CONTROL AND SCHEDULE. DIV. 15 CONTRACTOR SHALL KEEP A COMPLETE DAY BY DAY LOG OF ALL THE MAN POWER AT SITE FOR ALL ITS TRADES. THIS IS TO ENFORCE DAY BY DAY PROGRESS OF THE PROJECT AND TO AVOID DELAYING THE WORK UNTIL END AND TO FINISH THE PROJECT IN HASTE AT THE EXPENSE OF GOOD WORKMANSHIP. IN THE SITE MEETING, SUCH LOG WILL BE SHOWN TO THE CONSULTANT.
- 15.2. MECHANICAL CONTRACTOR IS FULLY RESPONSIBLE TO HANDOVER THE BALANCED SYSTEM TO DELIVER DESIGN AIR QUANTITIES AND WATER FLOWS, IF DURING BALANCING IT IS REPORTED THAT THAT ANY FAN AND OR PUMP REQUIRES CHANGE OF BELT, PULLEY AND OR MOTOR PROVIDE CHANGES AT NO ADDITIONAL COST TO THE OWNER.

16. EQUIPMENT STARTUP REPORT

- 16.1. PROVIDE MANUFACTURER'S EQUIPMENT START-UP REPORT FOR THE MAKE UP AIR UNITS, CONDENSING FURNACES, CONDENSING UNITS AND VRF SYSTEM.

17. EQUIPMENT PERFORMANCE
- 17.1. THE SPECIFICATIONS INDICATE THE PERFORMANCE EXPECTED FROM THE EQUIPMENT WHERE PERFORMANCE AND EQUIPMENT MODELS ARE BOTH PROVIDED, THE PERFORMANCE REQUIREMENTS SHALL GOVERN.

18. HOUSEKEEPING PADS

- 18.1. PROVIDE CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT.

19. VIBRATION ISOLATION

- 19.1. PROVIDE AND INSTALL MINIMUM 3/4" THICK MGN ELASTOMERIC PADS W/ MOUNTS UNDER FLOOR MOUNTED HVAC EQUIPMENT AS PER MANUFACTURER RECOMMENDATIONS OR AS INDICATED ON DRAWINGS.

20. ELECTRICAL

- 20.1. ALL LOW VOLTAGE CONTROL WIRING (<50V) SHALL BE BY THIS DIVISION, TO ELECTRICAL DIVISION STANDARDS. FOR SUB 750V WIRING, RETAIN THE SERVICES OF A LICENSED ELECTRICIAN TO DISCONNECT EXISTING (AND MAKE SAFE) AND RE-CONNECT TO THE NEW EQUIPMENT.

21. AS-BUILT DRAWINGS

- 21.1. MAINTAIN A RECORD OF ALL REVISIONS. PREPARE RECORD DRAWINGS IN A NEAT MANNER SHOWING ALL DEVIATIONS IN WORK, ON COMPLETION OF WORK, SUBMIT TO THE ENGINEER ONE HARD COPY OF AS-BUILT DRAWINGS AND ELECTRONIC FORMAT DRAWINGS (IN AUTOCAD).

22. OPERATION AND MAINTENANCE MANUALS

- 22.1. SUBMIT THREE (3) COPIES OF O&M MANUALS TO ENGINEER FOR REVIEW. ALSO INCLUDE 1 COPY IN PDF FORMAT. MANUALS SHALL INCLUDE AS BUILT DRAWINGS (CAD AND PDF FORMAT), APPROVED SHOP DRAWINGS OF ALL NEW EQUIPMENT, EQUIPMENTS PERFORMANCE TEST RESULTS AND BALANCING REPORTS, COMMISSIONING REPORTS, WARRANTIES, TRAINING RECORDS.

23. TESTING, ADJUSTING AND BALANCING (T.A.B.)
- 23.1. INCLUDE ALL TESTING, ADJUSTING AND BALANCING FOR AIR AND HYDRONIC SYSTEMS.
- 23.2. TESTING REPORT IN THE OPERATION AND MAINTENANCE MANUALS.
- 23.3. NOTIFY ENGINEER OF ANY DISCREPANCIES GREATER THAN 45% OF DESIGN VALUES FOR AIR SYSTEMS AND ±10% OF DESIGN VALUE FOR HYDRONIC SYSTEM PRIOR OF SUBMISSION OF REPORT.

- 23.4. OWNER MAY USE LABOR AND SYSTEMS FOR TEST PURPOSES PRIOR TO ACCEPTANCE. SUPPLY LABOR, MATERIAL AND INSTRUMENTS REQUIRED FOR TESTING.

24. CUTTING AND PATCHING

- 24.1. BEFORE CUTTING DRILLING OR PUTTING SLEEVE ON STRUCTURAL LOAD-BEARING ELEMENTS, OBTAIN APPROVAL OF LOCATION AND METHODS.
- 24.2. DO NOT ENDANGER WORK AND PROPERTY BY CUTTING, DIGGING, OR SIMILAR ACTIVITIES. DO NOT CUT OR ALTER THE WORK OF ANOTHER SECTION UNLESS SUCH CUTTING OR ALTERATION IS APPROVED BY THAT SECTION AND THE CONSULTANT.
- 24.3. PATCH AND DRILL WITH TRUE SMOOTH EDGES AND TO MINIMIZE SUITABLE TOLERANCES.
- 24.4. ALL CUTTING, DRILLING AND SLEEVES REQUIRED BY THIS DIVISION SHALL BE AT THIS DIVISION'S EXPENSE.
- 24.5. REPLACE, AND OTHERWISE MAKE GOOD, DAMAGED WORK.
- 24.6. THE SCORING OR ACESST SET OF DOWEL SCREWS SHALL BE DONE BY THE INSTALLER WHO ORIGINALLY PERFORMED THE WORK, AND AT THE EXPENSE OF THE PARTY WHO CAUSED THE DAMAGE.

25. MATERIALS AND WORK WHICH FAILS TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED BY THE ENGINEER WHENEVER FOUND AT ANY TIME PRIOR TO FINAL ACCEPTANCE AND REGARDLESS OF PREVIOUS INSPECTIONS. WHEN REJECTED, DEFECTIVE MATERIALS OR WORK SHALL BE PROMPTLY REMOVED, REPLACED OR REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO EXPENSE TO THE OWNER.

OPERATION AND MAINTENANCE INSTRUCTION

1. CLOSEOUT SUBMITTALS

- 1.1. PROVIDE OPERATION AND MAINTENANCE DATA FOR INCLUSION IN CLOSEOUT SUBMITTALS.
- 1.2. PROVIDE OPERATION & MAINTENANCE DOCUMENTATION WHICH IS FULLY COMPLIANT WITH ASHRAE GUIDELINES 4, 2008 PREPARATION OF MAINTENANCE DOCUMENTATION FOR BUILDING SYSTEMS REQUIREMENTS.
- 1.3. PROVIDE INSPECTION & MAINTENANCE GUIDELINES WHICH ARE FULLY COMPLIANT WITH ASHRAE STANDARD 180-2008 STANDARD PRACTICE FOR INSPECTION AND MAINTENANCE OF COMMERCIAL BUILDING HVAC SYSTEMS.

2. EXECUTION

2.1. MANUALS

- 2.1.1. THREE (3) COPIES OF COMPLETE AND APPROVED OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL MECHANICAL EQUIPMENT AND SYSTEMS, BOUND IN HARD COVERED MANUALS, SHALL BE SUPPLIED, BEFORE FINAL PAYMENTS WILL BE MADE.
- 2.1.2. BOOKS SHALL BE INDEXED TO THE TEST RESULTS AND TUBE TYPE STAINLESS STEEL, INDEXED AS TO CONTENTS AND IDENTIFIED ON THE BINDING EDGES AS "MAINTENANCE INSTRUCTIONS AND DATA BOOK, FOR (PROJECT NAME)".
- 2.1.3. THE BINDERS SHALL BE IDENTIFIED WITH THE NAME OF THE MECHANICAL CONTRACTOR AND THE MECHANICAL SUBCONTRACTOR(S) AND THE DATE OF SUBSTANTIAL PERFORMANCE FOR THE CONTRACT.
- 2.1.4. TERMINOLOGY USED IN THE VARIOUS INDEXED SECTIONS OF THE BOOKS SHALL BE CONSISTENT.
- 2.1.5. VOLUME ONE SHALL CONTAIN THE MASTER INDEX OF ALL SYSTEMS AND THE NAME OF THE MECHANICAL CONTRACTOR AND MECHANICAL SUBCONTRACTORS AND THE DATE OF SUBSTANTIAL PERFORMANCE FOR THE CONTRACT.
- 2.1.6. THERE SHALL BE ONE BINDER FOR EACH OF THE MAJOR SYSTEMS. EACH BINDER SHALL BE COMPLETELY INDEXED AND CONTAIN ALL RELEVANT INFORMATION FOR THE SYSTEM.
- 2.1.7. THERE SHALL BE A SEPARATE VOLUME CONTAINING A LIST OF ALL MATERIALS USED ON THE PROJECT WHICH FALL UNDER THE WHMIS LEGISLATION. THERE SHALL BE A HAZARD DATA SHEET FOR EACH OF THE MATERIALS.
- 2.1.8. THERE SHALL BE A SEPARATE VOLUME WHICH CONTAINS ALL INSURANCE AND TEST CERTIFICATES FOR ANY ITEMS SUPPLIED ON THE PROJECT FOR WHICH THESE ITEMS ARE REQUIRED.
- 2.1.9. THERE SHALL BE A SEPARATE VOLUME WHICH CONTAINS THE COMBINED FILTER SCHEDULE AND MAINTENANCE SCHEDULE FOR THE COMPLEX.
- 2.1.10. THERE SHALL BE A COMPLETE CROSS-REFERENCING OF ALL EQUIPMENT ON THE PROJECT WITHIN THE MANUALS.
- 2.1.11. THE SYSTEM NUMBERS WHICH WILL BE USED FOR THE MANUALS SHALL BE DETERMINED FROM THE DRAWINGS.
- 2.1.2. ORIGINAL COPIES OF THE MANUFACTURER'S LITERATURE SHALL BE INCORPORATED-PHOTOCOPIES WILL NOT BE ACCEPTED.
- 2.1.3. ANY DIAGRAMS OR DRAWINGS SPECIFICALLY PREPARED FOR THIS PROJECT SHALL BE PREPARED USING A CAD SYSTEM WITH OUTPUT FILES ON FLOPPY DISC COMPATIBLE WITH THE LATEST VERSION OF AUTOCAD COMPUTER DRAFTING SOFTWARE.
- 2.1.4. ANY DETAIL DETECTION NOT SPECIFICALLY PREPARED FOR THIS PROJECT SHALL BE SUPPLIED ON MYLAR REPRODUCIBLE SHEETS.
- 2.1.5. ANY DIAGRAMS, SUCH AS INSTALLATION, DRAWINGS, FLOW CHARTS, ETC. WHICH ARE PERTINENT TO THE SYSTEM BEING DESCRIBED SHALL BE LARGER THAN THE STANDARD PAGE SIZE, BE MECHANICALLY REDUCED WHILE MAINTAINING LEGIBILITY, OR BE CAREFULLY FOLDED AND CONTAINED WITHIN A CLEAR PLASTIC WAREFALL WITHIN THE MANUAL.

3. OPERATING MANUALS SHALL INCLUDE:

- A GENERAL DESCRIPTION OF THE SYSTEM, EQUIPMENT INCLUDED, AND CONTROL OPERATION.
- A DESCRIPTION OF SUMMER AND WINTER OPERATION INCLUDING SHUT-DOWN, START-UP, AND CHANGE-OVER PROCEDURES WHERE REQUIRED.
- A TROUBLE-SHOOTING TABLE, SHOWING POINTS TO LOOK FOR TROUBLE UNDER VARIOUS CONDITIONS OF OPERATION.
- OPERATING TEMPERATURES AT CRITICAL POINTS IN THE SYSTEMS.
- REHEAT SCHEDULES WHERE APPLICABLE.
- ORIGINALS OF ALL TEST CERTIFICATES.
- A LIST OF SPARE PARTS REQUIRED FOR "FIRST AID" REPAIRS.
- A ONE YEAR ROUTINE MAINTENANCE SCHEDULE.
- SYSTEM WIRING AND CONTROL DIAGRAMS AND DETAILED DESCRIPTION OF THE OPERATION OF CONTROL SYSTEMS.
- COMPLETE LISTING OF MATERIALS, PRODUCTS AND EQUIPMENT INCLUDING SERIAL NUMBERS, MANUFACTURER'S NAMES, SOURCES OF SUPPLY.
- DESCRIPTION OF EACH SYSTEM, WITH THE DESCRIPTION OF EACH MAJOR COMPONENT OF THE SYSTEM.
- COMPLETE MAINTENANCE INSTRUCTIONS OF EACH ASSEMBLY, COMPONENT AND SYSTEM, INCLUDING WARNING OF HARMFUL PRACTICES.
- LISTS OF SPARE PARTS OF EACH ASSEMBLY, COMPONENT AND SYSTEM COMPLETE WITH NAMES AND ADDRESSES OF SUPPLIERS.
- OPERATING CURVES OF MECHANICAL AND ELECTRICAL EQUIPMENT.
- CLEANING, MAINTAINING AND PRESERVING INSTRUCTIONS FOR ALL MATERIALS, PRODUCTS AND SURFACES. INCLUDE WARNINGS OF HARMFUL, CLEANING, MAINTAINING AND PRESERVING PRACTICES.
- A LUBRICATION SCHEDULE OF ALL EQUIPMENT.
- PAGE SIZE VALVE TAG SCHEDULE AND FLOW DIAGRAMS.
- WATER TIGHTNESS TEST PROCEDURES AND TESTS.
- FINAL BALANCING REPORTS FOR THE MECHANICAL SYSTEMS.
- FINAL REVIEWED SHOP DRAWINGS.
- COPIES OF ALL VITAL RECORDS OF MECHANICAL AND ELECTRICAL EQUIPMENT.
- ELECTRIC PIPE TRACING GIVING LOCATION, SERVICE, LENGTH, ELECTRICAL DATA, THERMOSTAT ETC.
- ANY ADDITIONAL ITEMS SPECIFICALLY REQUESTED BY THE CONSULTANT.

4. OPERATING INSTRUCTIONS

- 4.1. INSTRUCT THE OWNER'S REPRESENTATIVE IN ALL ASPECTS OF THE OPERATION OF SYSTEMS AND EQUIPMENT FOR A PERIOD OF 2 WORKING DAYS. THIS DOES NOT INCLUDE SPECIFIC MANUFACTURER INSTRUCTION PERIOD OR CONTROLS.
- 4.2. ARRANGE FOR AND PROVIDE FOR SERVICES OF SERVICE ENGINEERS AND OTHER MANUFACTURER'S REPRESENTATIVES REQUIRED FOR INSTRUCTION ON SPECIALIZED PORTIONS OF THE INSTALLATION, AS REQUESTED BY THE CONSULTANT AND/OR THE OWNER.
- 4.3. SUBMIT AT THE TIME OF FINAL INSPECTION A COMPLETE LIST OF SYSTEMS, STATING FOR EACH SYSTEM AND PIECE OF EQUIPMENT THE DATE INSTRUCTIONS WERE GIVEN TO THE OWNER'S STAFF. DURATION OF INSTRUCTION, NAME OF PERSONS RECEIVING INSTRUCTION, OTHER PERSONS PRESENT (MANUFACTURER'S REPRESENTATIVE, CONSULTANT, ETC.), SYSTEM OR EQUIPMENT INVOLVED AND SIGNATURE OF THE OWNER'S STAFF STATING THAT THEY PROPERLY UNDERSTOOD THE SYSTEM INSTALLATION, OPERATION AND MAINTENANCE REQUIREMENTS. THIS INFORMATION SHALL BE INSERTED IN THE MANUALS AFTER ALL INSTRUCTIONS HAVE BEEN COMPLETED.
- 4.4. REVIEW INFORMATION PROVIDED IN THE OPERATING AND MAINTENANCE INSTRUCTIONS AND DATA BOOK WITH THE OWNER'S AUTHORIZED REPRESENTATIVE TO ENSURE THE OWNER HAS A COMPLETE UNDERSTANDING OF THE MECHANICAL AND ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.
- 4.5. MECHANICAL EQUIPMENT AND SYSTEMS INCLUDED IN THE INSTRUCTION REQUIREMENTS ARE:
- AIR UNITS, CONDENSING FURNACES, CONDENSING UNITS AND VRF SYSTEM
 - LIFE SAFETY AND FIRE PROTECTION
 - NOISE AND VIBRATION
 - THE DISTRIBUTION
 - AIR CONDITIONING AND HEATING SYSTEMS
 - MISCELLANEOUS VENTILATION SYSTEMS
 - RAIN WATER HARVESTING SYSTEM

5. TRIAL USAGE

- 5.1. THE OWNER SHALL BE PERMITTED TRIAL USAGE OF SYSTEMS OR PARTS OF SYSTEMS FOR THE PURPOSE OF TESTING AND LEARNING OPERATIONAL PROCEDURES. TRIAL USAGE SHALL NOT AFFECT THE WARRANTIES NOR BE CONSTRUED AS ACCEPTANCE, AND NO CLAIM FOR DAMAGE SHALL BE MADE AGAINST THE OWNER FOR ANY INJURY OR BREAKAGE TO ANY PART OR PARTS DUE TO THE TESTS, WHERE SUCH INJURIES OR BREAKAGE ARE CAUSED BY A WEAKNESS OR INADEQUACY OF PARTS, OR BY DEFECTIVE MATERIALS OR WORKMANSHIP OF ANY KIND.

ACCESS DOORS AND ACCESSIBILITY

1. SUBMITTAL

- 1.1. PROVIDE MANUFACTURER'S PRINTED PRODUCT LITERATURE AND DATAS HEETS.
- 1.2. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH SECTION 21.05.01.
- 1.3. CLOSEOUT SUBMITTALS
- 1.3.1. IN ACCORDANCE WITH DIVISION 1, PROVIDE OPERATION AND MAINTENANCE DATA FOR INCLUSION IN CLOSEOUT SUBMITTALS.

2. PRODUCTS

2.1. MATERIALS

- 2.0.1. ACCESS DOORS SHALL BE LE HAGE, SMS, PEDLAR OR ACUDOR WITH 14 U.S. GAUGE STEEL DOOR PANEL, RUST RESISTANT CONCEALED HINGES WITH INTEGRAL LOCKING AND SELF-OPENING SCREWDRIVER OPERATED LOCK. FRAME SHALL BE SUITABLE FOR WALL INSTALLATION AND SHALL HAVE EMBEDDED KEYS FOR PLASTER WALLS. DOORS IN TIE WALL SHALL BE STAINLESS STEEL AND SHALL SUIT TILE PATTERN. DOORS IN PLASTER WALLS OR CEILING SHALL BE SUITABLE FOR PLASTER COVERING WITH ONLY THE FRAME, JOINT SHOWING. ALL OTHER DOORS SHALL BE PRIME PAINTED STEEL. MINIMUM SIZE OF DOORS SHALL BE 1' X 16" (300MM X 400MM), WHEREVER POSSIBLE 24" X 24" (600MM X 600MM) DOORS SHALL BE USED.

- 2.0.2. AT THE TIME OF BIDDING, THOROUGHLY REVIEW THE ARCHITECTURAL DRAWINGS TO IDENTIFY THE CONCEALED SPACES WHERE SUCH ACCESS DOORS MAY BE REQUIRED AND INCLUDE ALL SUCH ACCESS DOORS IN THE BID PRICE.

3. EXECUTION

- 3.1. INSTALLATION
- 3.1.1. ALL PARTS OF THE INSTALLATION REQUIRING PERIODIC MAINTENANCE SHALL BE ACCESSIBLE. WHEREVER VALVES, DAMPERS AND OTHER APPURTENANCES ARE CONCEALED BY BUILDING CONSTRUCTION, ACCESS DOORS SHALL BE FURNISHED BY THIS SECTION AND INSTALLED UNDER THE RESPECTIVE TRADE SECTIONS (I.E. MASONRY, PLASTER, DRYWALL, TILE, ETC.). THE MECHANICAL DIVISION SHALL BE RESPONSIBLE FOR THEIR PROPER LOCATION.
- 3.1.2. EACH ACCESS DOOR SHALL BE INSTALLED TO PROVIDE COMPLETE ACCESS TO EQUIPMENT FOR MAINTENANCE AND SERVICING.
- 3.1.3. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS SHOWING SIZE, TYPE AND LOCATION OF ACCESS DOORS, FOR APPROVAL BY THE ARCHITECT. BEFORE INSTALLATION, MAKE ANY CHANGES TO LOCATIONS OF ACCESS DOORS AS DIRECTED BY THE CONSULTANT.

ON THE "AS-BUILT" RECORD DRAWINGS, SHOW THE FINAL INSTALLED LOCATIONS OF ALL ACCESS DOORS.

ORANGEVILLE FIRE STATION
REMAY CONSULTING ENGINEERS LTD.

MUA-1.2 SPECIFICATION:

AIR HANDLING UNIT SHALL BE MANUFACTURED AND SUPPLIED BY ENGINEERED AIR WITH MODEL NUMBER, SIZES, HEATING, AND COOLING CAPACITIES, MOTOR TYPES, MOTOR HP AND POWER CHARACTERISTICS AS INDICATED ON DRAWING AND/OR SCHEDULES.

UNIT MUST CONFORM TO REGULATIONS SET OUT IN THE CANADIAN ENERGY EFFICIENCY ACT FOR LARGE AIR CONDITIONERS (CONDENSING UNITS). PACKAGED UNITS SHALL BE TESTED TO CSA STANDARD C746-98 AND MUST BEAR AN EEV (ENERGY EFFICIENCY VERIFICATION) LABEL PROVIDED BY CSA.

UNIT CONSTRUCTION: 18 GAUGE CONSTRUCTION, 1" WALLS WITH 1-1/2" LBSCU FT INSULATION, SOLID INTERNAL LINE THROUGHOUT, HINGED ACCESS DOORS WITH LEVER LOCK HANDLES. INTERNALLY ISOLATED SUPPLY BLOWER/MOTOR ASSEMBLY, ODP FAN MOTOR, FACTORY MOUNTED AND WIRED VFD C/W EXTERNAL MANUAL BYPASS SWITCH, 81% EFFICIENT FURNACE, 3 STAGE DX COOLING COIL C/W FIXED ORIFICE BYPASS, COMPRESSORS, INTEGRATED AIR COOLED CONDENSERS, PARALLEL BLADE OUTDOOR AIR DAMPER WITH FACTORY MOUNTED AND WIRED 2 POSITION ACTUATOR.

PLUMBING FIXTURE SCHEDULE											
CONNECTION SIZES					FIXTURE		TRIM		ACCESSORIES		
TAG	TYPE	HW	CW	DRAIN	VENT	ACCEPTABLE MANUFACTURER	FIXTURE DESCRIPTION	ACCEPTABLE MANUFACTURER	TRIM DESCRIPTION	ACCEPTABLE MANUFACTURER	ACCESSORY DESCRIPTION
L-1	COUNTER MOUNTED LAV ELECTRONIC FAUCET	13	13	32	32	AMERICAN STANDARD COLONY C346-433 KOHLER PENNINGTON K-2196 ZURN Z5110	VITREOUS CHINA SINK, SELF-RIMMING, WITH FRONT OVERFLOW, SOAP DISPENSER, QUARTZ SWIVEL CLAMPS, 3/4" DIA., SUPPLY OPENINGS ON 100 MM (4") CENTRES, SIZES: 521 MM X 440 MM (20 1/2" X 17 5/8") OUTSIDE.	DELTA 591T1230 MOEN COMMERCIAL 8301 ZURN Z6915-XL	BATTERY OPERATED ELECTRONIC FAUCET, CAST BRASS ONE PIECE BODY WITH INTEGRAL WATER PROOF INFRARED SENSOR AND CONNECTOR, ADJUSTABLE SENSING RANGE 76mm to 381mm (3" TO 15") AND TIME OUT 15 TO 75 SECONDS CHROME FINISH, VANDAL RESISTANT AERATOR HAVING INTEGRAL FLOW CONTROL FOR 1.5gpm (5.7 L/MIN) @ 413 KPA (60 PSI) MAX. ADJUSTABLE LOW BATTERY INDICATOR UNDER COUNTER PLASTIC SURFACE MOUNTED HOUSING FOR SOLENOID AND CONTROLLER, SENSOR ACTIVATES IN PRESENCE OF PERSON'S HANDS IN LAVATORY.		WASTE FITTING: OPEN GRID STRAINER THERMOSTATIC MIXING VALVE UNDER LAV, DELTA R3070-MIXLF, POWERS LAMPO OR EQUAL.
L-2	B.F. WALL MOUNTED LAV ELECTRONIC FAUCET	13	13	32	32	AMERICAN STANDARD LUCERNE 355.012 KOHLER BRUSHAM K-1997 ZURN Z5344	WALL-HUNG SINK, VITREOUS CHINA, WITH SPLASH LIP, SUPPLY OPENINGS ON 100 MM (4") CENTRES, OVERFLOW, SIZE: 557 MM X 502 MM (21 15/16" X 19 3/4").	DELTA 591T1220 MOEN COMMERCIAL 148301 ZURN Z6915-XL	BATTERY OPERATED ELECTRONIC FAUCET, CAST BRASS ONE PIECE BODY WITH INTEGRAL WATER PROOF INFRARED SENSOR AND CONNECTOR, ADJUSTABLE SENSING RANGE 76mm to 381mm (3" TO 15") AND TIME OUT 15 TO 75 SECONDS CHROME FINISH, VANDAL RESISTANT AERATOR HAVING INTEGRAL FLOW CONTROL FOR 1.5gpm (5.7 L/MIN) @ 413 KPA (60 PSI) MAX. ADJUSTABLE LOW BATTERY INDICATOR UNDER COUNTER PLASTIC SURFACE MOUNTED HOUSING FOR SOLENOID AND CONTROLLER, SENSOR ACTIVATES IN PRESENCE OF PERSON'S HANDS IN LAVATORY.	INSULATION MCQUIRE PROWRAP PW0802 TRUEBRO LAV GUARD	INSULATION: INSULATE WASTE AND SUPPLIES WITH UL LISTED PREFORMED INSULATION SYSTEM COMPLETE WITH SEAMLESS JACKET. WASTE FITTING: NPS 32 MM (1 1/4") OFFSET WASTE WITH OPEN GRID STRAINER. PROVIDE FLOOR MOUNTED WALL CARRIER THERMOSTATIC MIXING VALVE UNDER LAV, DELTA R3070-MIXLF, POWERS LAMPO OR EQUAL.
WC-1	WATER CLOSET FLUSH VALVE, WALL MOUNTED, HANDS FREE	25	75	38	38	AMERICAN STANDARD AFWALL 3351 101 KOHLER KINGSTON K-4325 MANFIELD ERE 1301 ZURN ECO VANTAGE Z5615.258.00.00.00	VITREOUS CHINA, SIPHON JET, ELONGATED RIM, TOP SPUD FOR FLUSH VALVE BOLT CAP, BACK OUTLET, WALL MOUNTED, MIN 2" TRAP WAY, MAXIMUM 6 INCHES (1.5 gpi) PER FLUSH C/W FLOOR MOUNTED CARRIER	DELTA 81T201-WMBT ZURN SUDAN	EXP0SED, POLISHED CHROME PLATED, DIAPHRAGM TYPE FLUSH VALVE WITH 25mm (1") SCREWDRIVER ANGLE STOP, MOTORIZED ACTUATOR, AUTOMATIC SENSOR BOX, FLUSH CONNECTION & COUPLING FOR 40mm (1 1/2") TOP SPUD, WALL AND SPUD ESCUTCHEONS, BATTERY OPERATED C/W 4 "C" CELL BATTERIES, SENSOR BOX C/W COVER, VANDAL RESISTANT SCREWS, FLUSH CYCLE SET FOR 6.0 LITRES (1.6 GAL) PER FLUSH.	SEAT: BEIMS 2155CT CENTIGOG AMS005TSC535	SEAT: WHITE, ELONGATED, OPEN FRONT, LESS COVER, MOLDED SOLID ANTIMICROBIAL PLASTIC, STAINLESS STEEL CHECK HINGES, STAINLESS STEEL OR SOLID BRASS INSERT POST.
WC-2	BARRIER FREE WATER CLOSET FLUSH VALVE, WALL MOUNTED, HANDS FREE	25	75	38	38	AMERICAN STANDARD AFWALL 3351 101 KOHLER KINGSTON K-4325 MANFIELD ERE 1301 ZURN ECO VANTAGE Z5615.258.00.00.00	VITREOUS CHINA, SIPHON JET, ELONGATED RIM, TOP SPUD FOR FLUSH VALVE BOLT CAP, BACK OUTLET, WALL MOUNTED, MIN 2" TRAP WAY, MAXIMUM 6 INCHES (1.5 gpi) PER FLUSH C/W FLOOR MOUNTED CARRIER	DELTA 81T201-WMBT ZURN SUDAN	EXP0SED, POLISHED CHROME PLATED, DIAPHRAGM TYPE FLUSH VALVE WITH SEAT BUMPER, 25mm (1") SCREWDRIVER ANGLE STOP, MOTORIZED ACTUATOR, AUTOMATIC SENSOR BOX, FLUSH CONNECTION & COUPLING FOR 40mm (1 1/2") TOP SPUD, WALL AND SPUD ESCUTCHEONS, BATTERY OPERATED C/W 4 "C" CELL BATTERIES, SENSOR BOX C/W COVER, VANDAL RESISTANT SCREWS, FLUSH CYCLE SET FOR 6.0 LITRES (1.6 GAL) PER FLUSH.	SEAT: BEIMS 7850T02 CENTIGOG AMS005T	SEAT: WHITE, ELONGATED, OPEN FRONT WITH COVER, MOLDED SOLID ANTIMICROBIAL PLASTIC, STAINLESS STEEL CHECK HINGES, STAINLESS STEEL OR SOLID BRASS INSERT POST.
U-1	URNAL FLUSH VALVE, HANDS FREE	19	50	38	38	AMERICAN STANDARD WASHROOM 6560.005 KOHLER BARCON K-4904-ET ZURN Z5750	VITREOUS CHINA, WASHOUT TYPE, INTEGRAL FLUSHING RM, EXTENDED SHELLER, INTEGRAL TRAP, BACK OUTLET, WALL-MOUNTED, TOP SUPPLY SPUD, MIN 2" TRAP WAY, MAXIMUM 1.5 INCHES (0.5 gpi) PER FLUSH C/W FLOOR MOUNTED CARRIER	DELTA 81T231-WMBST ZURN SUDAN	POLISHED CHROME PLATED VANDAL RESISTANT METAL COVER WITH BATTERY OPERATED WALLMOUNTED SENSOR, RIGHT OR LEFT-HAND SUPPLY INSTALLATION, AUTOMATIC OPERATION HAVING POWERED STOP, INFRARED SENSOR TO HAVE A RANGE ADJUSTMENT OF 303MM - 711MM (12" - 28")		
DN-1	SHOWER SUPPLY VALVE	13	13					DELTA 117TH135 MOEN 135EP17 & T8350 SYMANS S-96-1-1	CHROME PLATED BRASS SUPPLY FITTINGS WITH VOLUME CONTROL, PRESSURE BALANCING MIXING VALVE, SCREWDRIVER STOPS, CHROME PLATED BALL JOINT FULLY ADJUSTABLE SPRAY PATTERN SHOWER HEAD WITH BENT SHOWER ARM AND ESCUTCHEON, PROVIDE ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 7.6 LITRES (2.0 GPM)/MINUTE AT 550 KPA (80 PSI).		
SV-2	BARRIER FREE SHOWER SUPPLY VALVE	13	13				IF NECESSARY	DELTA 117TH335-25 MOEN 253EP17, T8350 & SYMANS S-96-1-1 C/W T-600B-36-V-72	BARRIER FREE CHROME PLATED BRASS COMBINATION SHOWER FITTING WITH VOLUME CONTROL, PRESSURE BALANCING MIXING VALVE, OPERABLE USING CLOSED TEST AND FORCE NOT MORE THAN 22.2 N, SCREWDRIVER STOPS, CHROME PLATED BALL JOINT FULLY ADJUSTABLE SPRAY PATTERN, SHOWER HEAD WITH BENT SHOWER ARM AND ESCUTCHEON, SLIDE BAR HANDHELD SHOWER WITH MINIMUM 1800mm FLEXIBLE METAL HOSE, MOUNTING BRACKET AND ESCUTCHEON, PROVIDE ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 7.6 LITRES (2.0 GPM)/MINUTE AT 550 KPA (80 PSI).		
SD-1	SHOWER DRAIN (LIGHT DUTY)	13	13	NOTED	38	WATTS FD-100-C-A	GENERAL DUTY CAST IRON BODY, ADJUSTABLE HEAD, NICKEL BRONZE STRAINER, INTEGRAL SEEPAGE PAN, AND CLAMPING COLLAR. USE SQUARE STRAINER IN TILED AREAS AND ROUND STRAINER ELSEWHERE.				
WS-1	WASHER SUPPLY VALVE					DATY WMB01	ENCASED MIXING MACHINE COMPLETE WITH SINGLE LEVER HANDLE VALVE, HEAVY-DUTY MOUNTING STRAPS, KNOCKOUTS FOR A RIGHT OR LEFT MOUNT AND A TAILPIECE THAT ADAPTS EASILY TO EITHER ABS OR PVC STANDPIPE.				
WD-1	WASHER FLOOR DRAIN		75	38		DATLEY 43563	3" PVC SNAP IN DRAIN WITH 3-1/2"Z" STAINLESS STEEL STRAINER.				
LT-1	LAUNDRY TUB FLOOR MOUNTED	13	13	38	32	FAT FL-1 ZURN M2620-F SWAN CORPORATION SF-1F	LAUNDRY TUB, SINGLE COMPARTMENT FLOOR MOUNTED, LAUNDRY TUB WITH COATED STEEL SELF-LEVELING LEGS, STAIN-RESISTING POLYPROPYLENE STRUCTURAL COMPOSITE SINK, FRONT AERATOR, WASTE PLUG WITH RUBBER STOPPER, ADJUSTABLE TAILPIECE, CAST BRASS TRAP WITH CLEANOUT, SIZES: 560 mm x 560 mm (22 1/2" x 22 1/2") WITH 78 L (20.6 gal) CAPACITY	FAT A-1 ZURN M2620-0F1 DELTA Z7C4863	DECK FAUCET, CHROME PLATED BRASS SUPPLY FITTING WITH MOUNTING BRACKET, HOSE END, SWING SPOT, INDEXED LEVER HANDLES ON 100 mm (4") CENTRES, VACUUM BREAKER, AERATOR, ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 8.35 L/min (2.2 gpm) AT 413 kPa (60 psi).		

PLUMBING FIXTURE SCHEDULE											
CONNECTION SIZES					FIXTURE		TRIM		ACCESSORIES		
TAG	TYPE	HW	CW	DRAIN	VENT	ACCEPTABLE MANUFACTURER	FIXTURE DESCRIPTION	ACCEPTABLE MANUFACTURER	TRIM DESCRIPTION	ACCEPTABLE MANUFACTURER	ACCESSORY DESCRIPTION
L-1	COUNTER MOUNTED LAV ELECTRONIC FAUCET	13	13	32	32	AMERICAN STANDARD COLONY C346-433 KOHLER PENNINGTON K-2196 ZURN Z5110	COMBINATION SHOWER AND EYE /FACE WASH SHALL INCLUDE AN ABS PLASTIC SHOWER HEAD, PLASTIC EYE /FACE WASH HEADS, STAINLESS STEEL ROUND BOWL, CHROME-PLATED BRASS STAY-OPEN BALL VALVE EQUIPPED WITH STAINLESS STEEL BALL AND STEM, AND CHROME-PLATED BRASS IN-LINE MESH WATER STRAINER. UNIT SHALL ALSO INCLUDE SCHEDULE 40 HOT-DIPPED GALVANIZED STEEL PIPE AND FITTINGS, POWER-COATED FLOOR FLANGE, MIXING VALVE IS TO PROVIDE WATER TEMPERATURE BETWEEN 15.5°C (60°) AND 38°C (100°F) & UNIVERSAL SAFETY SIGN.			HAWS TWBS.SHE BRADLEY S19-2200 GUARDING C3800	TEMPERING VALVE TO BLEND HOT AND COLD WATER TO DELIVER TEPID WATER, AS REQUIRED BY ANSI Z358.1
ES-1	EMERGENCY SHOWER / EYE WASH	25	25	-	-	HAWS 8300-8309 BRADLEY S19-310LL GUARDING C1950	COMBINATION SHOWER AND EYE /FACE WASH SHALL INCLUDE AN ABS PLASTIC SHOWER HEAD, PLASTIC EYE /FACE WASH HEADS, STAINLESS STEEL ROUND BOWL, CHROME-PLATED BRASS STAY-OPEN BALL VALVE EQUIPPED WITH STAINLESS STEEL BALL AND STEM, AND CHROME-PLATED BRASS IN-LINE MESH WATER STRAINER. UNIT SHALL ALSO INCLUDE SCHEDULE 40 HOT-DIPPED GALVANIZED STEEL PIPE AND FITTINGS, POWER-COATED FLOOR FLANGE, MIXING VALVE IS TO PROVIDE WATER TEMPERATURE BETWEEN 15.5°C (60°) AND 38°C (100°F) & UNIVERSAL SAFETY SIGN.			HAWS TWBS.SHE BRADLEY S19-2200 GUARDING C3800	TEMPERING VALVE TO BLEND HOT AND COLD WATER TO DELIVER TEPID WATER, AS REQUIRED BY ANSI Z358.1
S-1	STAINLESS STEEL SINGLE SINK	13	13	38	32	KINDRED LBS6008-1 / 3 NOVANNI 1017	SINK: SINGLE COMPARTMENT, LEDGE-BACK, FROM 1.0 MM (20 GAUGE) THICK TYPE 302 POLISHED STAINLESS STEEL, SELF - RIMMING, UNDERCOATED, CLAMPS, OVERALL SIZES: 520 MM X 510 MM X 200 MM (20 1/2" X 20" X 8")	DELTA 100 ZURN Z6300-CP8 MOEN COMMERCIAL 8701	FAUCET: CHROME PLATED BRASS, WITH SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, WASHERLESS, CONTROLS ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 8.35 L/MIN (2.2 GPM) AT 413 KPA (60 PSI)		WASTE FITTING: INTEGRAL STAINLESS STEEL BASKET STRAINER/STOPPER, TAILPIECE, CAST BRASS P-TRAP WITH CLEANOUT
DS-1	STAINLESS STEEL DOUBLE SINK	13	13	38	32	KINDRED BROOKMORE BDU1831-9	SINK: DOUBLE COMPARTMENT, LEDGE-BACK, FROM 1.3 MM (18 GAUGE) THICK STAINLESS STEEL, STAIN FINISH, UNDERCOATED, CLAMPS, OVERALL SIZES: 775 MM X 460 MM X 230 MM (30 1/2" X 18 1/8" X 9")	DELTA 100 ZURN Z6300-CP8 MOEN COMMERCIAL 8701	FAUCET: CHROME PLATED BRASS, WITH SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, WASHERLESS, CONTROLS ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 8.35 L/MIN (2.2 GPM) AT 413 KPA (60 PSI)		WASTE FITTING: INTEGRAL STAINLESS STEEL BASKET STRAINER/STOPPER, TAILPIECE, CAST BRASS P-TRAP WITH CLEANOUT
MS-1	MOP SINK	13	13	75	38	FLAT M58 2424 ZURN 1896-24 STERN WILLIAMS MTS - 2424	SINK: MOLDED HIGH DENSITY COMPOSITE BASIN WITH 80 MM (3") CHROME PLATED CAST BRASS DOME STRAINER AND GASKETED OUTLET CONNECTION, OVERALL SIZE: 600 MM X 600 MM X 250 MM HIGH (24" X 24" X 10")	FLAT 830-AA ZURN Z842M-1-0H DELTA 2879	WALL MOUNTED FAUCET: CHROME PLATED CAST BRASS WALL MOUNTED FAUCET WITH WALL BRACE, 50 MM (2") 4" THREADED OUTLET SPOUT WITH RAIL HOOK, 200 MM (8") CENTRASET LEVER HANDLES, VACUUM BREAKER, ESCUTCHEONS, UNION INLETS, AERATOR, & INTEGRAL STOP VALVES, PROVIDE ACCESSORIES TO LIMIT MAXIMUM FLOW RATE TO 8.35 L/MIN (2.2 GPM) AT 413 KPA (60 PSI).	FLAT ZURN STERN WILLIAMS DELTA	HOSE AND HOSE BRACKET: 1200 MM (48") LONG RUBBER HOSE MOP HANGER WALL GUARD: STAINLESS STEEL 600 MM (24") HIGH CONTINUOUS ON ADJACENT WALLS

PLUMBING FIXTURE SCHEDULE					
TAG	TYPE	MANUFACTURER	MODEL	LOCATION	FIXTURE DESCRIPTION
FFD-1	FUNNEL FLOOR DRAIN	ZURN	ZN-415-B	MECHANICAL ROOM	ZURN Z415 CW 2-400-S MFAB F1100-C-DD CONTOUR C2000 - F WATTS FD-100-C-DD. COMBINATION FUNNEL FLOOR DRAIN CAST IRON BODY WITH INTEGRAL SEEPAGE PAN, CLAMPING COLLAR, NICKEL-BRONZE ADJUSTABLE HEAD STRAINER WITH INTEGRAL FUNNEL, C/W TRAP PRIMER.
FD-1	FLOOR DRAIN	ZURN	Z1800-12S	BUILDING 81 WASHROOMS / KITCHEN AREA	Z1800-12S: 12" X 12" X 7" (305 X 305 X 178) DEEP, 12 GAUGE, TYPE 304 STAINLESS STEEL, SQUARE INDUSTRIAL, SANITARY FLOOR DRAIN FEATURES LOOSE SET HEAVY-DUTY SLOTTED GRATE (1/2 (13) THICK PLATE) WITH FINGER HOLES, 9/16 (14) TOP FRAME, PERFORATED REMOVABLE SEDIMENT BUCKET WITH LEFT HANDLE, PRE-POUR STABILIZING ANCHOR TABS, AND BEAD-BLASTED FINISH.
FD-2	FLOOR DRAIN	ZURN	ZN415B	BUILDING A WASHROOMS / KITCHEN AREA	ZURN ZN415B MFAB F1100-C CONTOUR C2000-RHNB WATTS FD-100-C-DD, E.G.: GENERAL DUTY CAST IRON BOY, ADJUSTABLE HEAD, NICKEL BRONZE STRAINER, INTEGRAL SEEPAGE PAN, AND CLAMPING COLLAR. USE SQUARE STRAINER IN TILED AREAS AND ROUND STRAINER ELSEWHERE. C/W TRAP PRIMER.
FD-3	FLOOR DRAIN	ZURN	Z1800-12S	FLOOR DRAIN	Z1800-12S: 12" X 12" X 7" (305 X 305 X 178) DEEP, 12 GAUGE, TYPE 304 STAINLESS STEEL, SQUARE INDUSTRIAL, SANITARY FLOOR DRAIN FEATURES LOOSE SET HEAVY-DUTY SLOTTED GRATE (1/2 (13) THICK PLATE) WITH FINGER HOLES, 9/16 (14) TOP FRAME, PERFORATED REMOVABLE SEDIMENT BUCKET WITH LEFT HANDLE, PRE-POUR STABILIZING ANCHOR TABS, AND BEAD-BLASTED FINISH.
FD-4	FLOOR DRAIN	ZURN	Z1800-12S	BUILDING 81 WASHROOMS / KITCHEN AREA	Z1800-12S: 12" X 12" X 7" (305 X 305 X 178) DEEP, 12 GAUGE, TYPE 304 STAINLESS STEEL, SQUARE INDUSTRIAL, SANITARY FLOOR DRAIN FEATURES LOOSE SET HEAVY-DUTY SLOTTED GRATE (1/2 (13) THICK PLATE) WITH FINGER HOLES, 9/16 (14) TOP FRAME, PERFORATED REMOVABLE SEDIMENT BUCKET WITH LEFT HANDLE, PRE-POUR STABILIZING ANCHOR TABS, AND BEAD-BLASTED FINISH.

HOT WATER TANK SCHEDULE													
TAG	LOCATION	MANUFACTURER & MODEL	QTY.	STORAGE CAPACITY (LITERS)	INPUT MAX.	VOLTAGE	DIAMETER (INCH)	HEIGHT (INCH)	DIAMETER (INCH)	PLUMBING CONNECTIONS	SHIP WEIGHT (LB)	REMARKS	
HWT-1	AS SHOWN	GIANT 172BPS-2F7M	7	279	3,800 W	208 V	24	59 7 / 8	24	3 / 4" NPT	185	-	

PUMP SCHEDULE											
TAG	SERVICE	LOCATION	QTY	MANUFACTURER	MODEL	FLUID TYPE	CAPACITY	HEAD	POWER	VFD	VOLTAGE
P-REC-1	DHW REC	MECHANICAL ROOM	2	GRUNDFOS	MAGNA3 40-80F	DOMESTIC HOT WATER	25 GPM	20 FT	0.26 HP	Y	115V
											C/W VFD FOR SPEED CONTROL, SUITABLE FOR DOMESTIC WATER.

PLUMBING FIXTURES SCHEDULE											
TAG	TYPE	MANUFACTURER	QTY	LOCATION	LENGTH	DRAIN	VENT	LENGTH			
								FIXTURE DESCRIPTION			
TD-1	GARAGE CATCH BASIN	GARAGE CATCH BASIN	4	APPARATUS BAYS 160	25375	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		
TD-2	GARAGE CATCH BASIN	GARAGE CATCH BASIN	1	VEHICLE DECON 176	12979	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		
TD-3	GARAGE CATCH BASIN	GARAGE CATCH BASIN	1	TRUCK DISPLAY 131	7974	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		
TD-4	GARAGE CATCH BASIN	GARAGE CATCH BASIN	1	AS SHOWN	3061	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		
TD-5	GARAGE CATCH BASIN	GARAGE CATCH BASIN	1	AS SHOWN	3034	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		
TD-6	GARAGE CATCH BASIN	GARAGE CATCH BASIN	100	APPARATUS BAYS 160	2415	100	38	38	PRECAST POLYMER CONCRETE DRAIN SYSTEMS, 300 MM (12") WIDE WITH 1.0 METER SEGMENTS, 0.6 SLOPING BOTTOMS FOR POSITIVE DRAINAGE, 150 MM (6") CATCHBASIN UNIT WITH SEDIMENT BUCKET AND DRAINAGE OUTLET, C/W HEAVY DUTY GRATE WITH GRATING PLACED IN WIDE DIMENSION - ZURN Z793 - (W)		

PLUMBING FIXTURE SCHEDULE							
TAG	TYPE	MANUFACTURER	LOCATION	PIPE SIZE IN (MM)	APPROX.WT. LBS. (KG)	DOVE OPEN AREA SQ. IN. (CM²)	REMARKS
RD-1	Z100	ZURN	AS ASHOWN	8 (203)	28 (13)	103 (665)	ZURN Z100: 15" (381MM) DIAMETER ROOF DRAIN, DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND LOW SILHOUETTE POLY-DOME.
RD-2	Z101	ZURN	BUILDING 2 ROOF	12 (305)	79 (36)	216 (1394)	ZURN Z101: 20" (508MM) DIAMETER ROOF DRAIN, DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND LOW SILHOUETTE DOME.

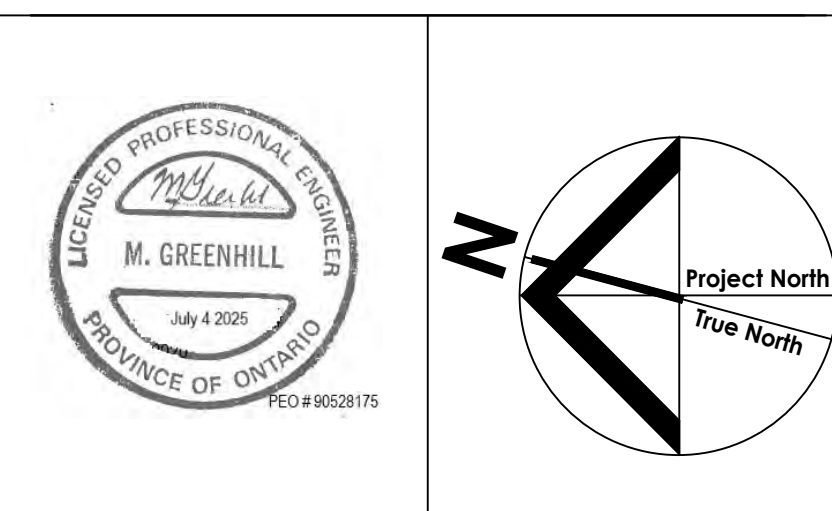
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Drawing Title

PLUMBING SCHEDULES

Project

TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

N.T.S

Scale

Issued by

MG

File No.

2341A-23

Plot Date

2024-05-10

NOTE: FOR ALL HANGING EQUIPMENT INSIDE BUILDING TO BE SEISMICALLY BRACED - WITHIN CEILING SPACE OR HANGING FROM JOISTS.

M-003

MAKEUP AIR UNIT SCHEDULE																					
SYMBOL	MODEL	COOLING: 3 STAGE DX COOLING			HEATING: 15:1 HIGH TURNDOWN				SUPPLY FAN			RETURN FAN			SUPPLY PER FILTER	ELECTRICITY			MISCELLANEOUS		REMARKS
		TOTAL CAPACITY / SENSIBLE MBH	EDB / EWB °F	WATER REMOVAL LBS / HR	GAS FURNACE MBH IN / OUTPUT	TEMP. RISE °F	EFFICIENCY %	GAS PRESSURE IN W.C	AIR FLOW CFM	ESP / TSP °WC	VAV	AIR FLOW CFM	ESP / TSP °WC	VAV	TYPE	V/PHZ	MOCp	AMPS (MCA)	APPROX. WEIGHT (LBS)	16 " CURB WEIGHT (LBS)	
MUA - 1	FWE63/DJ540/OHRP/MV	83 / 47	81.4 / 70.4	31.7	275 / 223	76	81	7	2700	1 / 3.76	Y	2900	1 / 2.49	Y	MERV 8	208 / 3 / 60	70	62.1	7600	500	ALL DATA TO BE CONFIRMED AT TIME OF SHOP DRAWINGS. UNIT CONSTRUCTED FROM 18 GA PAINTED SATIN COAT GALVANIZED CASING CW 1" 1.5 LB INSULATION AND SOLID LINER THROUGHOUT AIR TUNNEL. UNIT TO INCLUDE PARALLEL BLADE DAMPERS FOR INLET AND EXHAUST.
MUA - 2	FWE63/DJ540/OHRP/MV	88 / 53	81.4 / 70.5	31.2	300 / 243	75	81	7	3000	1 / 3.83	Y	3200	1 / 2.55	Y	MERV 8	208 / 3 / 60	70	62.1	7600	500	ALL DATA TO BE CONFIRMED AT TIME OF SHOP DRAWINGS. UNIT CONSTRUCTED FROM 18 GA PAINTED SATIN COAT GALVANIZED CASING CW 1" 1.5 LB INSULATION AND SOLID LINER THROUGHOUT AIR TUNNEL. UNIT TO INCLUDE PARALLEL BLADE DAMPERS FOR INLET AND EXHAUST.

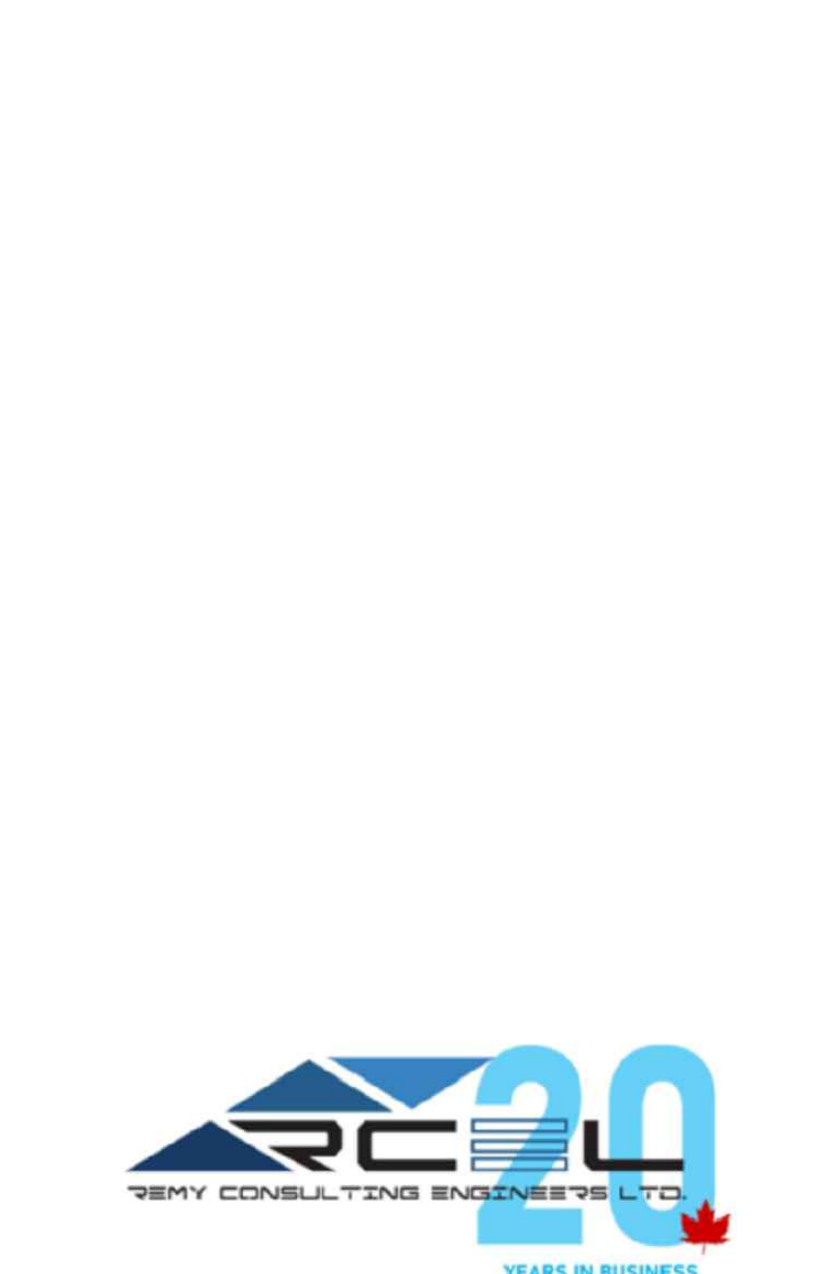
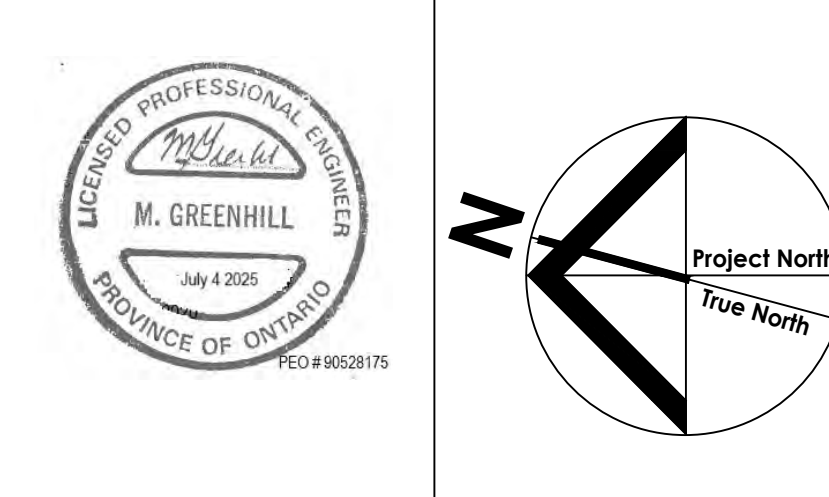
MAKE UP AIR SCHEDULE																					
TAG	LOCATION	MANUFACTURER	QTY.	UNIT MODEL #	BLOWER	HOUSING	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCp	WEIGHT (LBS)	REMARKS		
MUA-3	AS SHOWN	AQUAMATIC	1	HE20/O	15MF-1-MOD	A1-D-500	1900	0.5	1247	ODP, PREMIUM	1.5	0.87	3	208	4.4	7.6A	15A	1000	THIS MUA IS DEDICATED TO THE KITCHEN EXHAUST. MUA SHALL BE INTERLOCKED WITH EF-3.		

AIR COOLED CONDENSER SCHEDULE																				
SYMBOL	QUANTITY	SERVICE	LOCATION	MANUFACTURER	MODEL	FLUID TYPE	COOLING DATA			HEATING DATA			PIPING		ELECTRICAL			WEIGHT (lbs)	REMARKS	
							NOMINAL CAPACITY (BTUH)	EAT °F DB	POWER INPUT KW	NOMINAL CAPACITY (BTUH)	EAT °F WB	POWER INPUT KW								
													REFRIGERANT TYPE	LIQUID	MOP (AMP)	MCA (AMP)	POWER SUPPLY (V/HZ/PH)			
CU-1	1	HEATING AND COOLING	ROOF	LG	ARUM192CTE5	R-410A	192,000	5 - 122	13.61	216,000	14 - 61	15.46	R410A	5/8 BRAZE	50.5	35.7	575 / 60 / 3	675	APPROVED EQUIVALENT (LG, MITSUBUSHI, HITCHI)	
CU-2	1	HEATING AND COOLING	ROOF	LG	ARUM168CTE5	R-410A	168,000	5 - 122	12.23	189,000	14 - 61	13.98	R410A	5/8 BRAZE	39.9	28.5	575 / 60 / 3	655	APPROVED EQUIVALENT (LG, MITSUBUSHI, HITCHI)	
CU-3	1	HEATING AND COOLING	ROOF	LG	ARUM072CTE5	R-410A	72,000	5 - 122	4.28	81,000	14 - 61	5.39	R410A	5/8 BRAZE	22.6	14.8	575 / 60 / 3	527	APPROVED EQUIVALENT (LG, MITSUBUSHI, HITCHI)	
CU-4	1	HEATING AND COOLING	ROOF	LG	ARUN038GSS4	R-410A	38,000	23-122	2.77	43,000	- 4 - 61	3.22	R410A	5/8 BRAZE	40	25	230 / 60 / 1	218	APPROVED EQUIVALENT (LG, MITSUBUSHI, HITCHI)	
CU-5	1	HEATING AND COOLING	ROOF	LG	LS090HXV2	R-410A	10,330	14-118	-	12,520	14 - 65	-	R410A	-	25	15	115 / 60 / 1	22	APPROVED EQUIVALENT (LG, MITSUBUSHI, HITCHI)	


FAN COIL SCHEDULE																			
SYMBOL	LOCATION	MODEL & ZONE	QTY.	MANUFACTURE	TOTAL HEATING CAPACITY (BTU/HR)	HEATING CAPACITY (BTU/HR)	REFRIGERANT PIPING			FAN			ELECTRICTY				WEIGHT (LBS)		REMARKS
							REFRIGERANT TYPE	LINE LIQUID	CONDENSATE PUMP DRAIN	AIR FLOW RANGE (CFM)	MM ESP (IN WG)	MAX ESP (IN WG)	RATED AMP (A)	MAX POWER INPUT (W)	L/MH POWER INPUT	POWER SUPPLY (V/HZ/PH)	UNIT WEIGHT		
FCU - A - 7	BUILDING - A AS SHOWN	ARNU073M2A4 #ZONE 7	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - A - 8	BUILDING - A AS SHOWN	ARNU073M2A4 #ZONE 8	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - A - 10	BUILDING - A AS SHOWN	ARNU093M2A4 #ZONE 10	1	LG	9,600	10,900	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - A - 11	BUILDING - A AS SHOWN	ARNU123M2A4 #ZONE 11	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - A - 12	BUILDING - A AS SHOWN	ARNU183M2A4 #ZONE 12	1	LG	19,100	21,500	R410A	3/8	1 PLAIN	520	0.16	0.71	2.3	430	34/43/67	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - A - 13	BUILDING - A AS SHOWN	ARNU093M2A4 #ZONE 13	1	LG	9,600	10,900	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
CA-1	BUILDING A AS SHOWN	CEILING CASSETTE	1	LG	18,000	19,000	R410A		1 PLAIN	500	0.4	0.71	2.3	430	21/28/38	208-230/60/1	82.9	COMPLETE WITH 2- WAY VALVE THAT IS CONNECTED TO THE CENTRAL CONTROLLER	
FCU - B1 - 4	BUILDING - B1 AS SHOWN	ARNU123M2A4 #ZONE 4	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 5	BUILDING - B1 AS SHOWN	ARNU283M2A4 #ZONE 5	1	LG	28,000	31,500	R410A	3/8	1 PLAIN	1060	0.16	0.79	2.3	650	60/83/109	208-230/60/1	96.1	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 6	BUILDING - B1 AS SHOWN	ARNU123M2A4 #ZONE 6	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 7	BUILDING - B1 AS SHOWN	ARNU483B8A4 #ZONE 7	1	LG	48,100	54,200	R410A	3/8	1 PLAIN	1518	0.35	0.98	5.2	800	482/500/538	208-230/60/1	192	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 8	BUILDING - B1 AS SHOWN	ARNU123M2A4 #ZONE 8	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 9	BUILDING - B1 AS SHOWN	ARNU123M2A4 #ZONE 9	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 10	BUILDING - B1 AS SHOWN	ARNU243M2A4 #ZONE 10	1	LG	24,200	27,300	R410A	3/8	1 PLAIN	520	0.16	0.71	2.3	430	34/43/67	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 11	BUILDING - B1 AS SHOWN	ARNU073M2A4 #ZONE 11	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 12	BUILDING - B1 AS SHOWN	ARNU073M2A4 #ZONE 12	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 13	BUILDING - B1 AS SHOWN	ARNU073M2A4 #ZONE 13	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B1 - 14	BUILDING - B1 AS SHOWN	ARNU093M2A4 #ZONE 14	1	LG	9,600	10,900	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B3 - 1	BUILDING - B3 AS SHOWN	ARNU363B8A4 #ZONE 1	1	LG	36,200	40,600	R410A	3/8	1 PLAIN	1317	0.35	0.98	5.2	800	403/420/478	208-230/60/1	192	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B3 - 2	BUILDING - B3 AS SHOWN	ARNU123M2A4 #ZONE 2	1	LG	12,300	13,600	R410A	3/8	1 PLAIN	453	0.16	0.71	2.3	430	25/34/43	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	
FCU - B3 - 3	BUILDING - B3 AS SHOWN	ARNU073M2A4 #ZONE 3	1	LG	7,500	8,500	R410A	3/8	1 PLAIN	399	0.16	0.71	2.3	430	21/29/38	208-230/60/1	82.9	COMPLETE WITH 2-WAY VALVE THAT IS CONNECTED TO CENTRAL CONTROLLER	

NOTE: FOR ALL HANGING EQUIPMENT INSIDE BUILDING TO BE SEISMICALLY BRACED - WITHIN CEILING SPACE OR HANGING FROM JOISTS.

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01	ISSUED FOR PERMIT #1	07-02-2025



Development File Number
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Drawing Title

MECHANICAL SCHEDULES

Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

Scale
N.T.S

Issued by
MG

File No.
2341A-23

Plot Date
2024-05-10

HOOD SCHEDULE																	
TAG	LOCATION	MANUFACTURER	QTY.	FAN UNIT MODEL #	LENGTH	MAX COOKING TEMP.	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM						
											RISERS						
											WIDTH	LENGTH	HEIGHT	DIA	CFM	VEL	SP
HOOD	AS SHOWN	AQUAMATIC	1	4824 AM-ND-2	7' 0"	600 DEG	1	HEAVY	250	1750	13"	14"	4"	-	1750	1385	-0.305"

FAN SCHEDULE							
SYMBOL	MODEL	CFM	DIMESNIONS	ELECTRICAL		WEIGHT LBS (KG)	REMARKS
				VOLTAGE	AMPS		
DE-1, DE-2, DE-3, DE-4, DE-5, DE-6	AMB302-NDR (220V)	3000	(H) 24" X (W) 24" X (D) 66"	208 / 1 / 60	7.6 (220V)	260 (114)	AIRMATION INDUSTRIAL AIR CLEANER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. REFER TO E DRAWINGS FOR LOCATION OF CONTROL PANEL AND ASSOCIATED WIRING

SPLIT AIR CONDITIONING UNIT SCHEDULE										
SYMBOL	MODEL	MANUFACTURER	MODEL	CAPACITY		COOLING CAPACITY MBH	HEATING CAPACITY MBH	ELECTRICAL		
				TONS	CFM			VOLTAGE	MCA	FUSE
AC-1	INDOOR WALL MTD AC UNIT	mitsubishi	PKA-A12HA7	1.0	-	12.0	14.0	208 / 1 / 60	14.0	15

CONNECT TO CU-1, AS PER REFRIGERENT LINE DIAGRAM ON DRAWING M-200

TRANSFER DUCTG SCHEDULE							
SYMBOL	MODEL	MANUFACTURER	CLA-A- STANDARD RANGE (MM)	LENGTH (MM)	WORKING RANGE (M3/S)	ATTENUATION dB (A)	REMARKS
INSULATED TRANSFER DUCT	CLA-A 125-500	SWEGON	100-400	500--1000	0-2	5-25	EXTREMELY LOW INSTALLATION HEIGHT. Built FOR A LOW CO2 FOOTPRINT "EPD". Fire-resistance class E30 to E120.

HEAT RECOVERY UNIT SCHEDULE										
TAG	QUANTITY	TYPE	MANUFACTURER	MODEL	CAPACITY	ELECTRICAL				REMARKS
					SUPPLY CFM	VOLTAGE	MCA	MOCP	WEIGHT IBS	
ERV-1	4	ENERGY RECOVERY VENTILATOR	LOSSNAY MITSUBISHI ELECTRIC	LGH-F600RVX2-E	600	230V / 60HZ / 1PH	5.19	15	123	-
ERV-2	2	ENERGY RECOVERY VENTILATOR	LOSSNAY MITSUBISHI ELECTRIC	LGH-F300RVX2-E	300	230V / 60HZ / 1PH	2.05	15	75	-

BRANCH CONTROLLER SCHEDULE							
SYMBOL	ITEM	LOCATION	QTY.	MANUFACTURER	MODEL	BRANCHES	V/PH/Hz
BC-1	BRANCH CONTROLLER	AS SHOWN	4	LG	PRHR063A	6	208/1/60
BC-2	BRANCH CONTROLLER	AS SHOWN	1	LG	PRHR033A	3	208/1/60

ELECTRIC HEATERS SCHEDULE								
SYMBOL	QTY.	LOCATION	MANUFACTURE	MODEL	WATT	VOLTAGE / PH	CONTROL	REMARKS
BBH-1	4	AS SHOWN	QUELLET ELECTRIC HEATING	OCB1002	1000	120V / 1 - PH	IN BUILT THERMOSTAT	-

DIFFUSER AND GRILL SCHEDULE						
SYMBOL	MODEL	SUPPLY/RETURN/EXHAUST	CFM	SIZE	DAMPER	REMARKS
D	EH PRICE - SPD - SQUARE PLAQUE DIFFUSER	S	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	SPD DIFFUSERS ARE PRIMARILY 24" BY 24".
S	EH PRICE - SDS - LINEAR SLOT DIFFUSER	S	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	REFER TO PLAN VIEW DRAWINGS FOR SPECIFIC SIZE AND CFM FOR A PARTICULAR SLOT DIFFUSER
S2	PRICE - LINEAR BAR GRILLE - SIDE LBP	S	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	REFER TO PLAN VIEW DRAWINGS FOR SPECIFIC SIZE AND CFM FOR A PARTICULAR SLOT DIFFUSER
R1	EH PRICE - 80 SR-EGG CRATE GRILLE RETURN (NON DUCTED)	R	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	EGG CRATE RETURN GRILLES SHALL ONLY BE UTILIZED IN BACK OF HOUSE STORAGE ROOMS ETC. AS SHOWN
R2	EH PRICE - LBP SQUARE GRILLE RETURN (DUCTED)	R	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	REFER TO PLAN VIEW DRAWINGS FOR LOCATON, SIZE AND CFM FOR SQUARE RETURN GRILLE.
R3	EH PRICE - LBP LINEAR BAR GRILLE RETURN (DUCTED)	R	AS NOTED ON PLAN	AS NOTED ON PLAN	Y	LBP BAR GRILLES SHALL BE UTILIZED IN FINISHED SPACES

EXHAUST FAN SCHEDULE									
TAG	QTY.	ROOM	MANUFACTURER	MODEL	AIR FLOW (CFM)	S.P. (°WC)	V/PH/Hz	AMPS (FLA)	POWER (HP)
EF-1	-	AS SHOWN	PRICE	XB50	50	50	120/1/60	0.3	c/w Ø150 DUCT, C/W WALL BOX, GRAVITY BACK-DRAFT DAMPER AND BIRD SCREEN
EF-2	-	AS SHOWN	GREENHECK	AER-20-03-0610-VG	150	0.25	120/1/60	1.5	1/4
EF-3	-	ROOF	CAPTIVE AIR	DU10H	1500	-	115/1/60	1.1	-

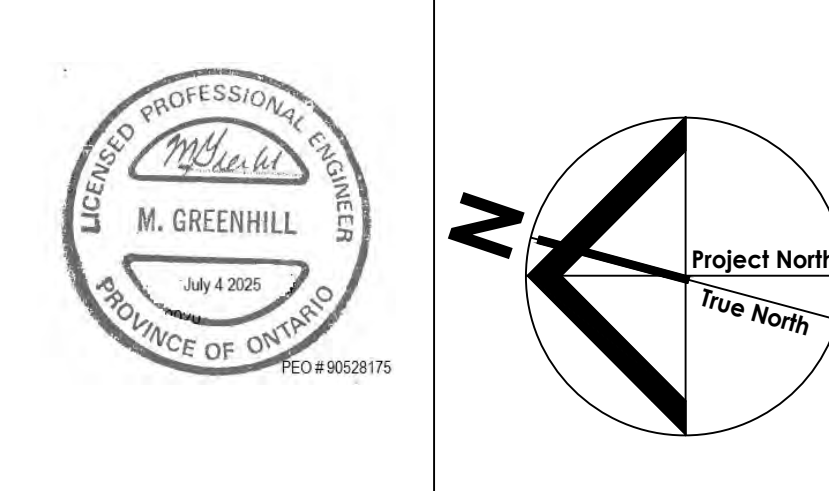
SUPPLIED AS PART OF THE COMMERCIAL KITCHEN EXHAUST. MOUNTED DIRECTLY ABOVE KITCHEN HOOD. INTERLOCK WITH MUA-3

FAN SCHEDULE							
TAG	TYPE	MANUFACTURER	CAPACITY CFM	ESP IN WC	FAN SPEED RPM	ELECTRICAL	REMARK
EF-4	WALL MOUNTED FAN	GREENHECK	5775	0.3	TBD	120/1/60	WALL MOUNTED FAN TO PROVIDE FRESH AIR AND EXHAUST FOR EQUIPMENT BAY. INTERLOCKED WITH CO DETECTOR. INTERLOCK WITH AIR INTAKE DAMPERS.
EF-5	HOSE TOWER EXHAUST FAN	GREENHECK	750	0.20	1142	120/1/60	SPUN ALUMINUM MOTOR COVER & FAN SHROUD, DOWN DISCHARGE, W/BELT DRIVE CENTRIFUGAL BACKWARD INCLINED FAN, GALV BIRD SCREEN, 24" HIGH INSULATED ROOF CURB, & BACKDRAFT DAMPER


TUBE HEATERS SCHEDULE									
SYMBOL	QTY.	LOCATION	MANUFACTURE	MODEL	BTUH INPUT RANGE BTU/HR	LENGTHS FT	FUEL	RADIANT TUBES	REMARKS
TBH-1	4	AS SHOWN	SHWANK	SST EXTREME HEATERS	150,000	80 FT	NATURAL GAS	ALUMINIZED STEEL	4 LOCATED IN THE MAIN EQUIPMENT BAY
TBH-2	1	AS SHOWN	SHWANK	SST EXTREME HEATERS	100,000	24 FT	NATURAL GAS	ALUMINIZED STEEL	1 LOCATED IN THE WASH-DOWN AREA IN BUILDING "D"

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Drawing Title

MECHANICAL SCHEDULES

Project

TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

N.T.S

Scale

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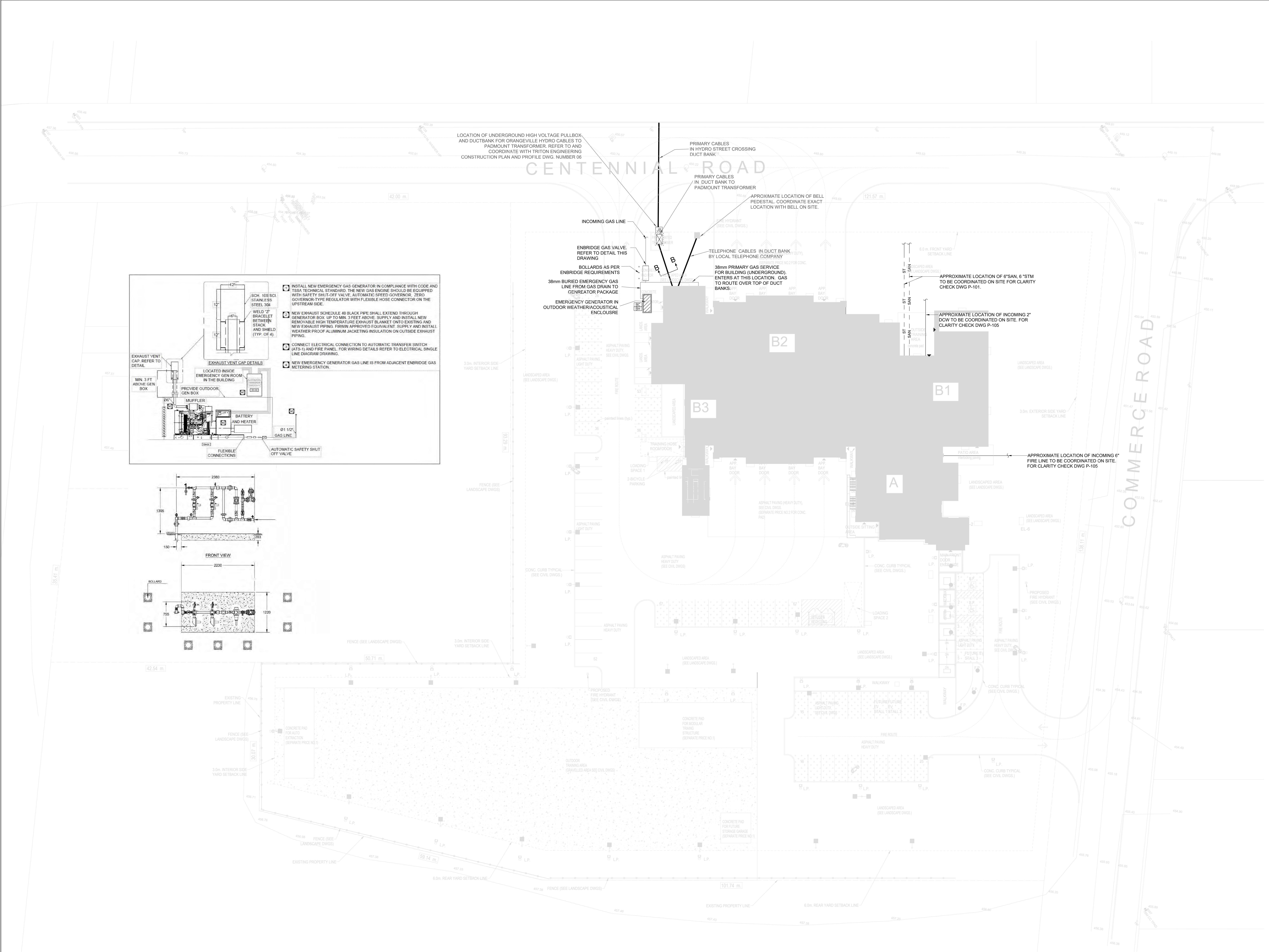
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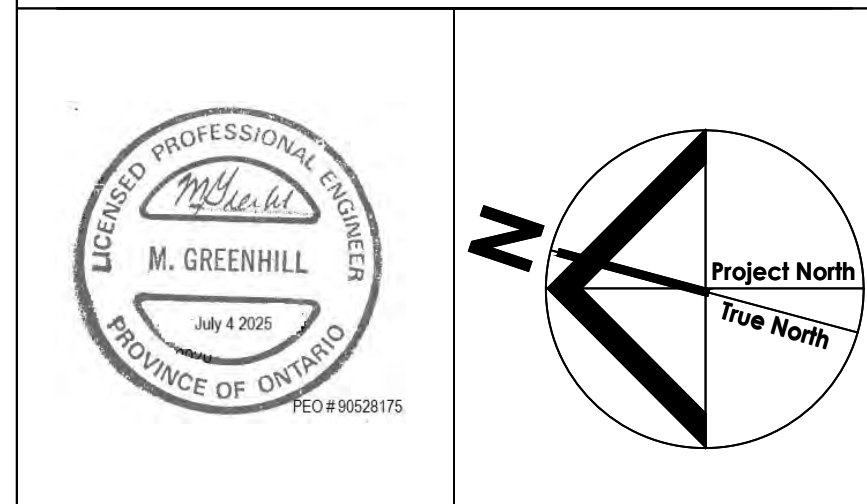
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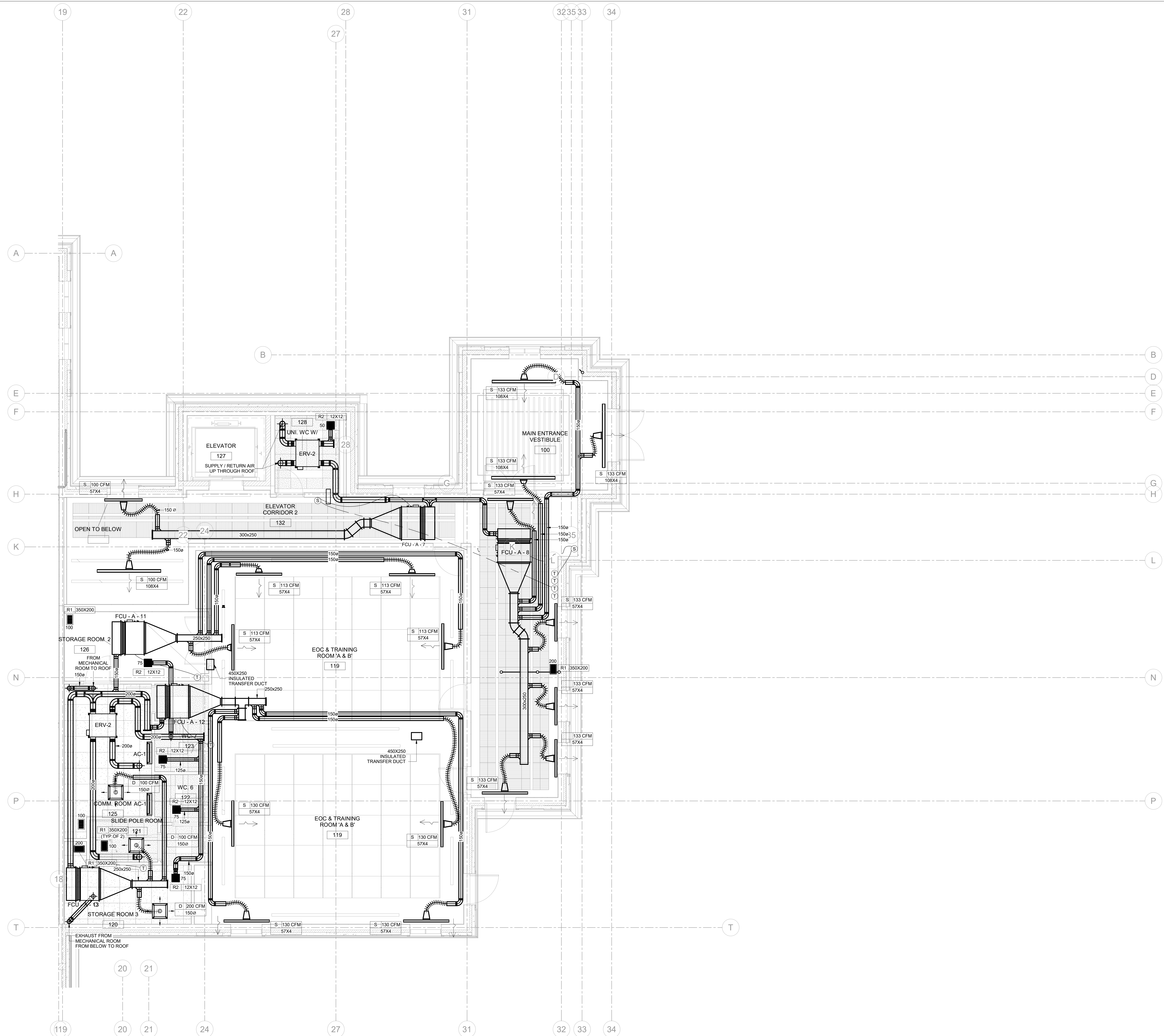
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MECHANICAL SITE PLAN

Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

Scale
1:250
Issued by
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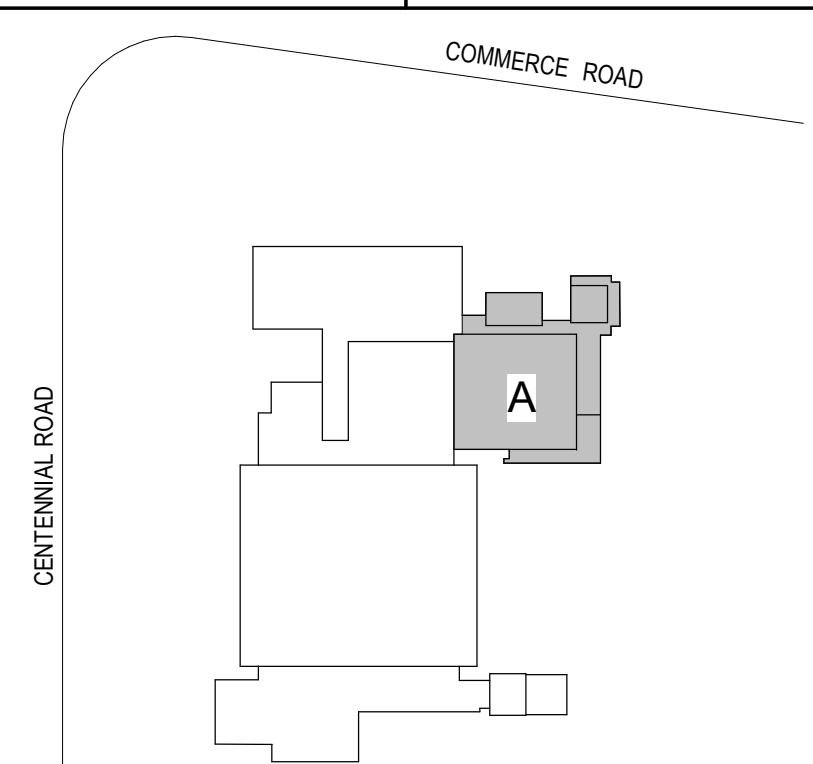
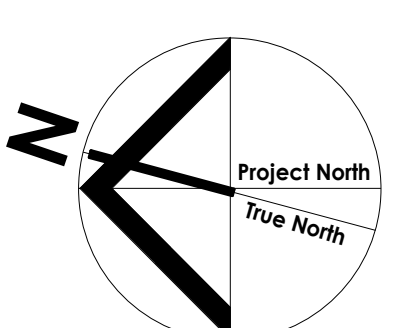


1 BUILDING A HVAC CEILING PLAN
M-101 SCALE: 1:50

DRAWING NOTES

- 1 VALUE ADJACENT TO GRILLE OR DIFFUSER REPRESENTS DESIGN FLOW IN CFM.
- 2 FOR ALL FAN COIL UNITS, ENSURE THE CONTROL BOX IS ACCESSIBLE BETWEEN THE METAL JOISTS AFTER MOUNTING.
- 3 ALL FAN COIL UNITS AND ERVS SHALL BE SEISMICALLY BRACED.

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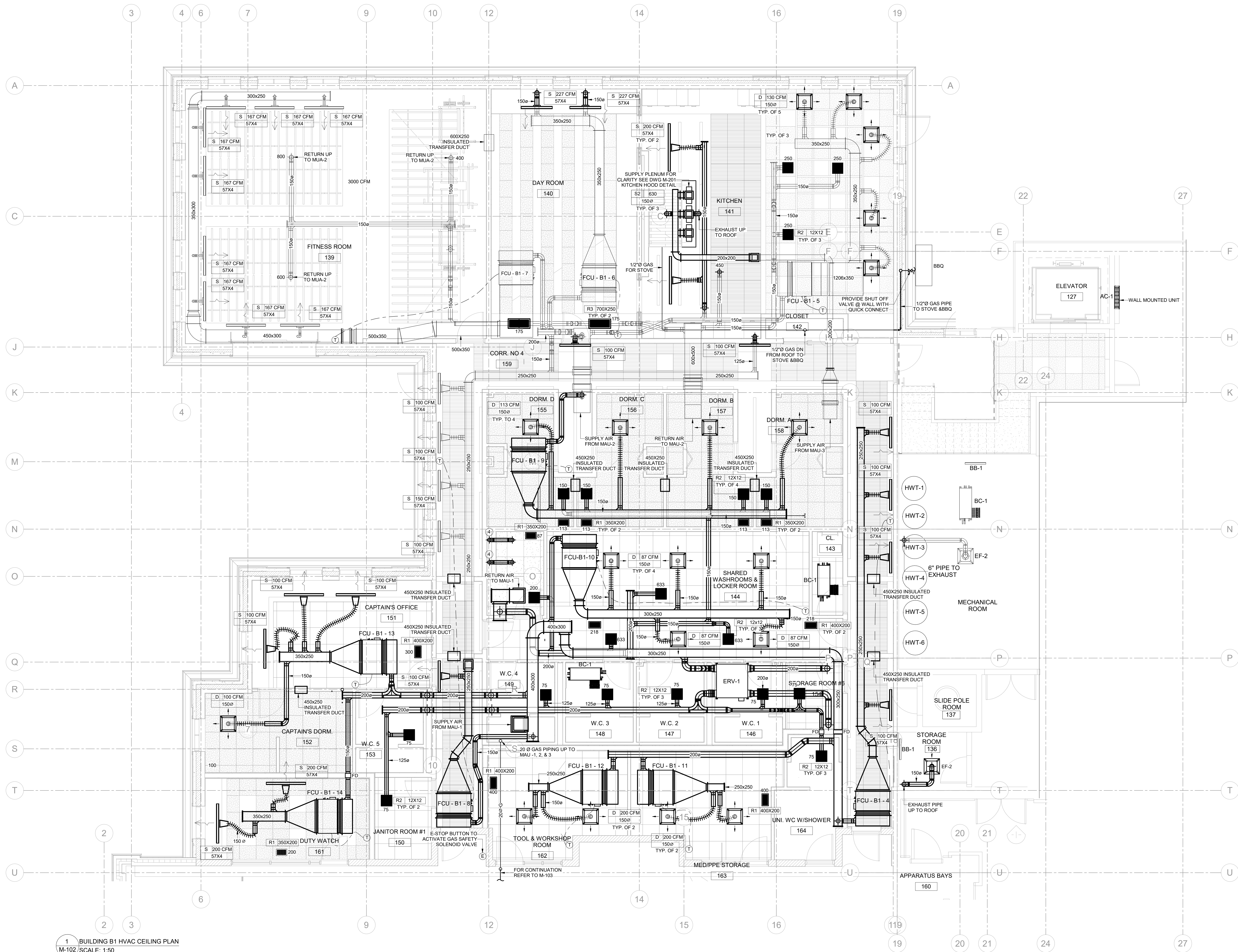
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Drawing Title
**BUILDING A - HVAC
CEILING PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

AS INDICATED Scale
Issued by
MG
File No.
2341A-23
Plot Date
2025-07-02



1 BUILDING B1 HVAC CEILING PLAN
M-102 SCALE: 1:50

DRAWING NOTES

- 1 VALUE ADJACENT TO GRILLE OR DIFFUSER REPRESENTS DESIGN FLOW IN CFM.
- 2 FOR ALL FAN COIL UNITS, ENSURE THE CONTROL BOX IS ACCESSIBLE BETWEEN THE METAL JOISTS AFTER MOUNTING.
- 3 ALL FAN COIL UNITS AND ERVS SHALL BE SEISMICALLY BRACED.
- 4 DRYER EXHAUST THROUGH ROOF.

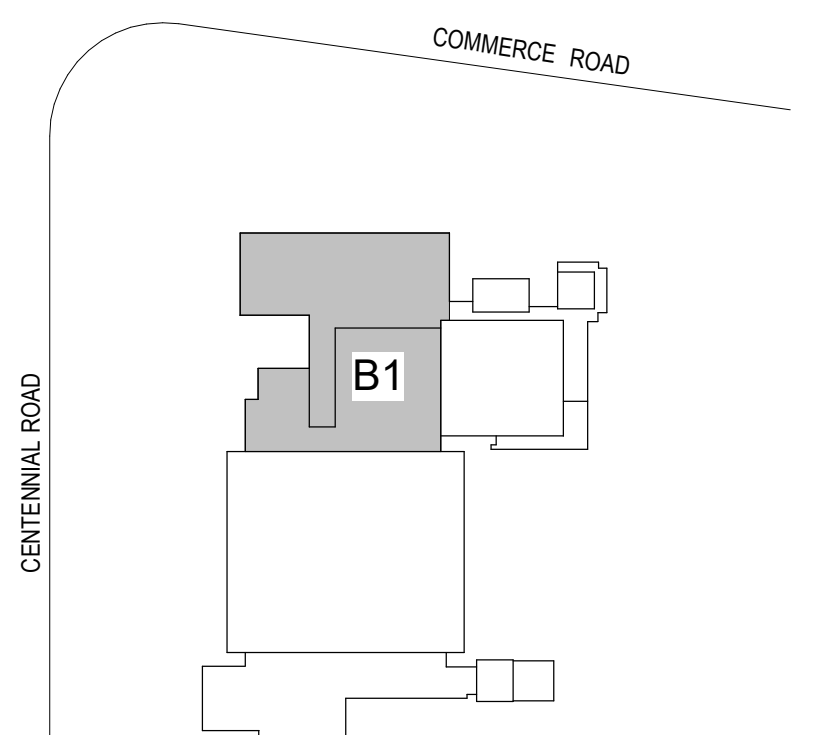
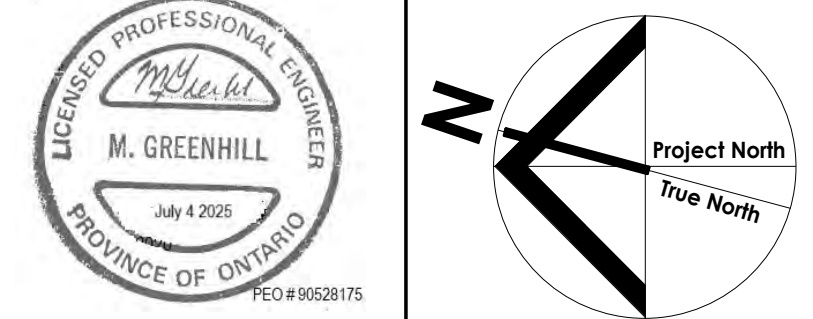
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Drawing Title
**BUILDING B1 - HVAC
CEILING PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

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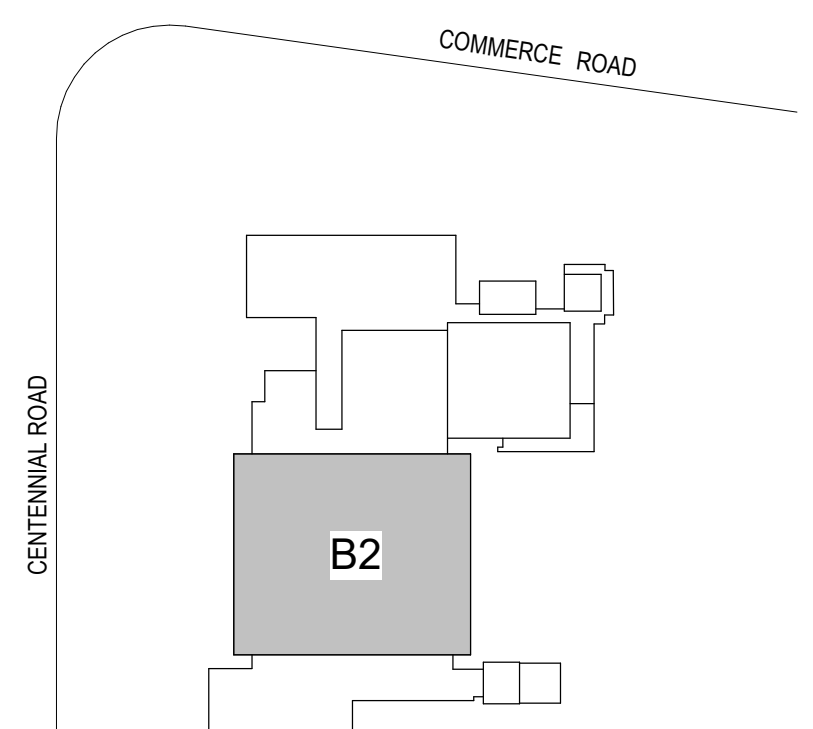
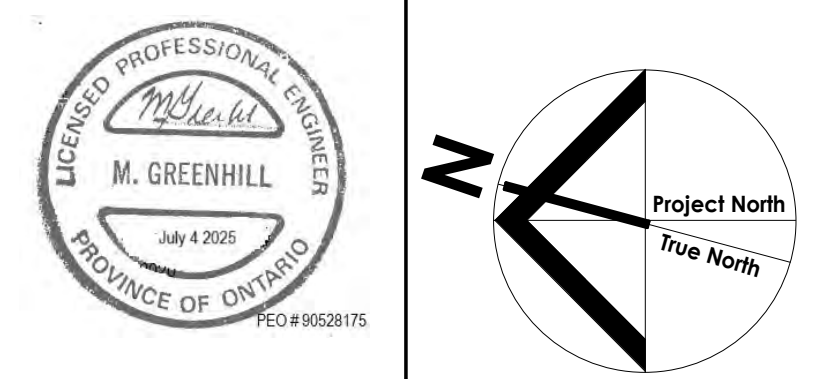
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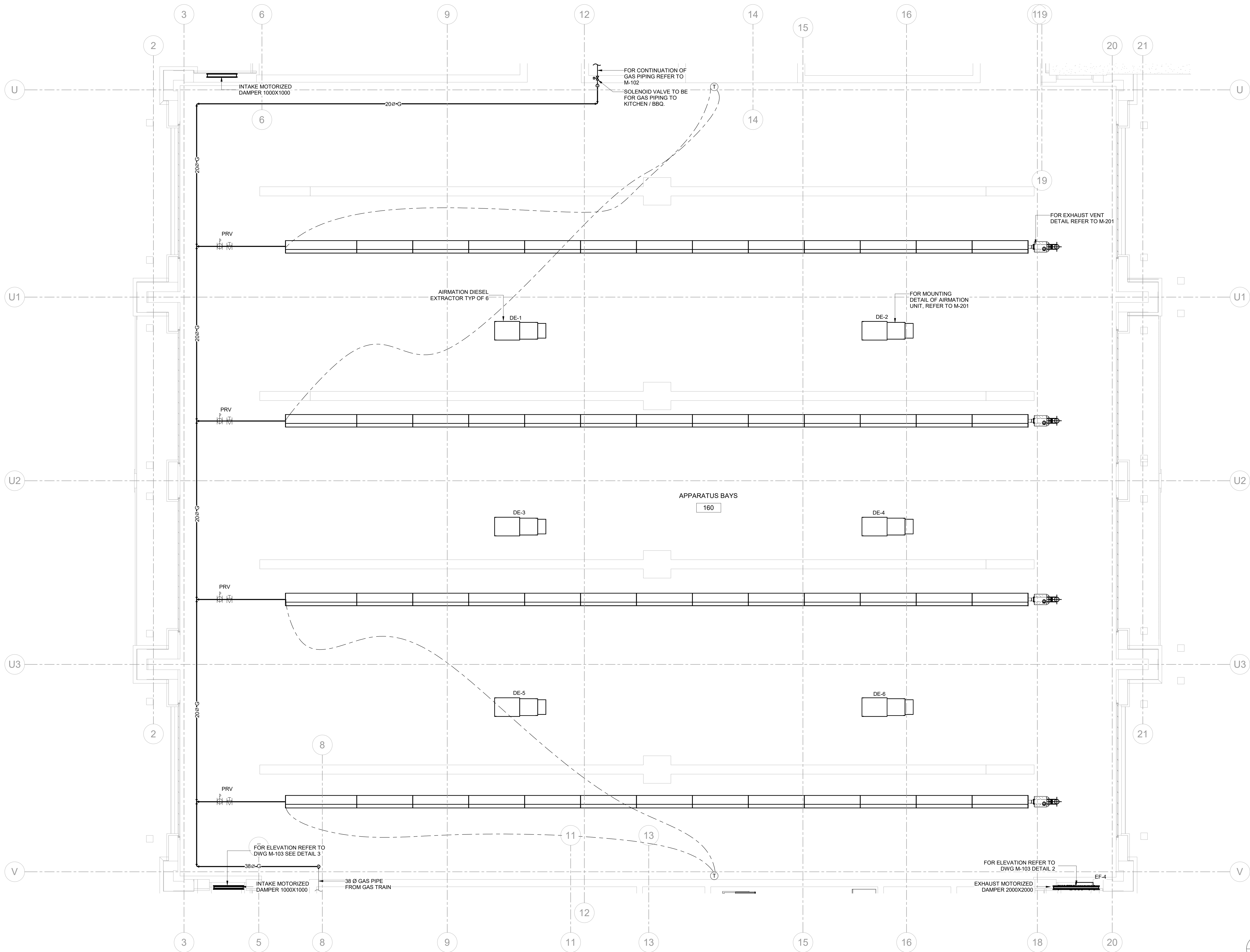
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Drawing Title
**BUILDING B2 - HVAC
CEILING PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

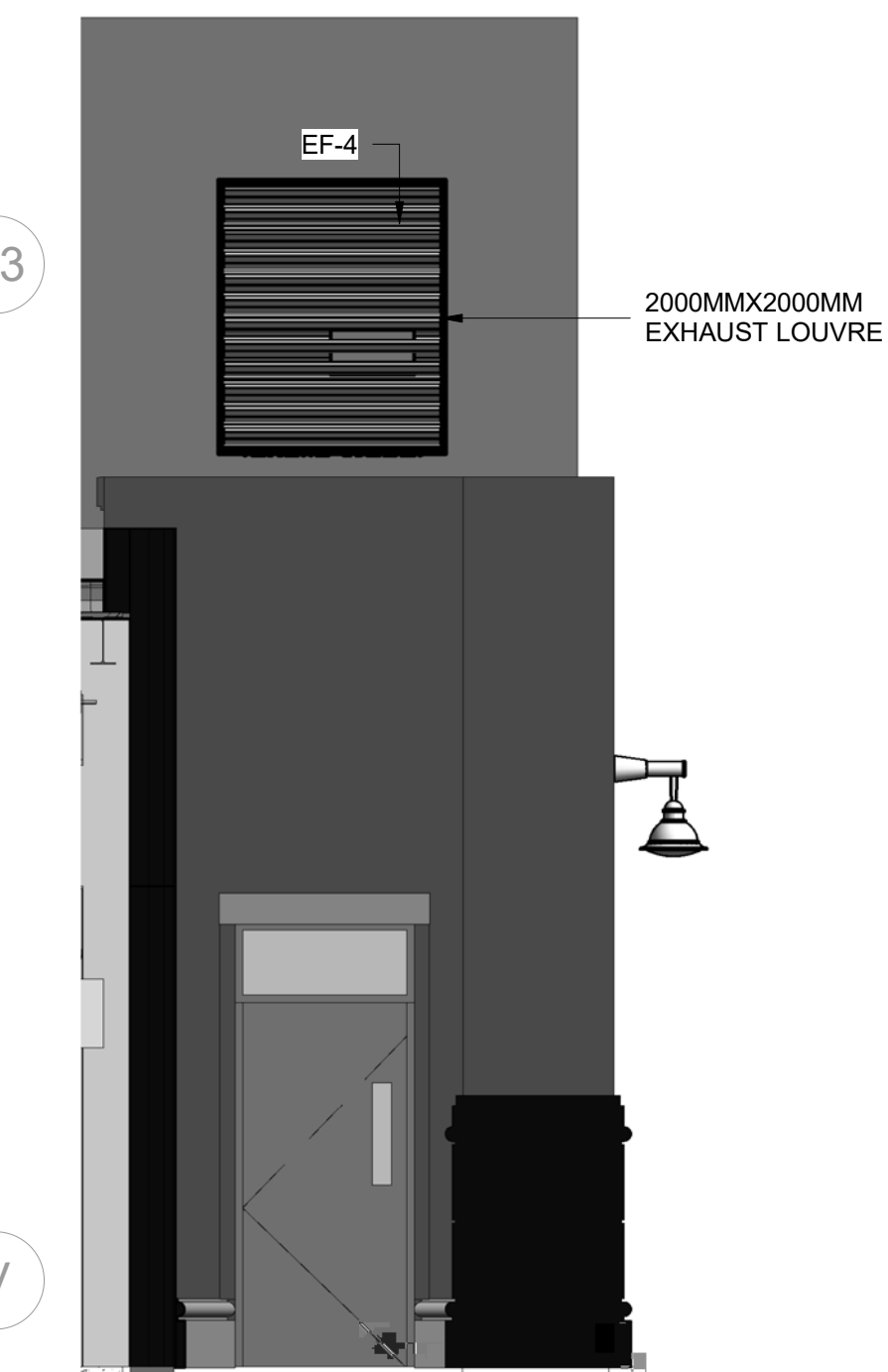
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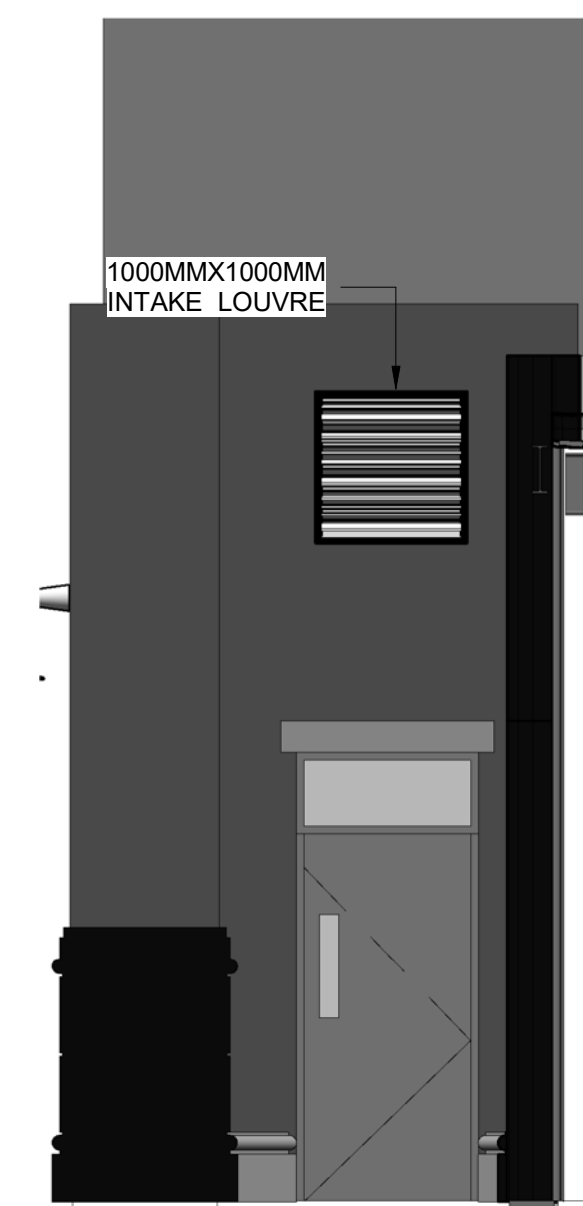
1 BUILDING B2 HVAC CEILING PLAN
M-103 / SCALE: 1:50

DRAWING NOTES

1 ALL EXTERIOR MOUNTED INTAKE LOUVRES, EXHAUST FANS AND MOTORIZED DAMPERS ARE NOT TO BE PAINTED IN COLOR.



2 EXHAUST FAN EF-4 - SECTION DETAIL
M-103 / SCALE: 1:50



3 INTAKE LOUVRE - SECTION DETAIL
M-103 / SCALE: 1:50

NOTE: SEE ARCHITECTURE DWGS. FOR EXACT LOCATION OF ALL EXTERIOR LOUVERS.

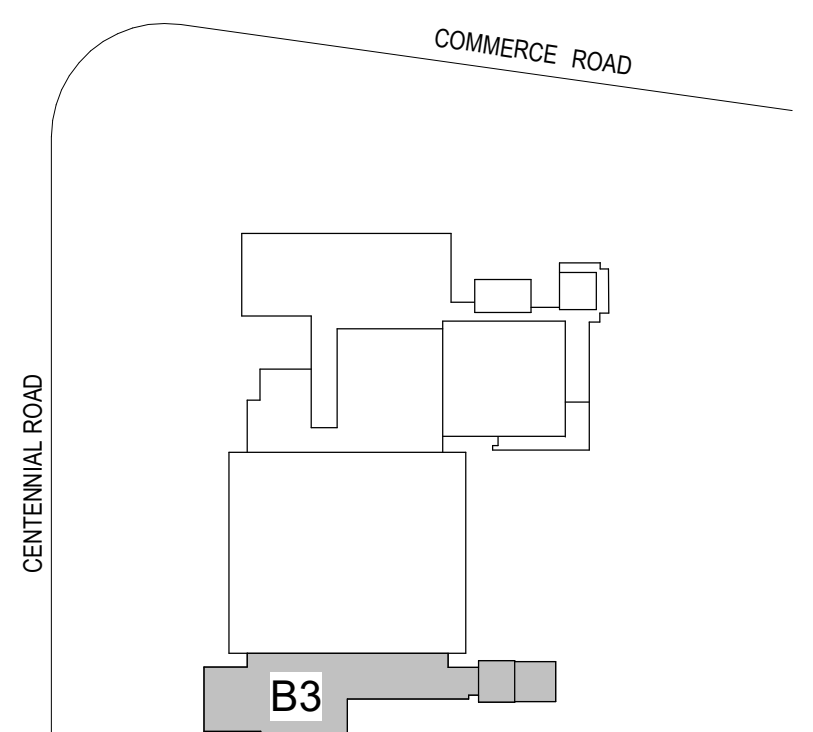
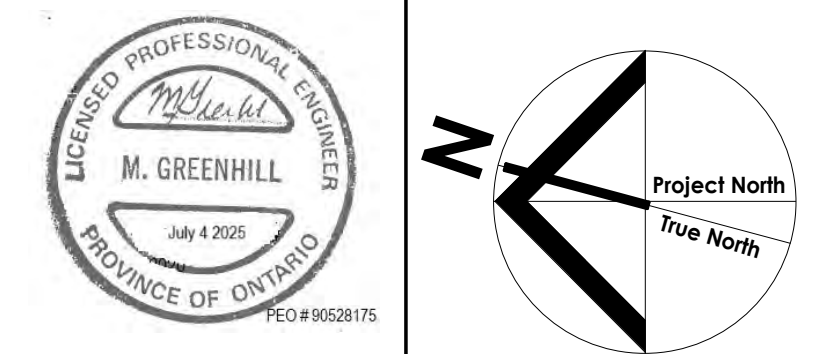
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KEYPLAN 'B3'



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Drawing Title
**BUILDING B3 - HVAC
CEILING PLAN**

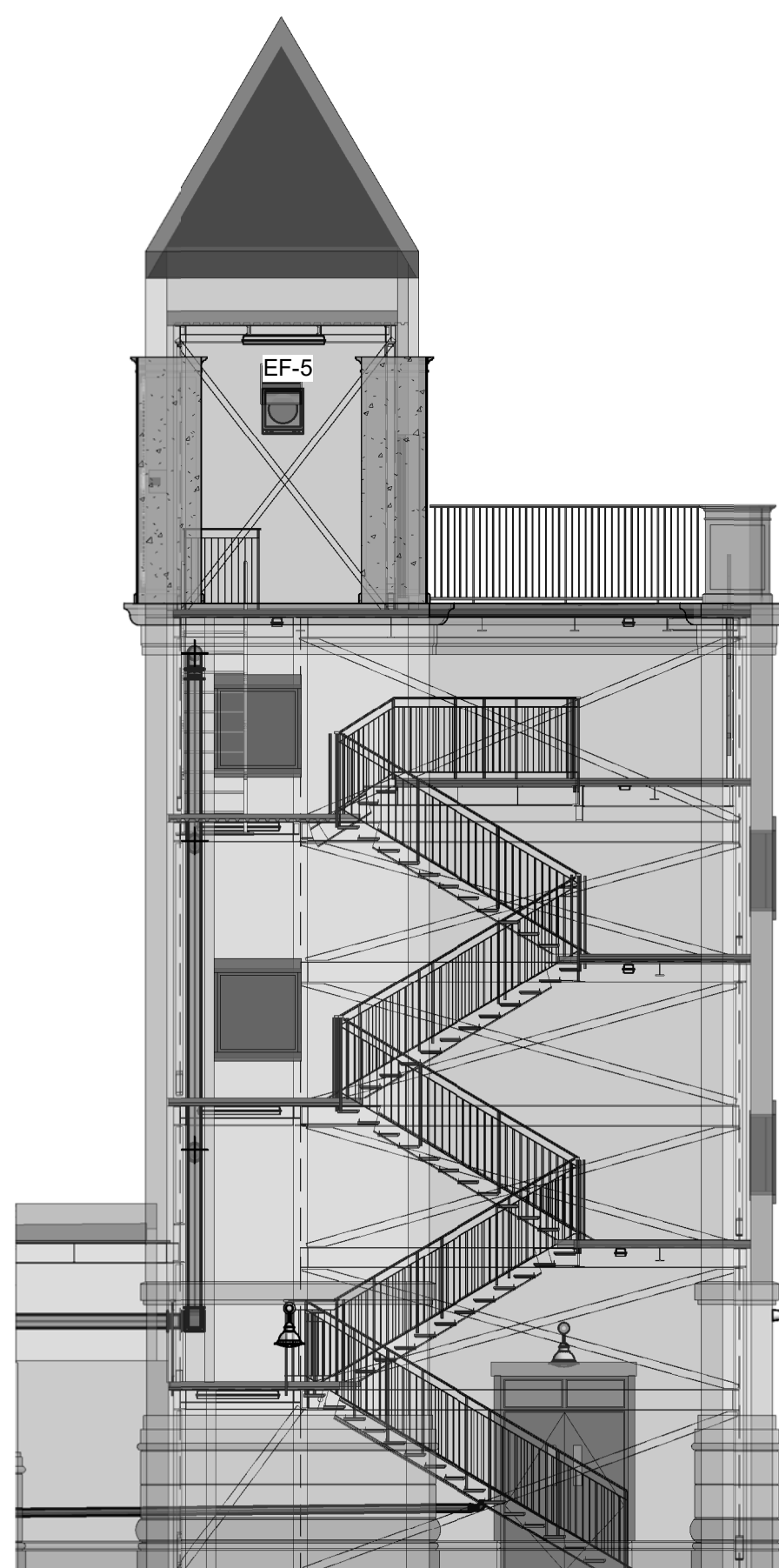
Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

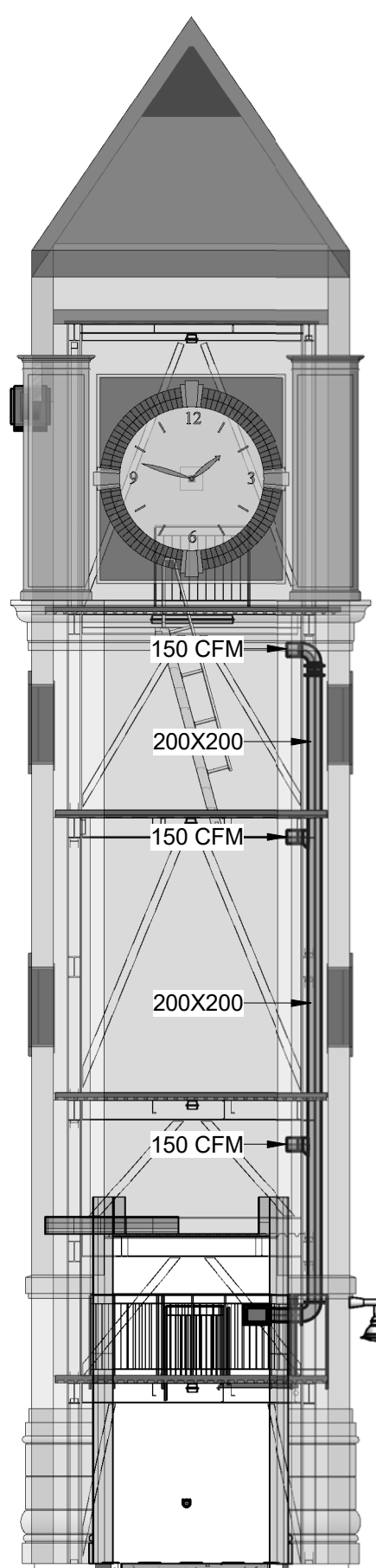
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2025-07-02 Plot Date

1 BUILDING B3 HVAC CEILING PLAN
M-104 / SCALE: 1:50

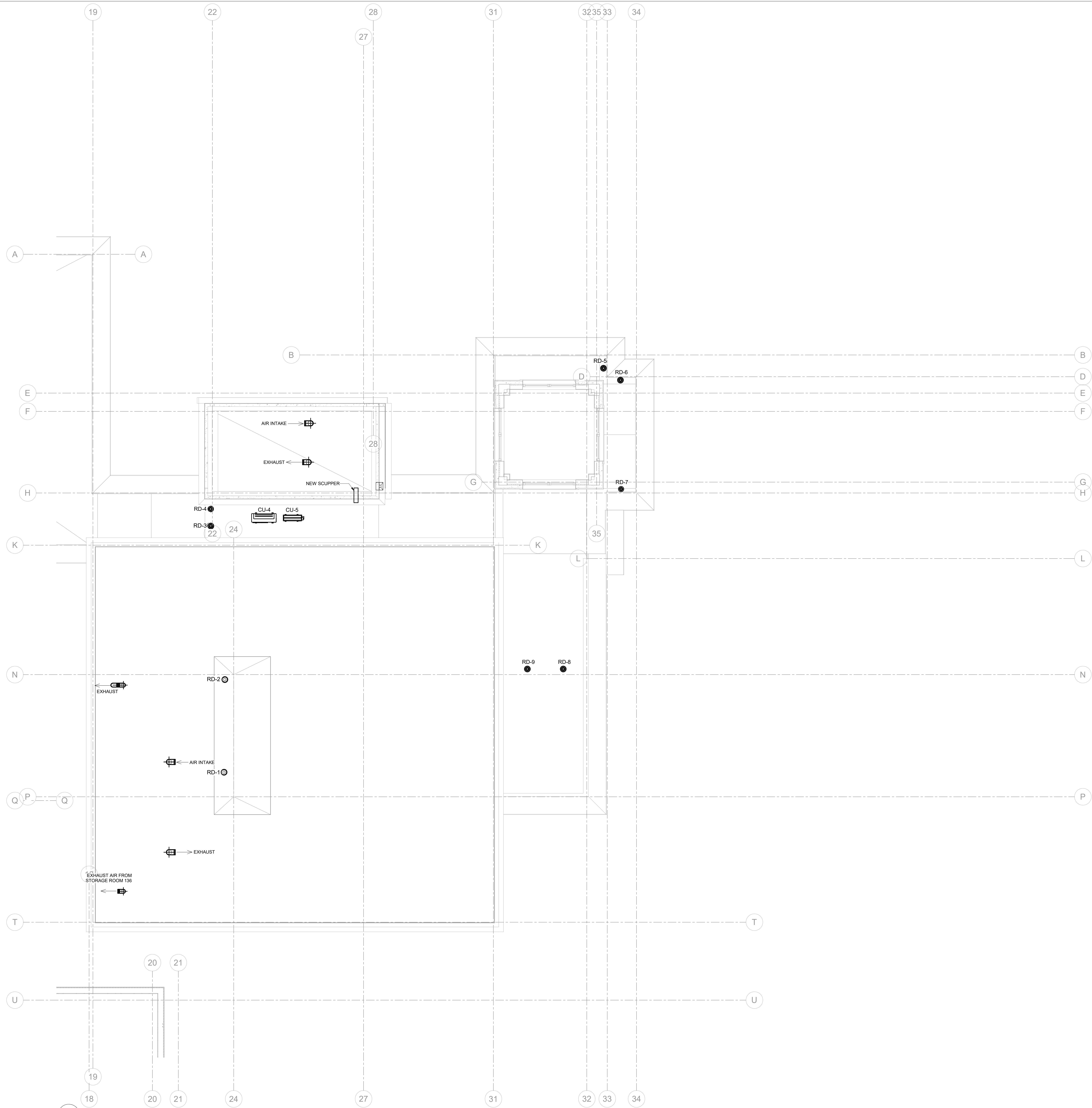
- DRAWING NOTES
- VALUE ADJACENT TO GRILLE OR DIFFUSER REPRESENTS DESIGN FLOW IN CFM.
 - FOR ALL FAN COIL UNITS, ENSURE THE CONTROL BOX IS ACCESSIBLE BETWEEN THE METAL JOISTS AFTER MOUNTING.
 - ALL FAN COIL UNITS AND ERVS SHALL BE SEISMICALLY BRACED DESIGNED & STAMPED BY P.ENG.



2 HOSE TOWER SECTION DETAIL
M-104 / SCALE: 1:100

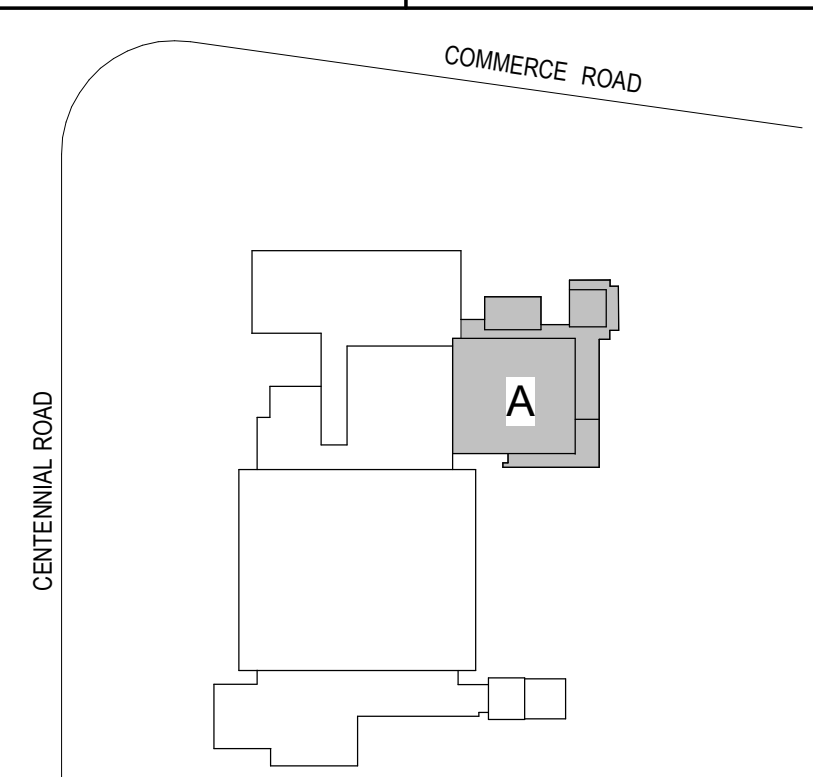
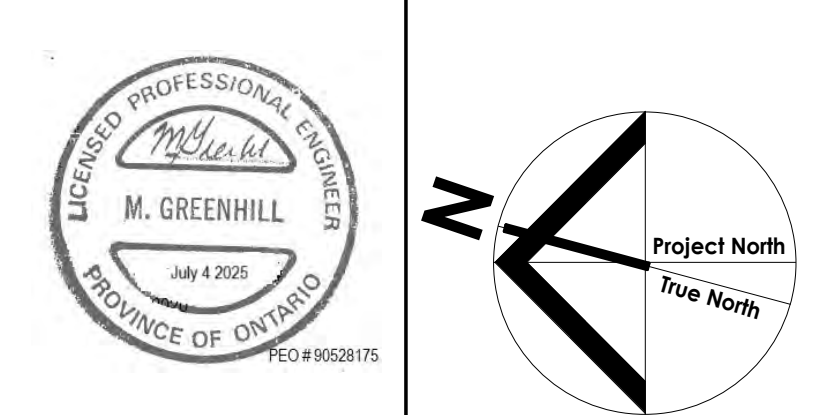


3 HOSE TOWER SECTION DETAIL
M-104 / SCALE: 1:100



1 BUILDING A HVAC ROOF PLAN
M-105 / SCALE: 1:50

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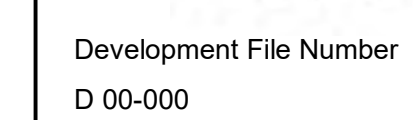
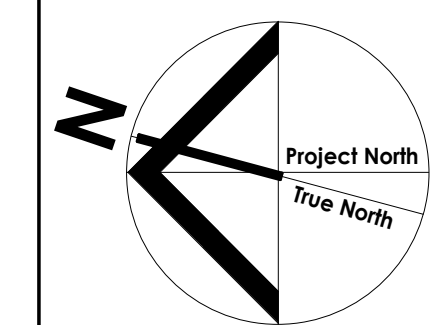
Drawing Title
**BUILDING A - MECHANICAL
ROOF PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

Scale
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File No.
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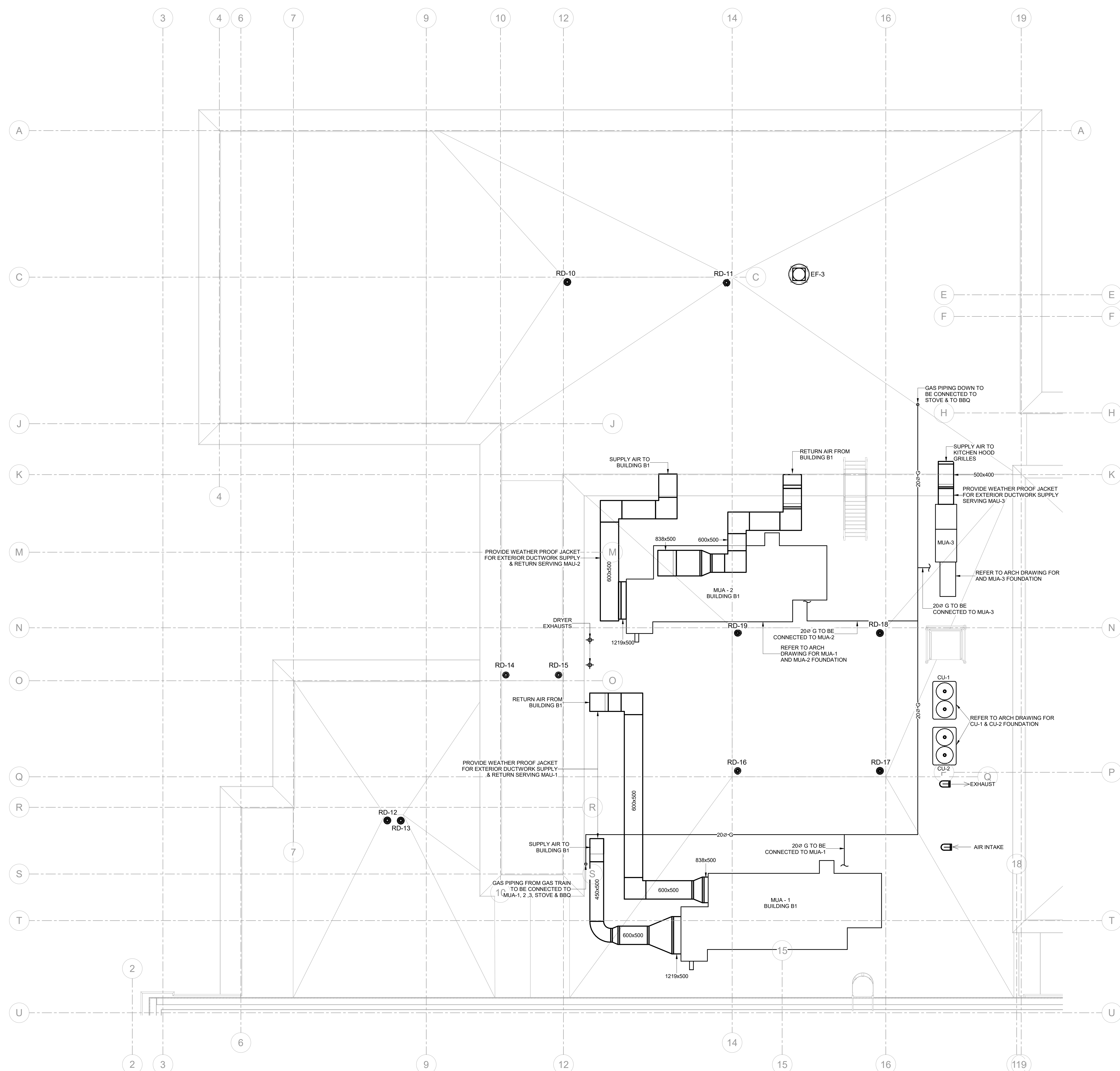
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Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

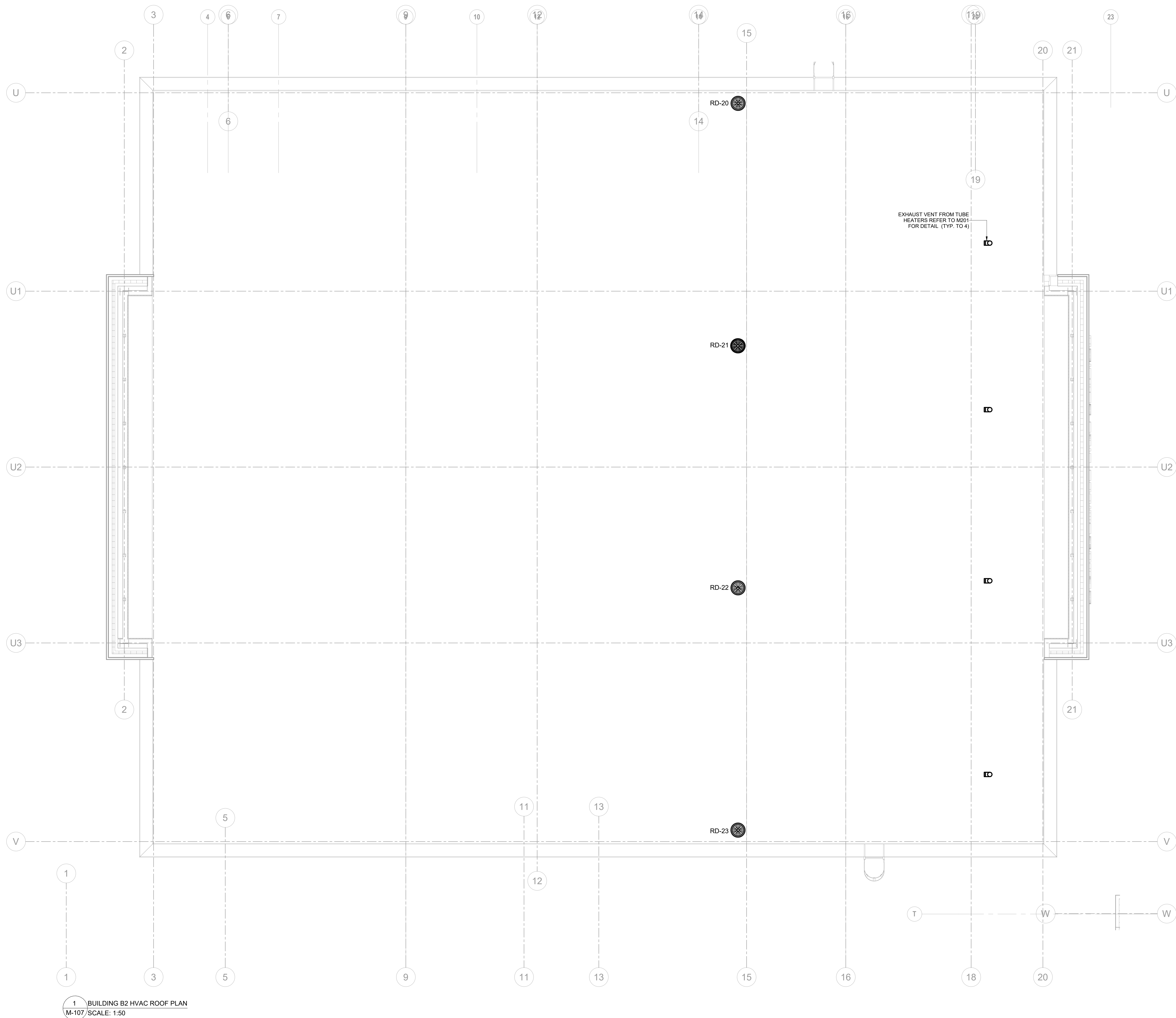
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AS INDICATED	Scale
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2025-07-02	Plot Date

M-106

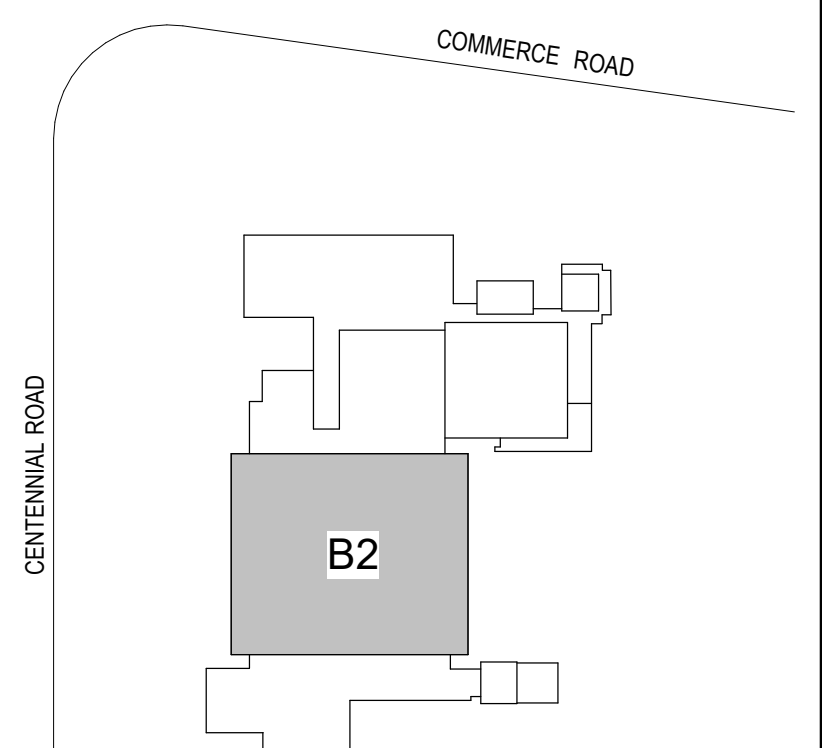
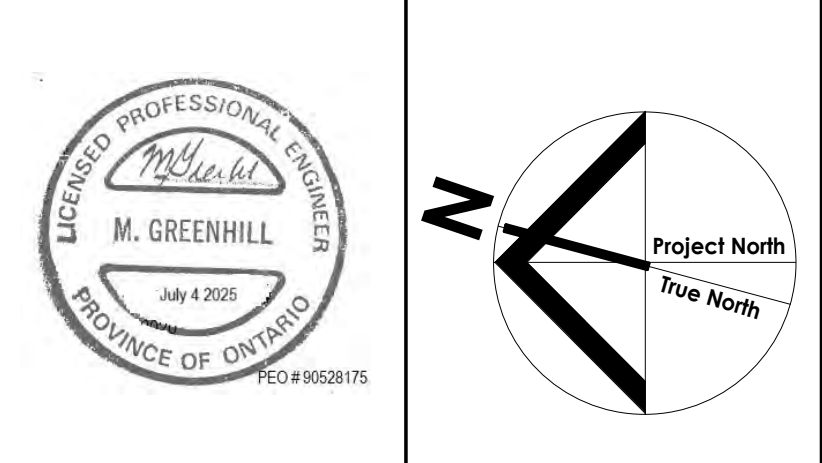


1 BUILDING B1 HVAC ROOF PLAN
M-106 SCALE: 1:50



1 BUILDING B2 HVAC ROOF PLAN
M-107 SCALE: 1:50

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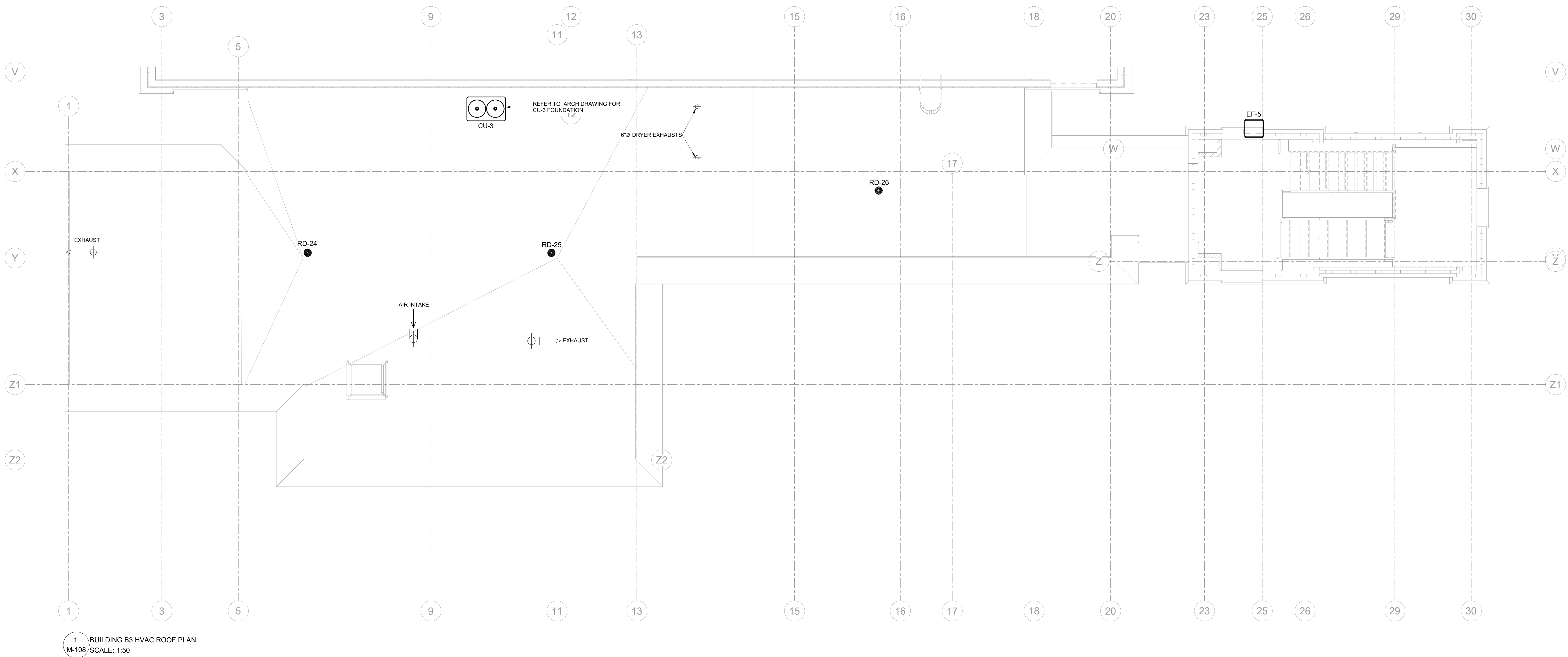
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Drawing Title
**BUILDING B2 -
MECHANICAL ROOF PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

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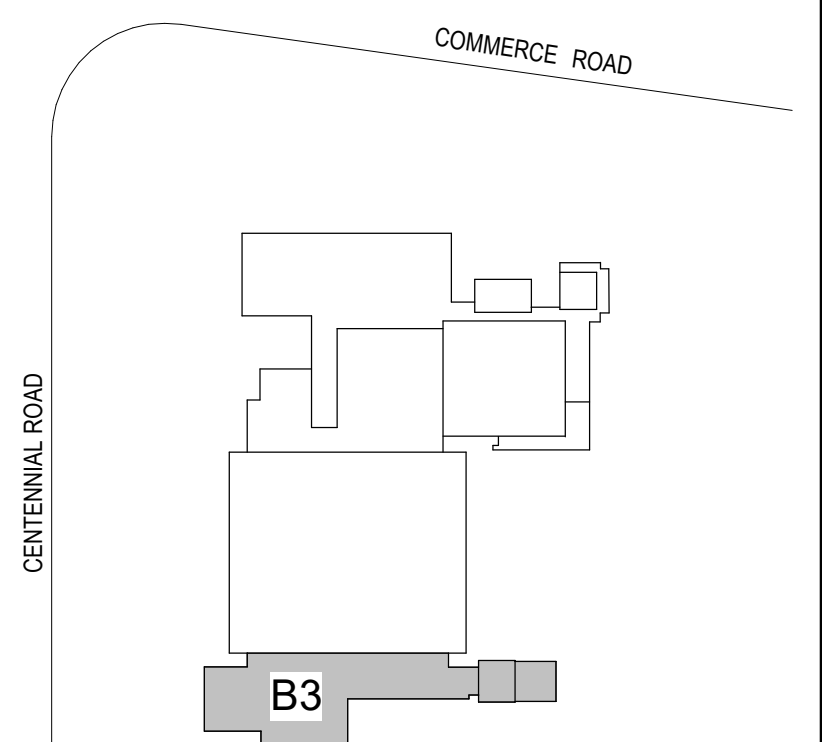
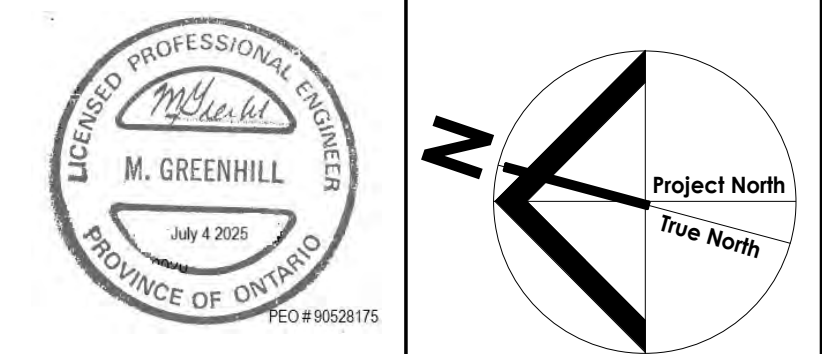
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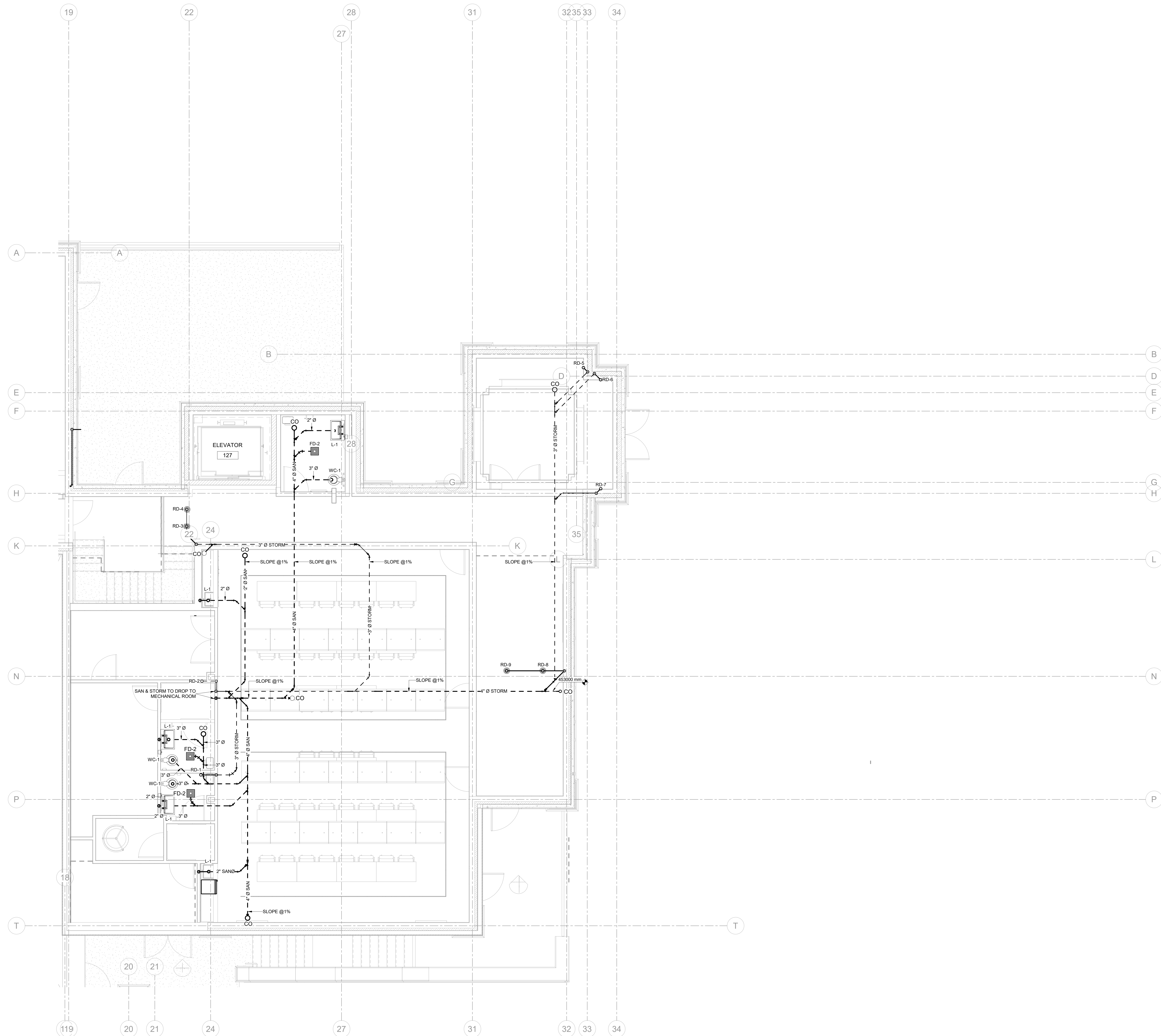
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Drawing Title
**BUILDING B3 -
MECHANICAL ROOF PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

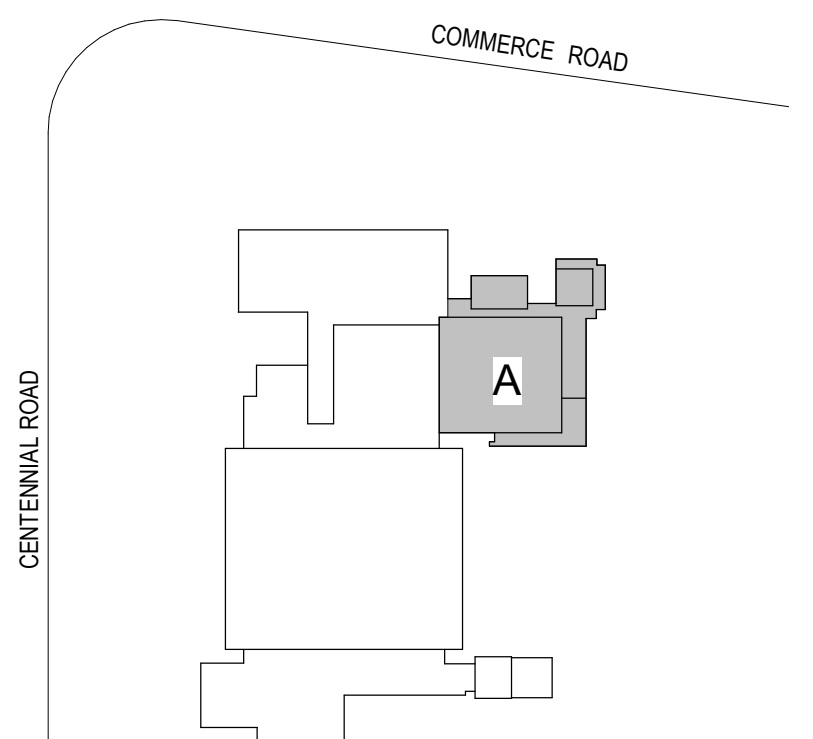
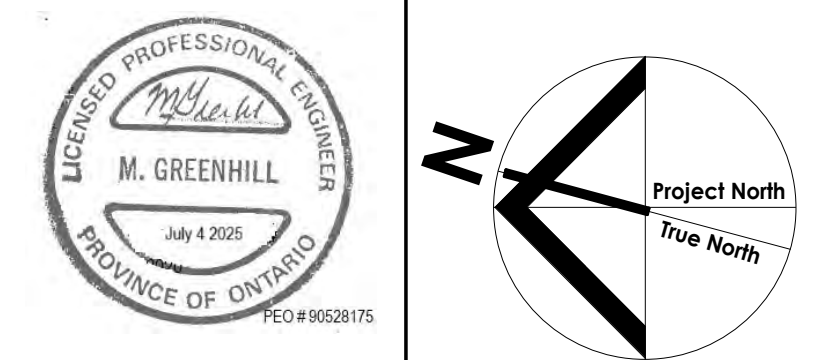
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1 BUILDING A DRAINAGE & STORM PLAN
P-100 / SCALE: 1:50

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Drawing Title
**GROUND FLOOR -
BUILDING A DRAINAGE &
STORM PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

AS INDICATED Scale
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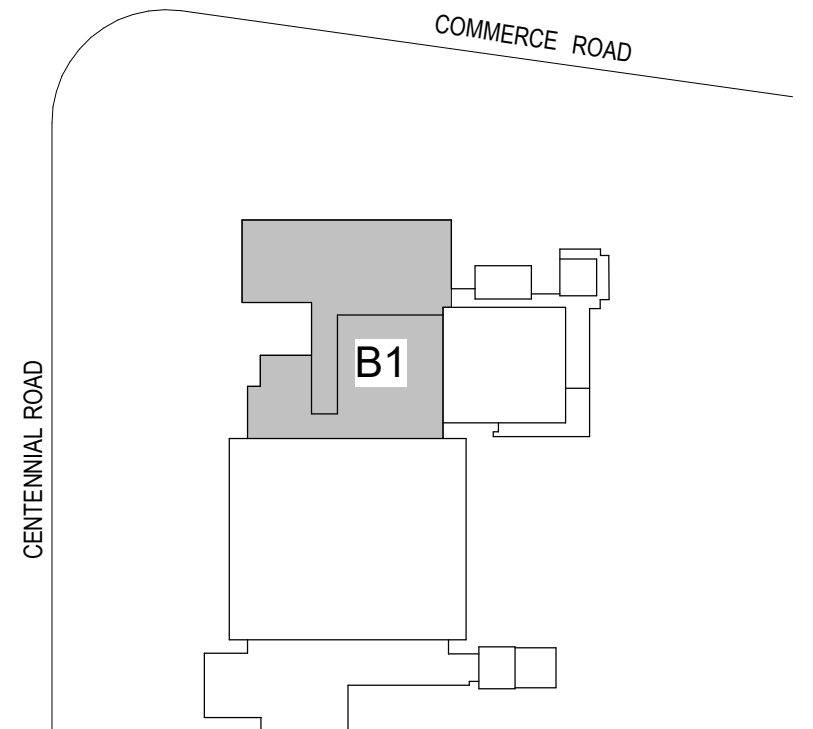
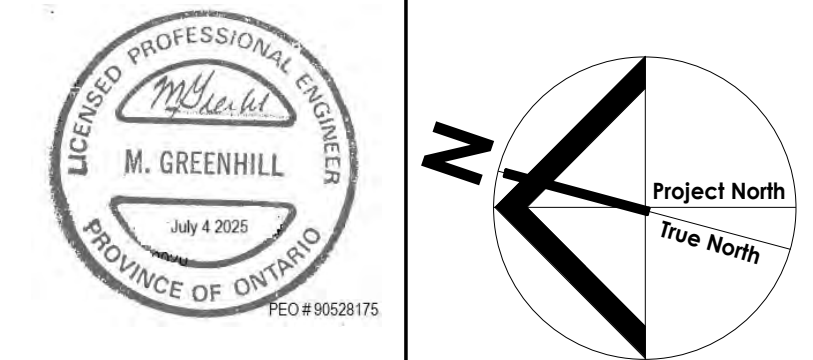
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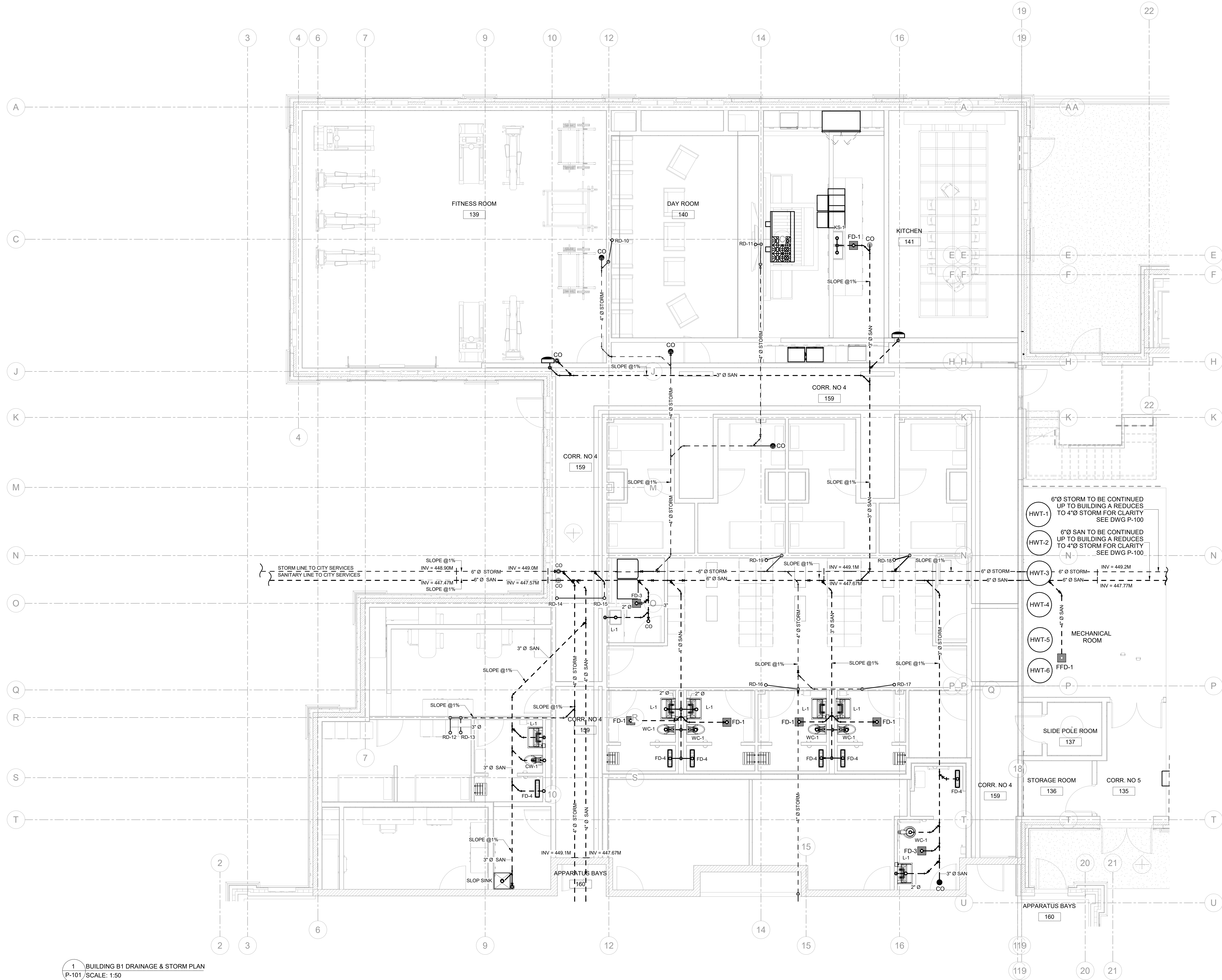
Drawing Title
**GROUND FLOOR -
BUILDING B1
DRAINAGE & STORM PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

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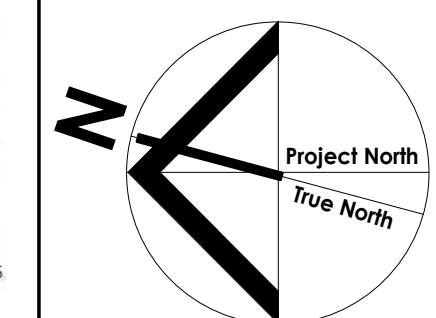
P-101



1 BUILDING B1 DRAINAGE & STORM PLAN
P-101 SCALE: 1:50

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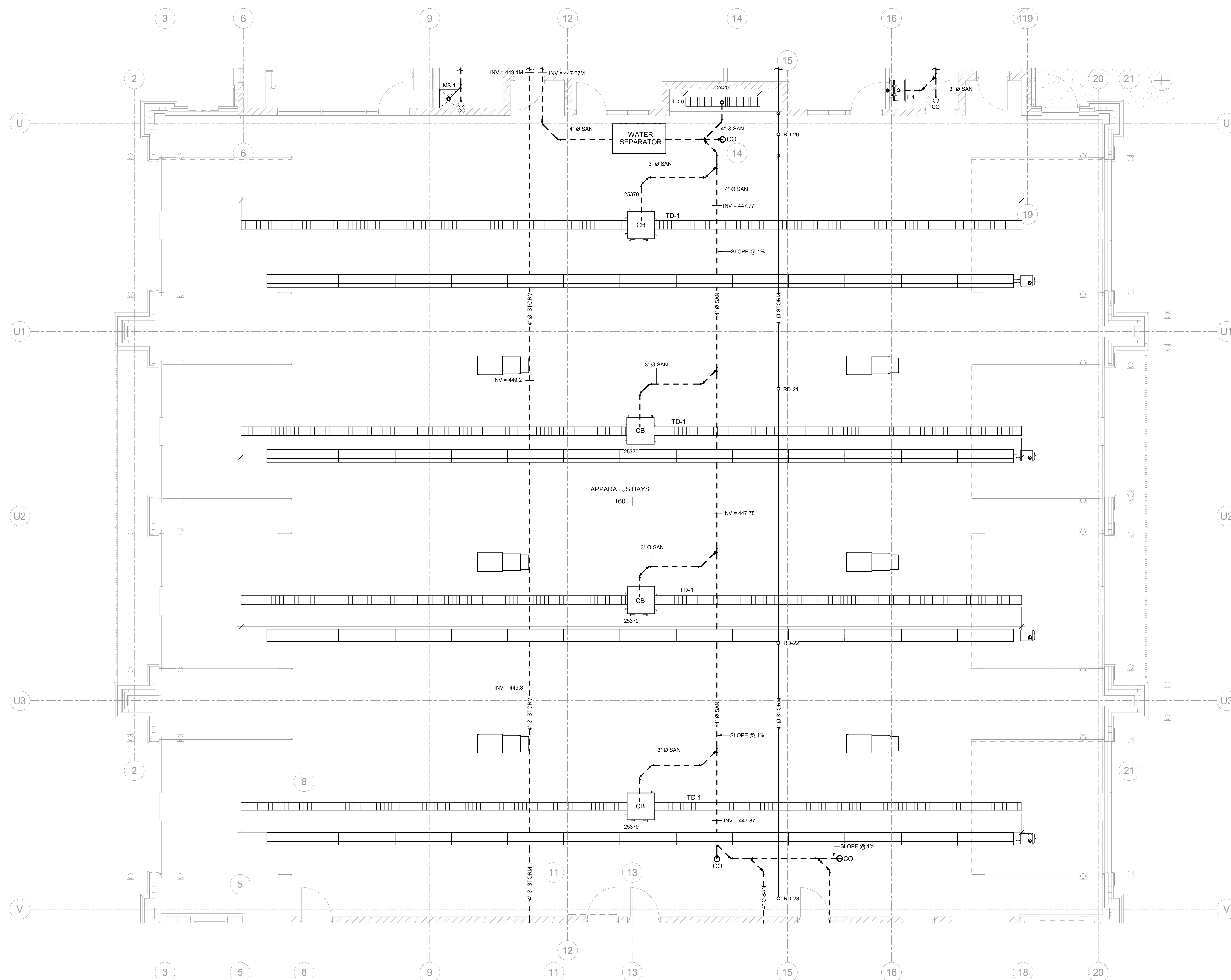


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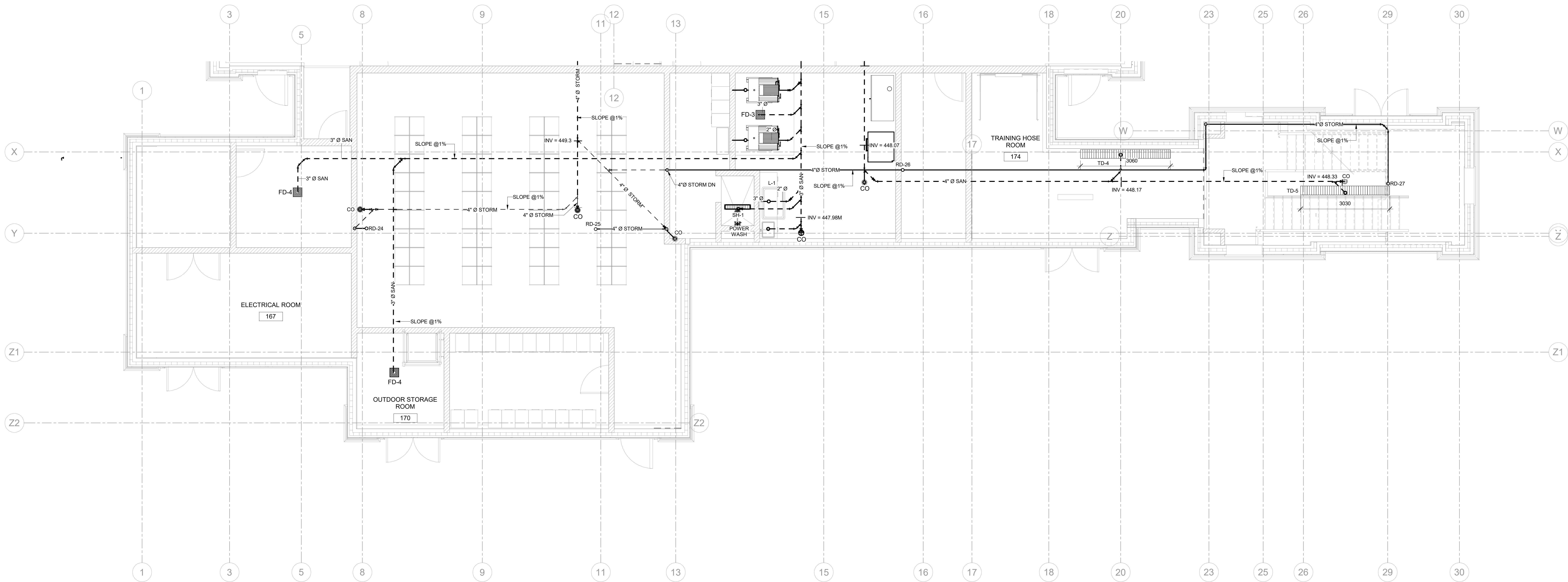
Drawing Title

Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

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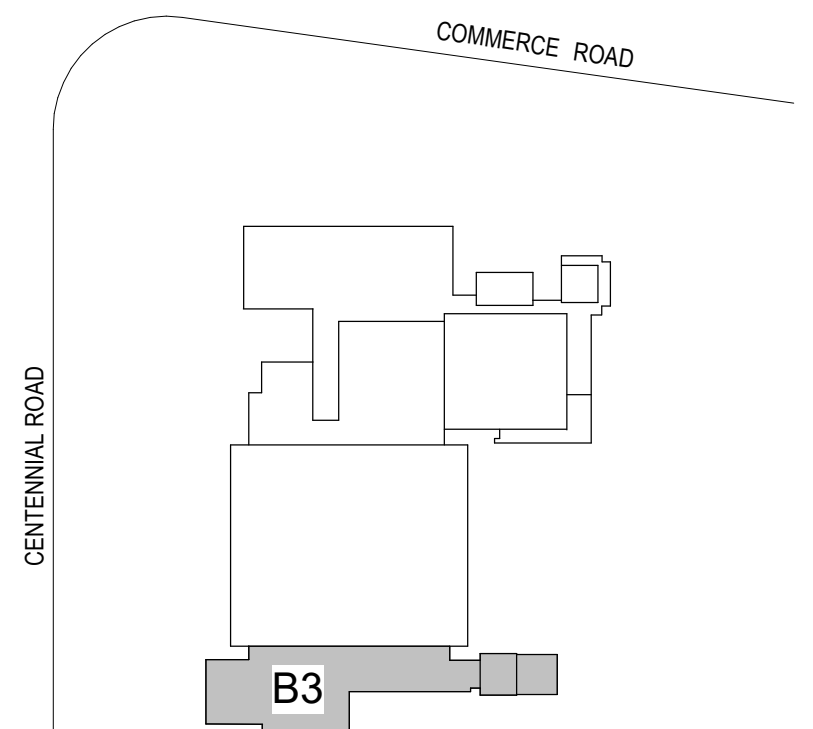
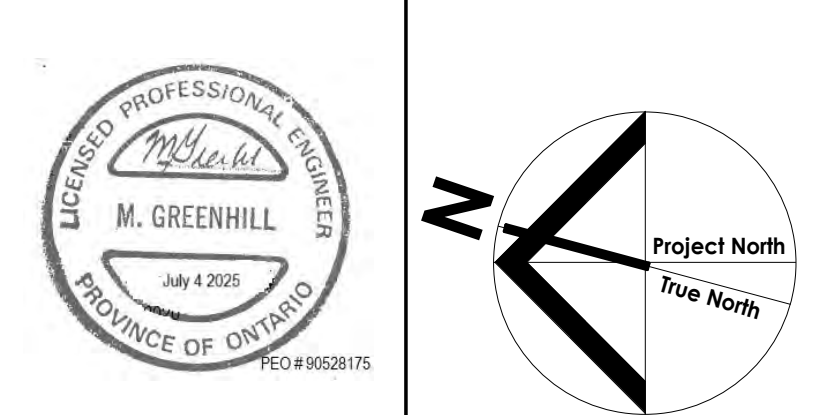


1 BUILDING B2 DRAINAGE & STORM PLAN
P-102 SCALE: 1:50



1 BUILDING B3 DRAINAGE & STORM PLAN
P-103 / SCALE: 1:50

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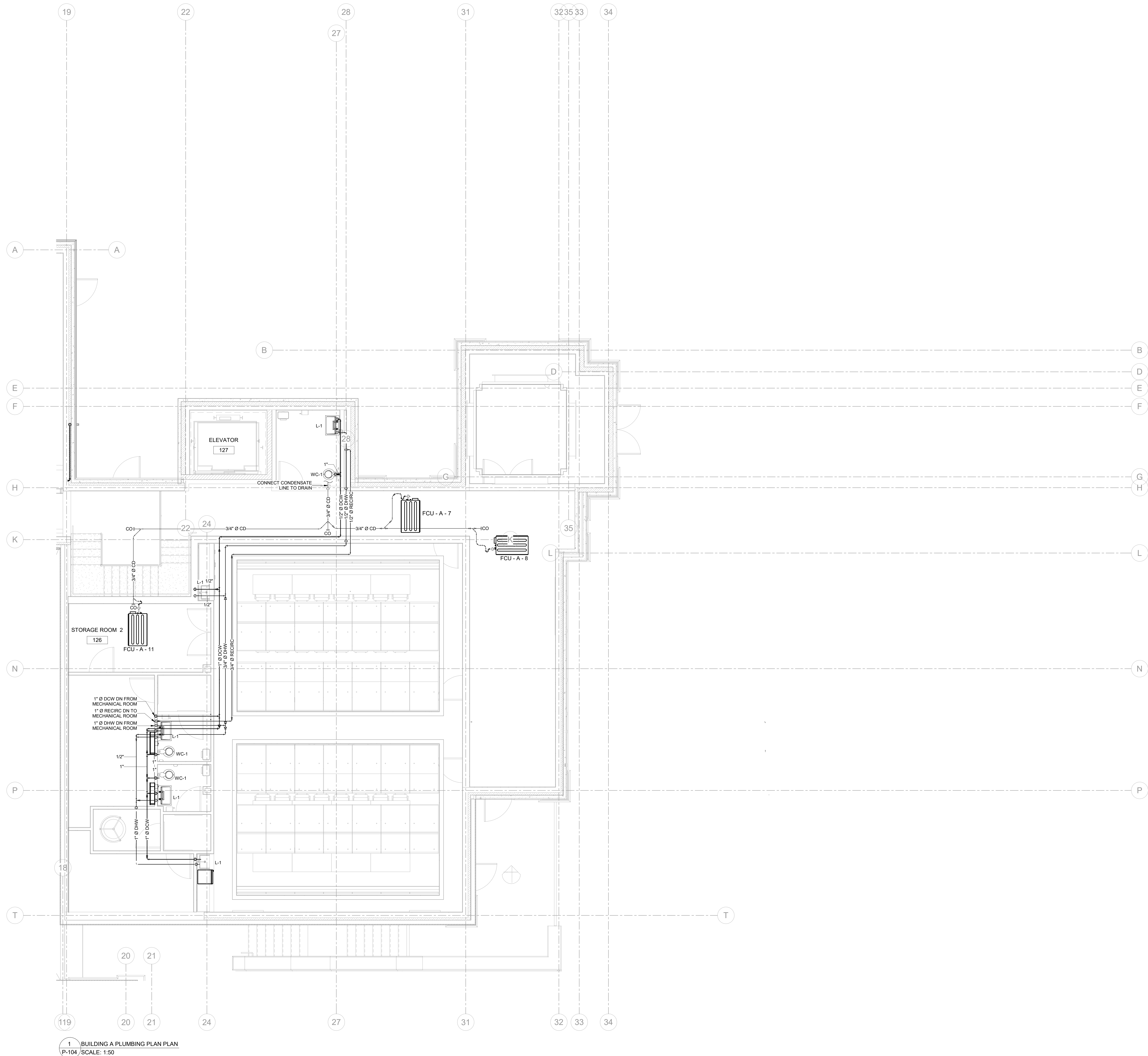
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Drawing Title
**GROUND FLOOR -
BUILDING B3
DRAINAGE & STORM PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

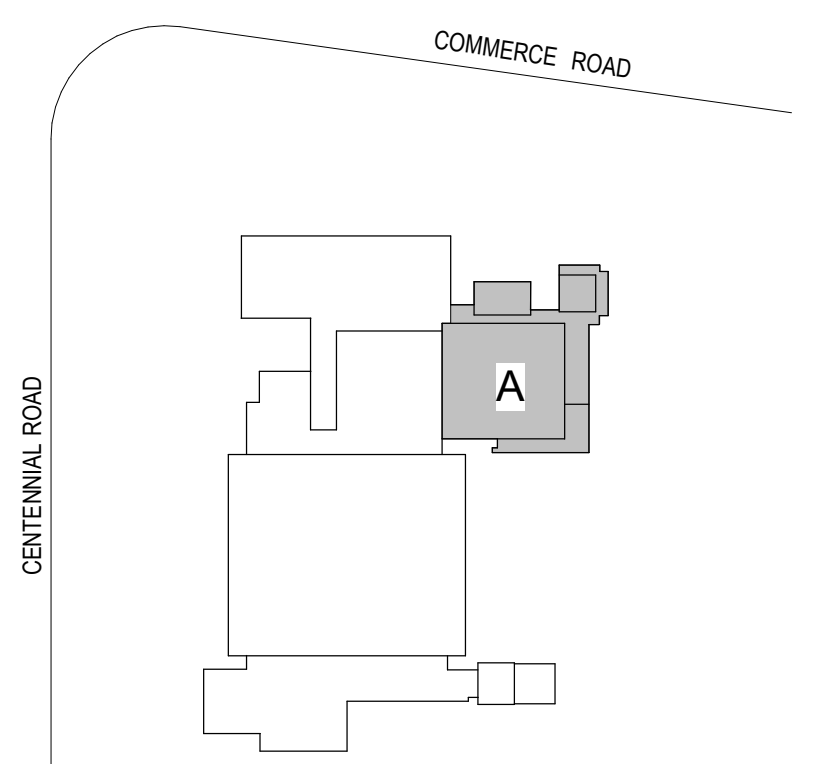
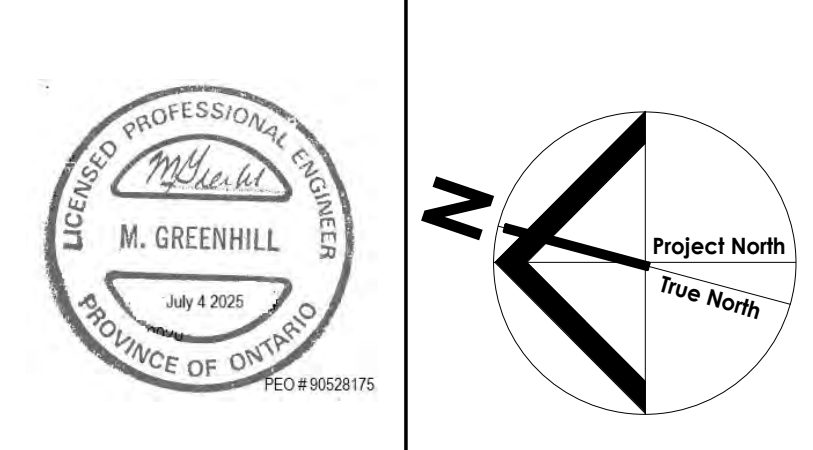
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1 BUILDING A PLUMBING PLAN PLAN
P-104 / SCALE: 1:50

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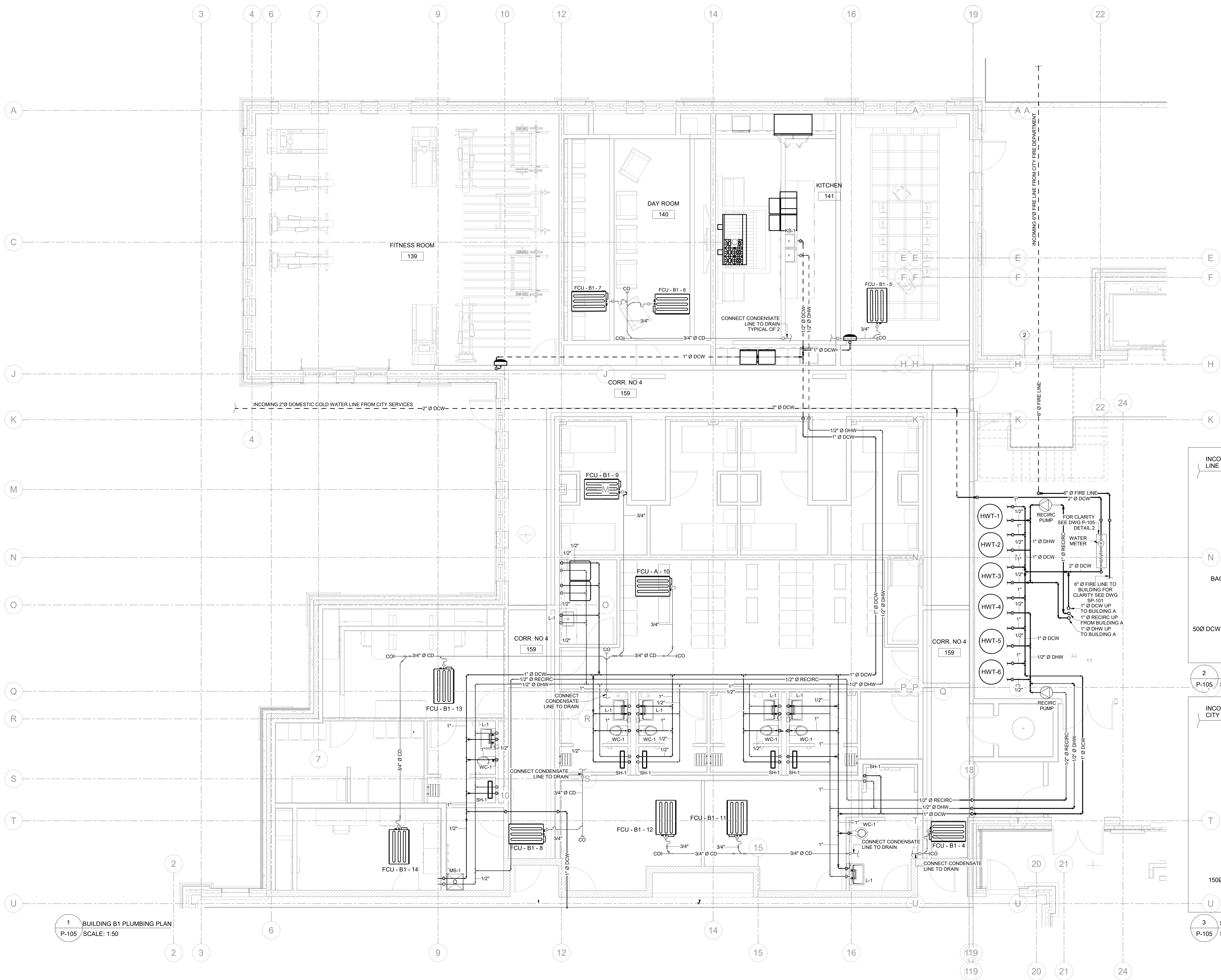
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Drawing Title
GROUND FLOOR - BUILDING A PLUMBING PLAN

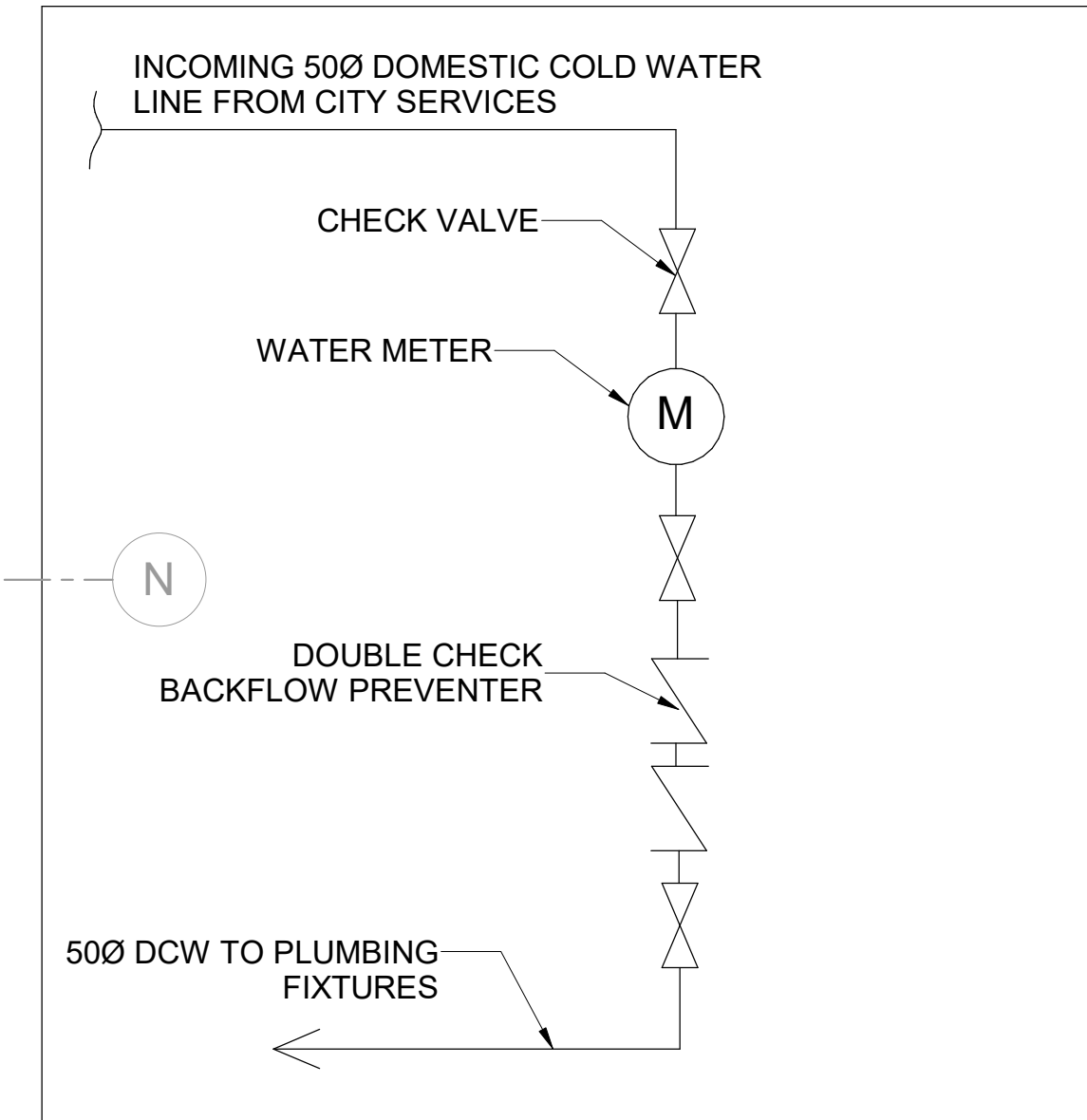
Project
TOWN OF ORANGEVILLE FIRE STATION PROJECT

10 COMMERCE ROAD, ORANGEVILLE, ONTARIO

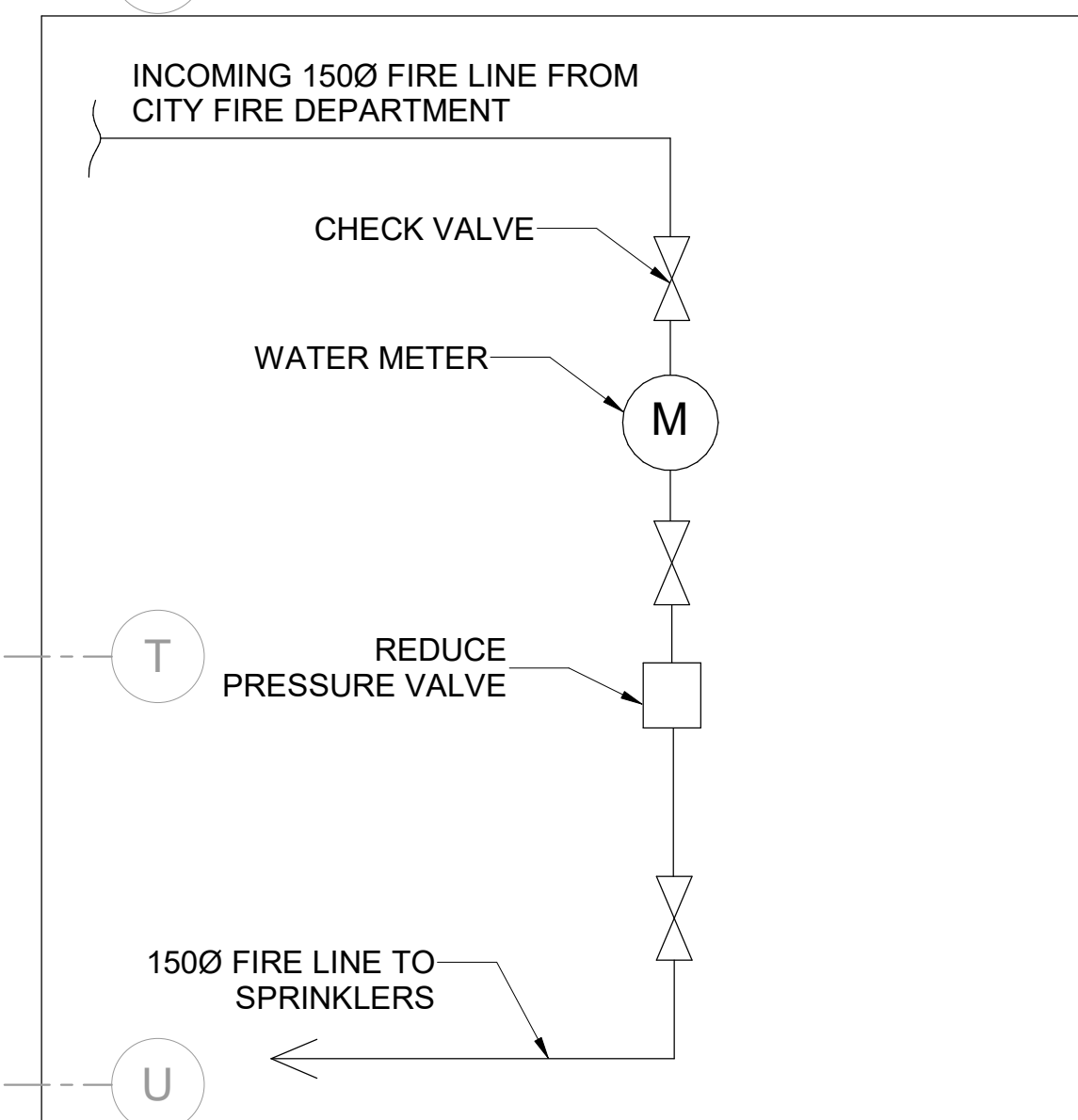
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1 BUILDING B1 PLUMBING PLAN
P-105 / SCALE: 1:50

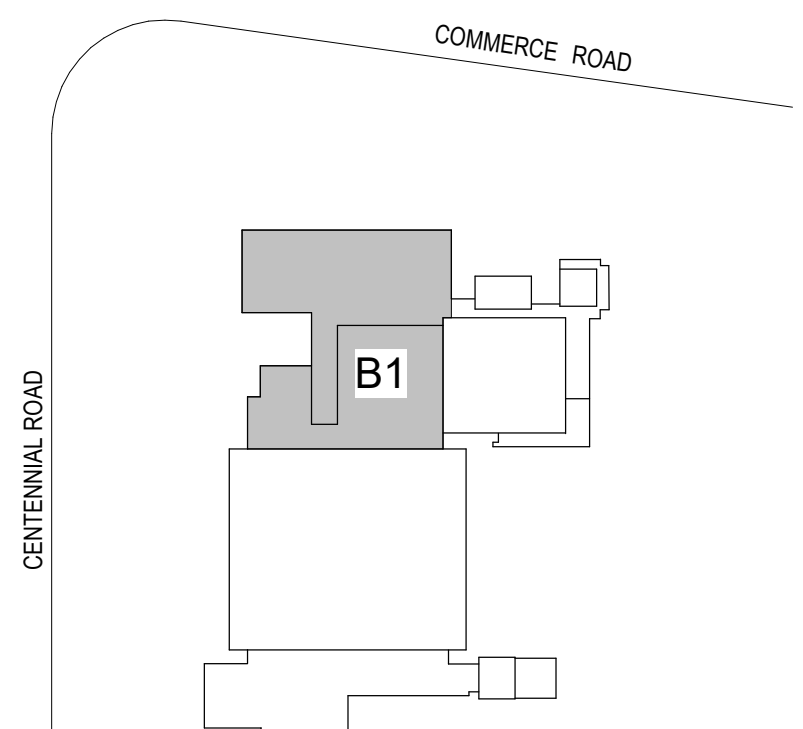
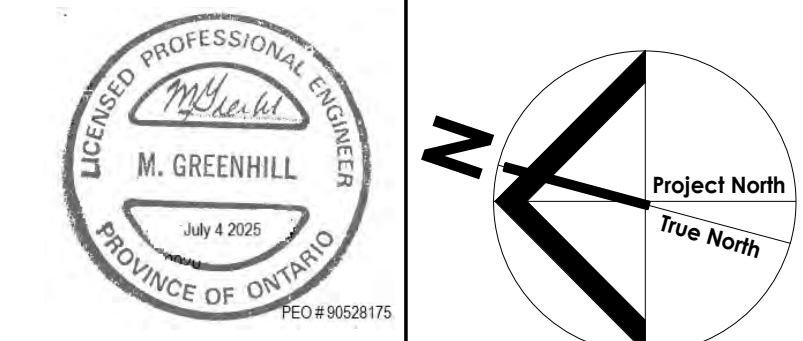


2 DOMESTIC COLD WATER RISER DIAGRAMS
P-105 / SCALE: N.T.S



3 SPRINKLER RISER DIAGRAM
P-105 / SCALE: N.T.S

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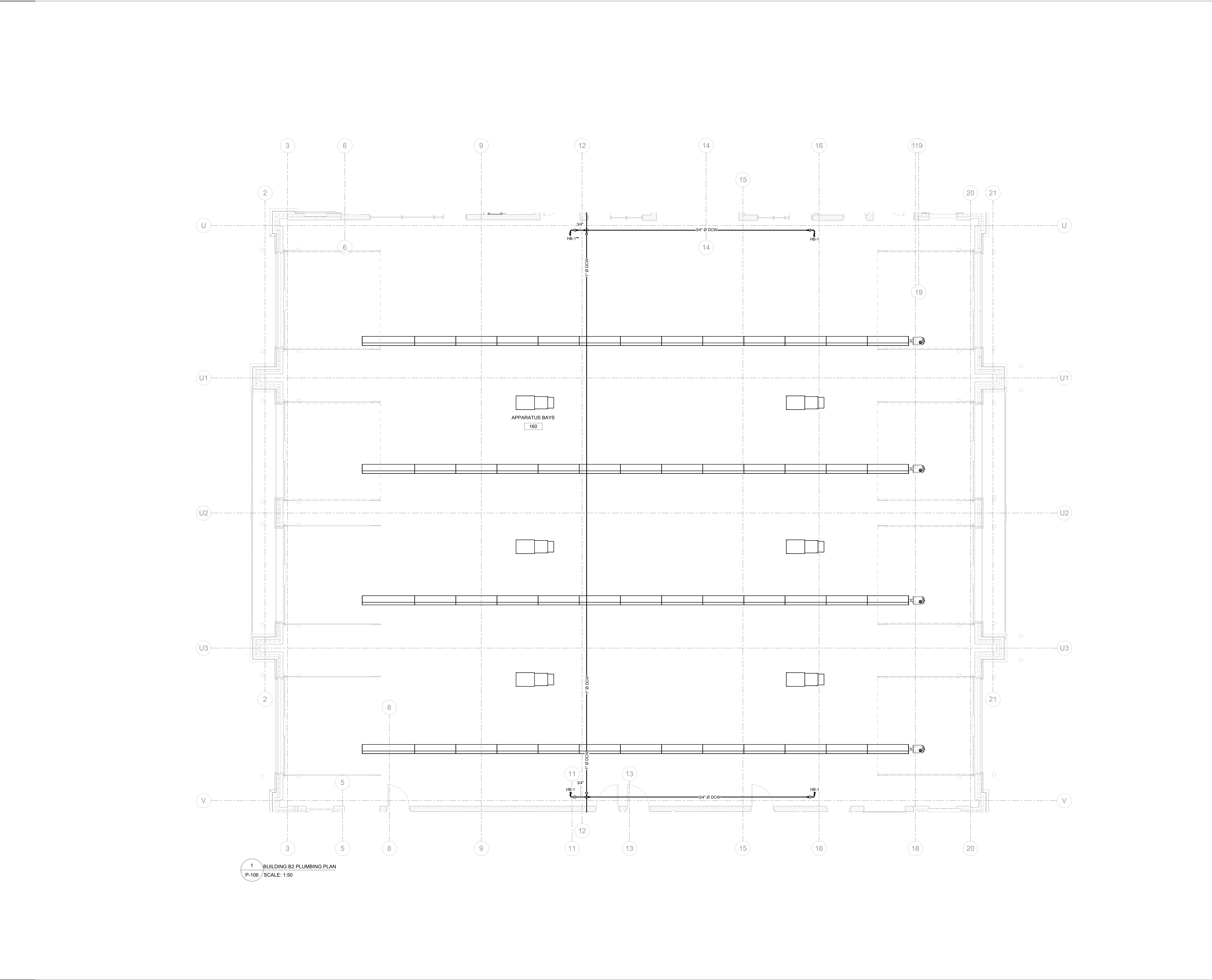
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Drawing Title
**GROUND FLOOR -
BUILDING B1 PLUMBING
PLAN**

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

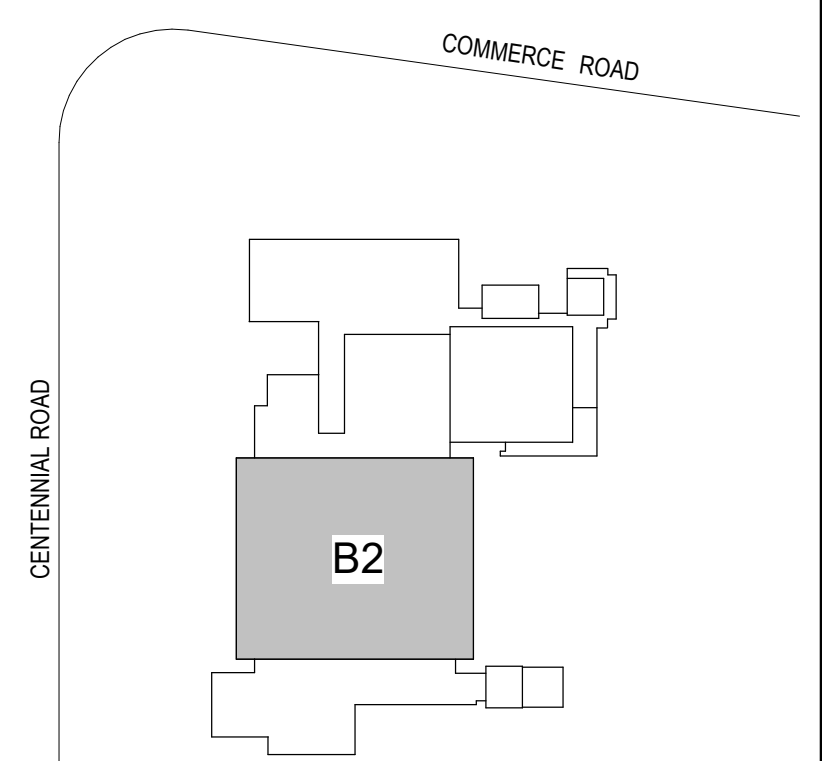
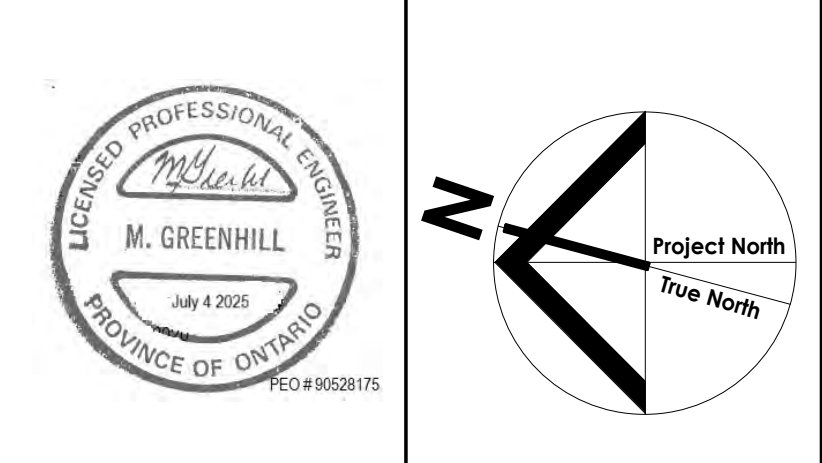
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1 BUILDING B2 PLUMBING PLAN
P-106 / SCALE: 1:50

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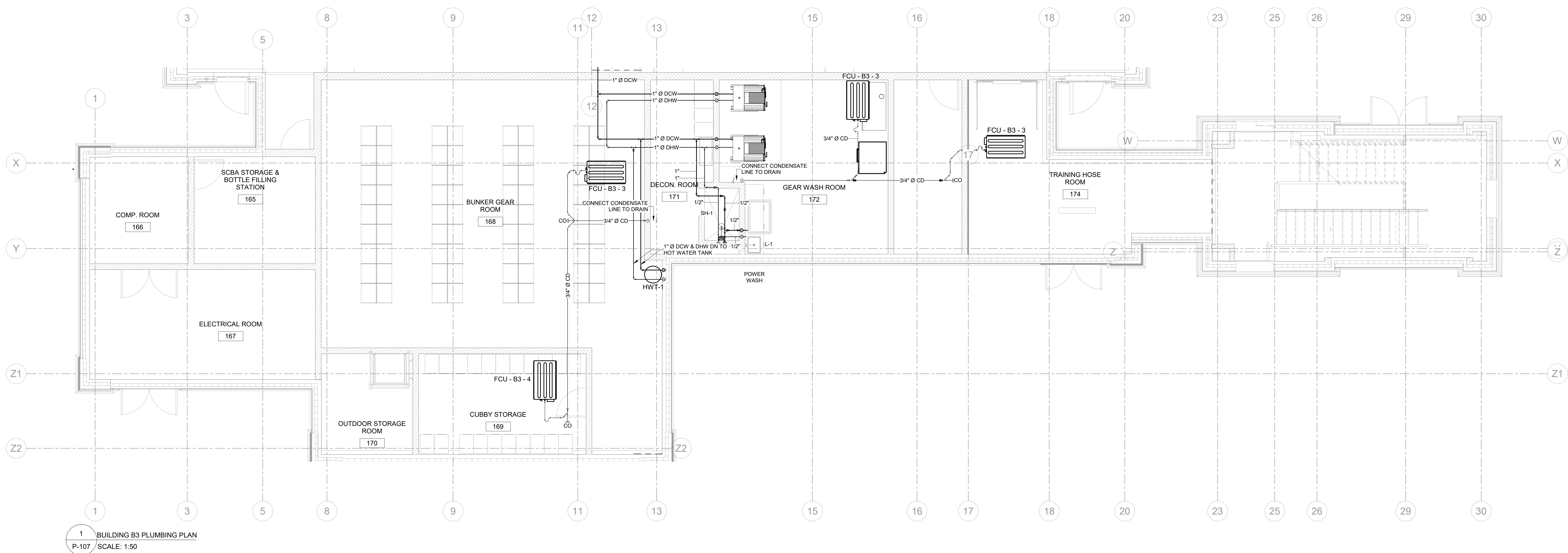
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BUILDING B2
PLUMBING PLAN**

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**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
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1 BUILDING B3 PLUMBING PLAN
P-107 / SCALE: 1:50

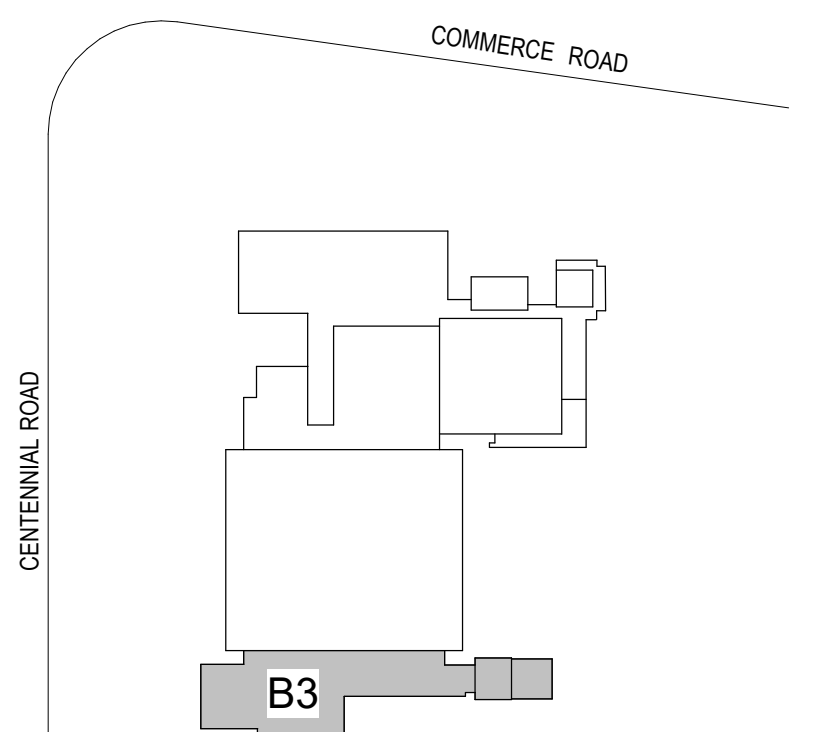
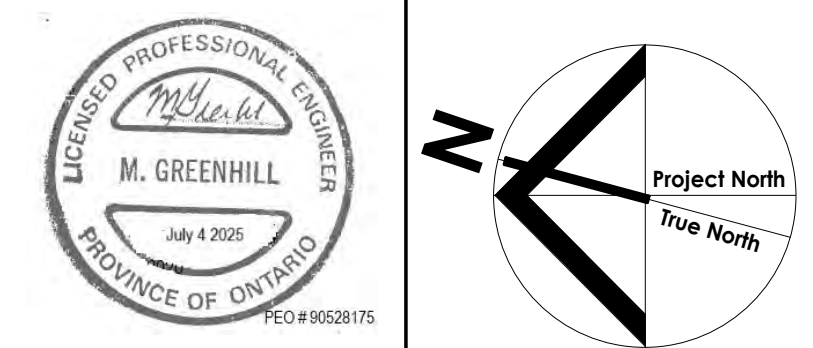
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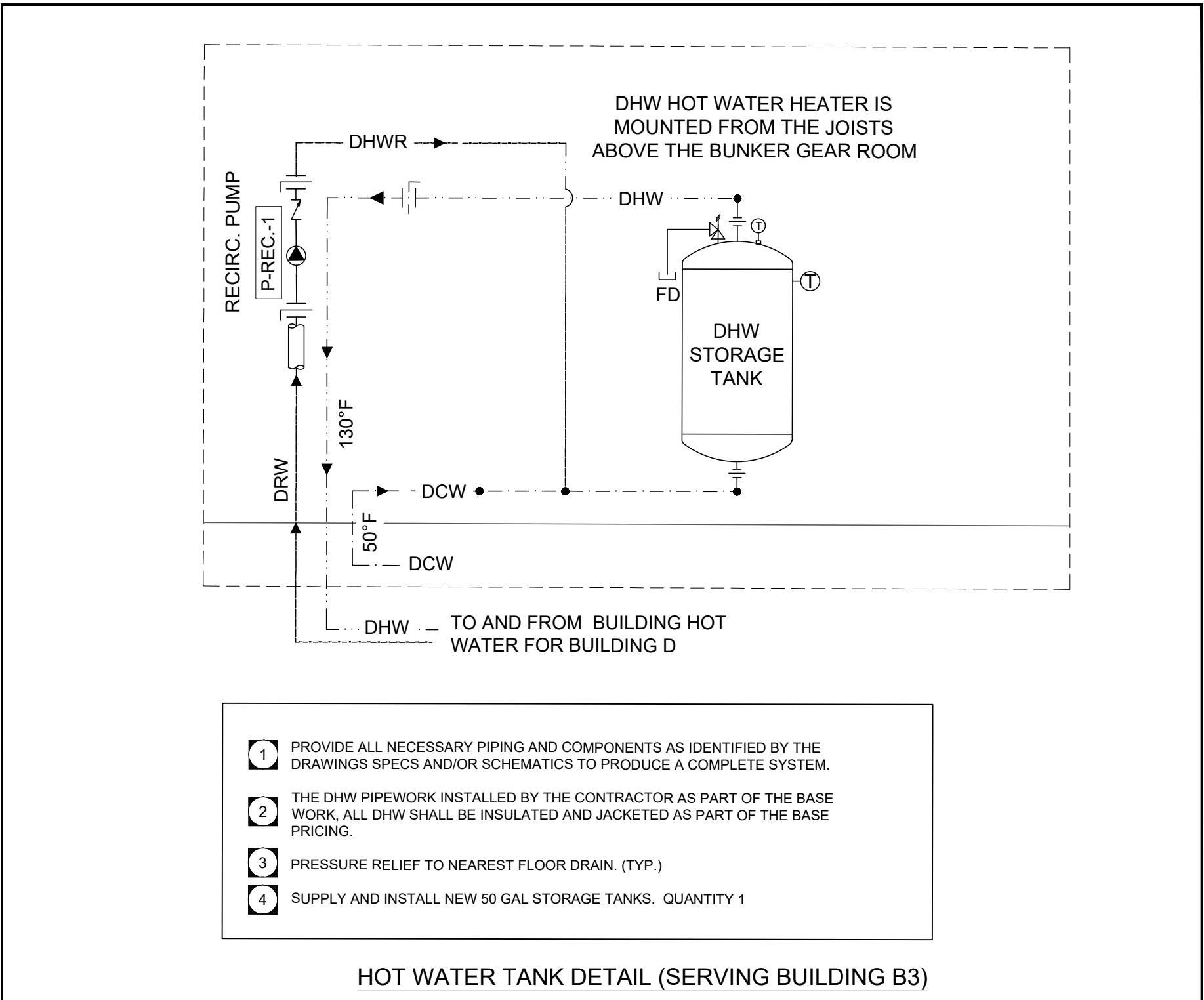
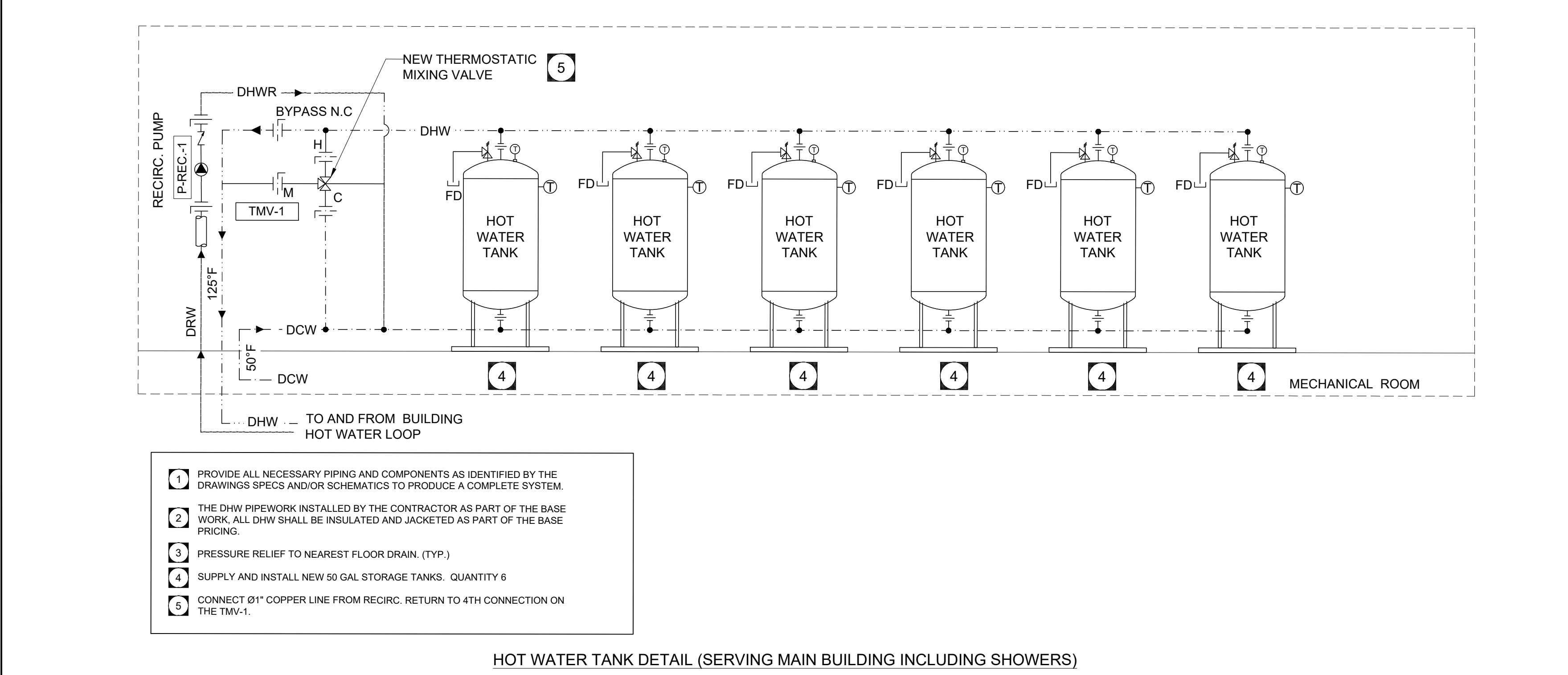
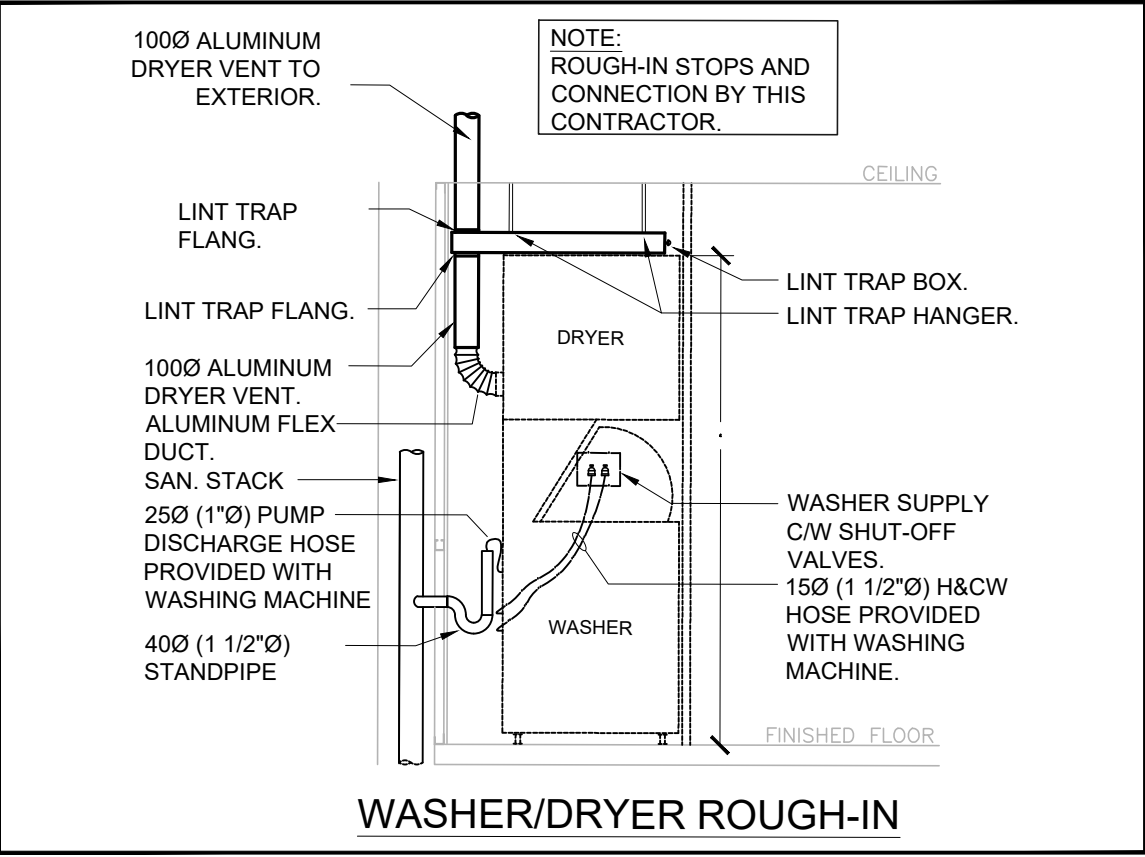
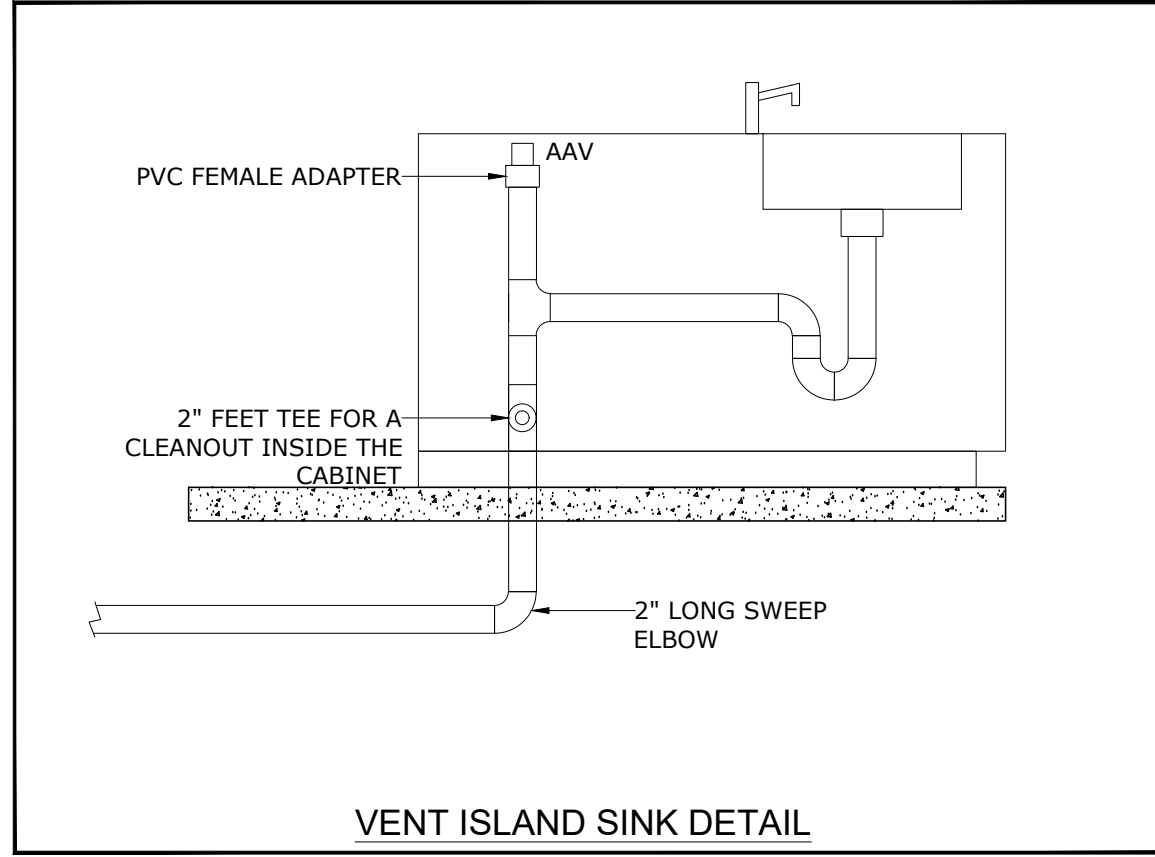
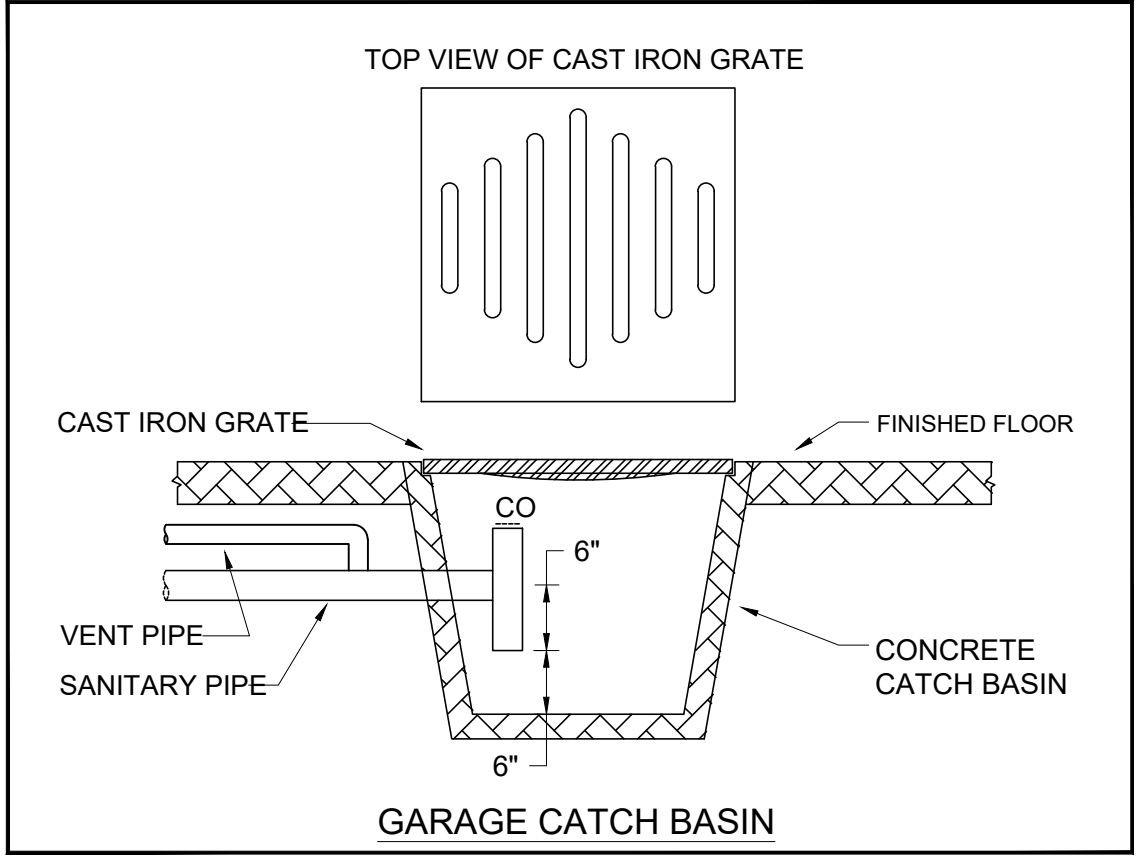
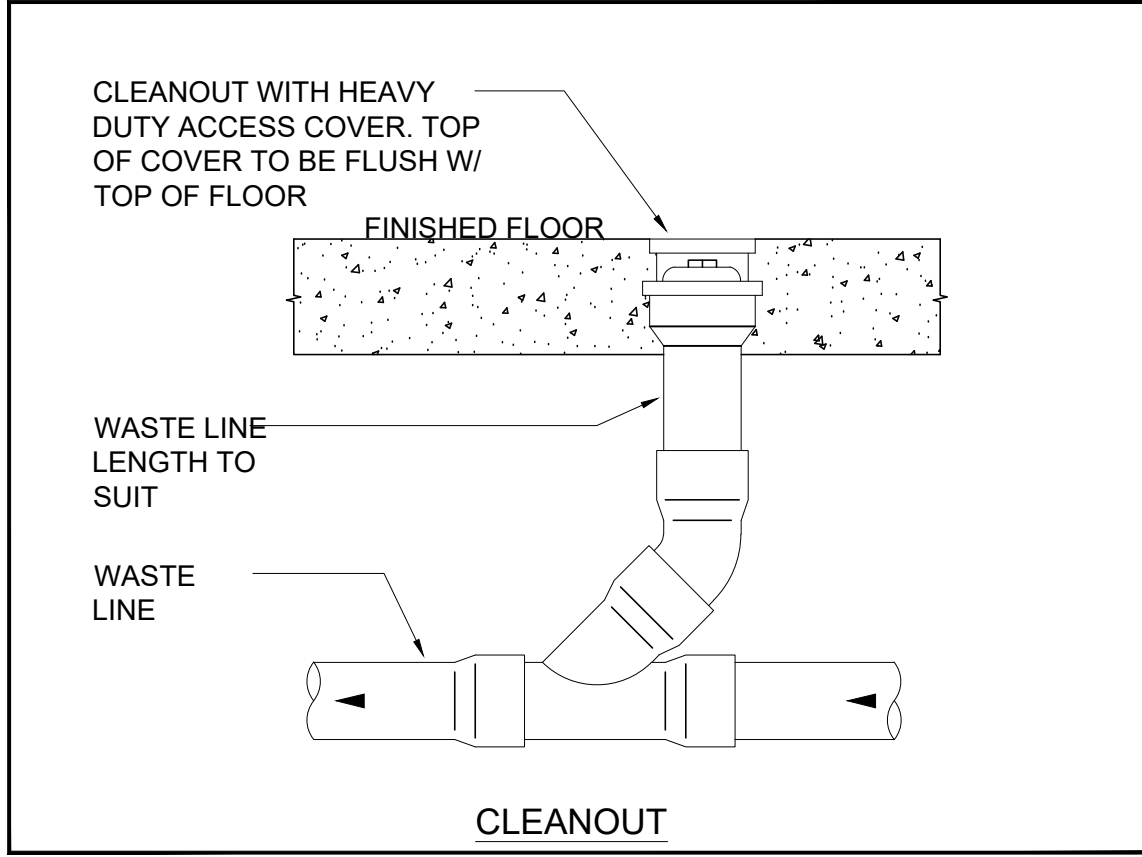
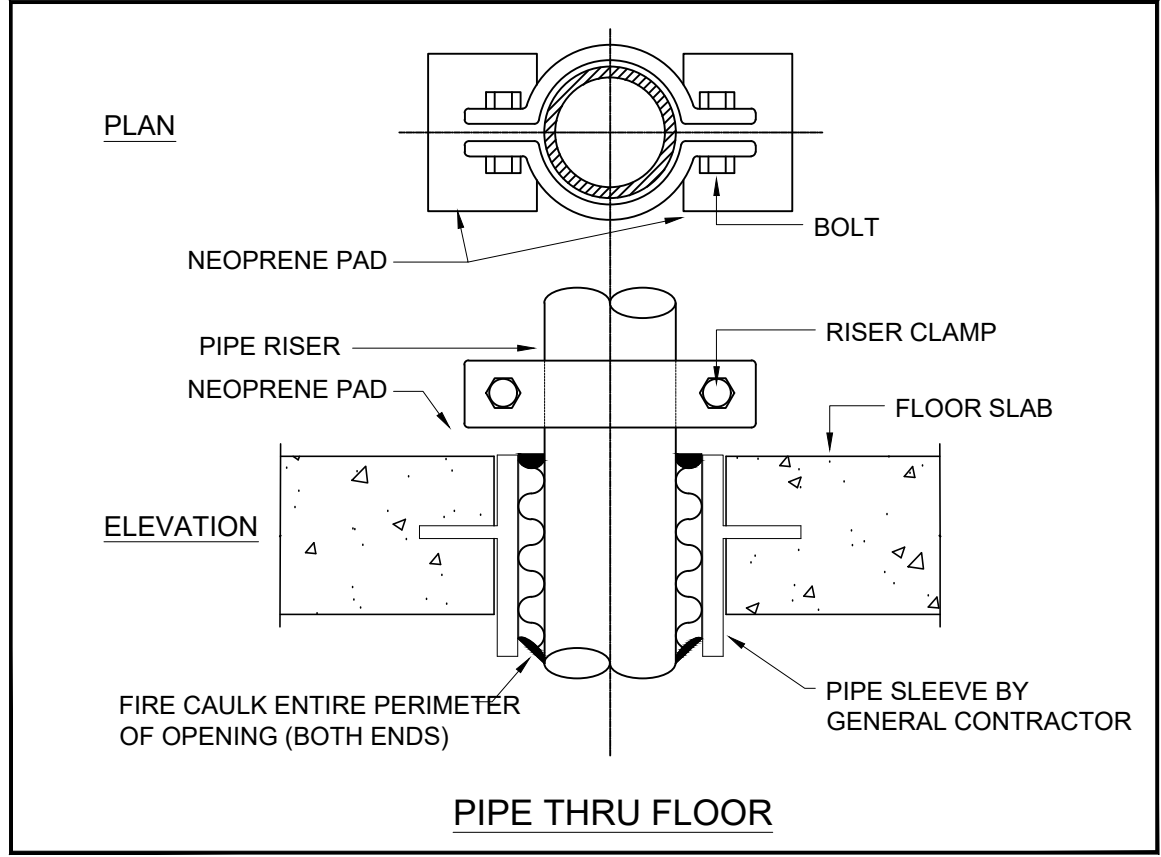
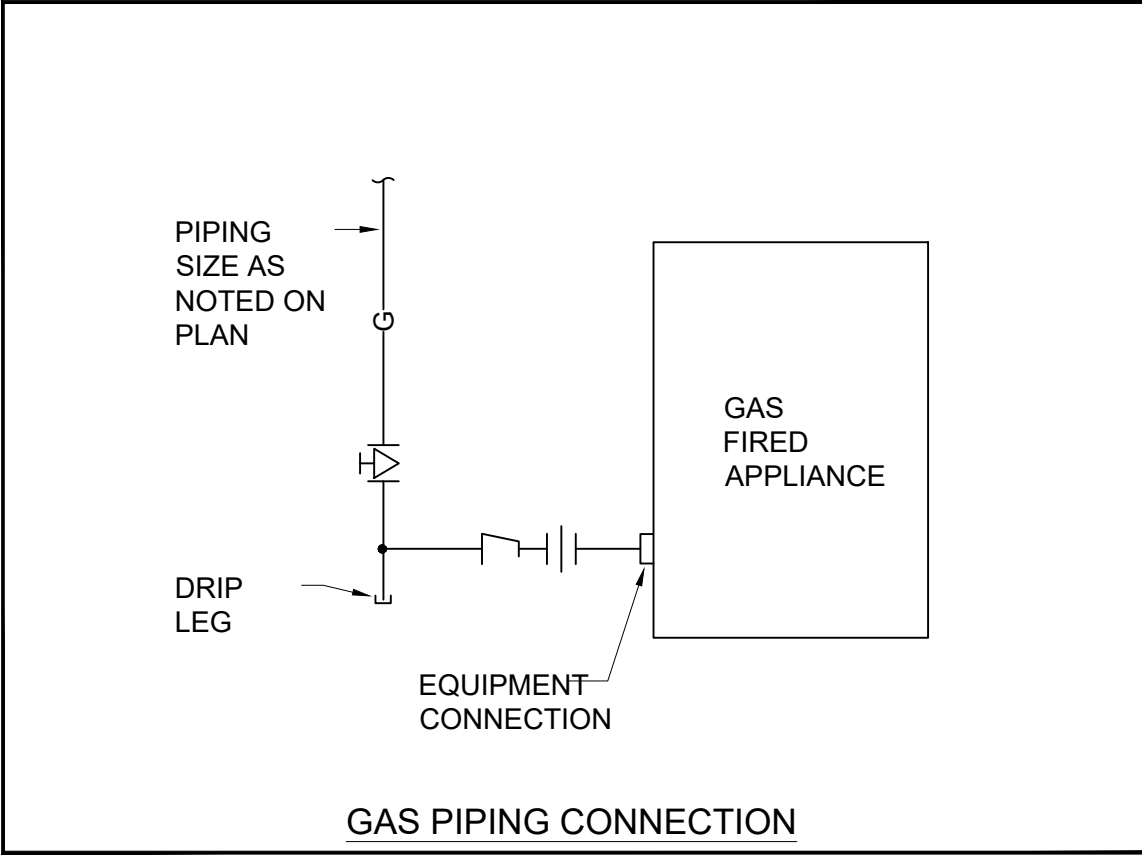
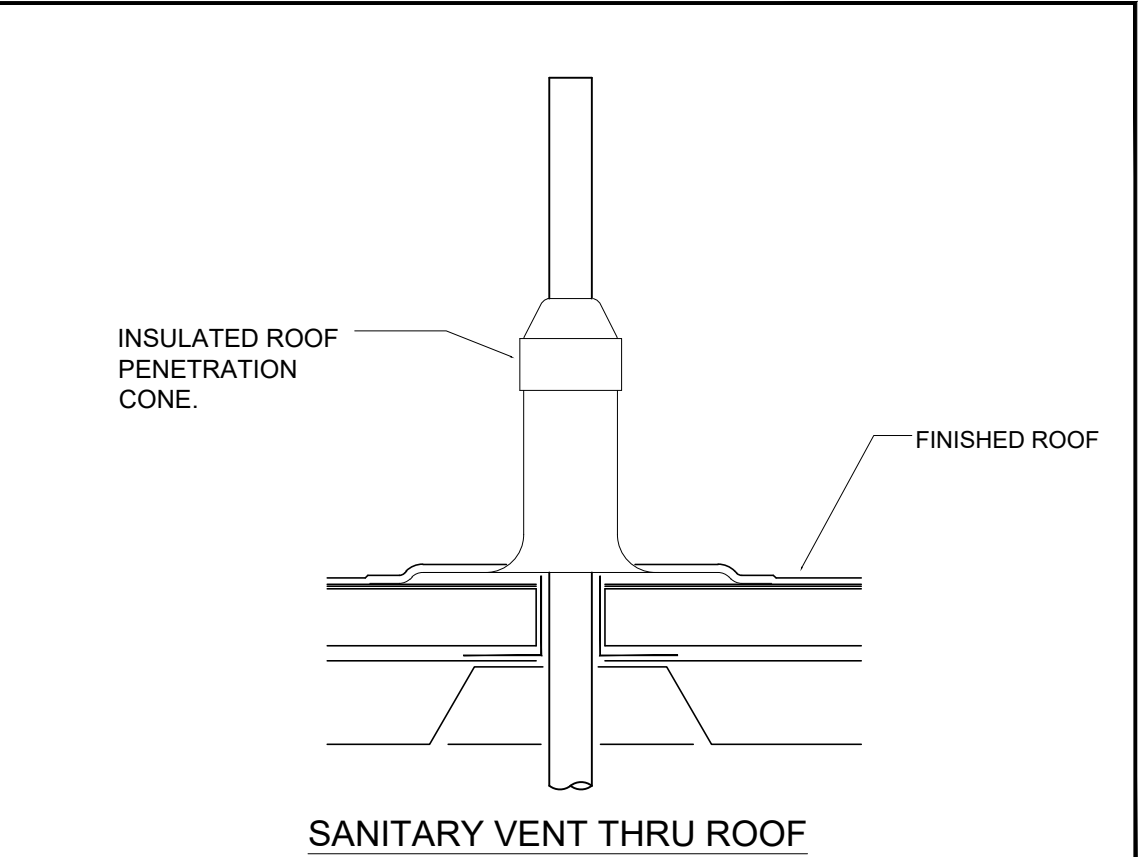
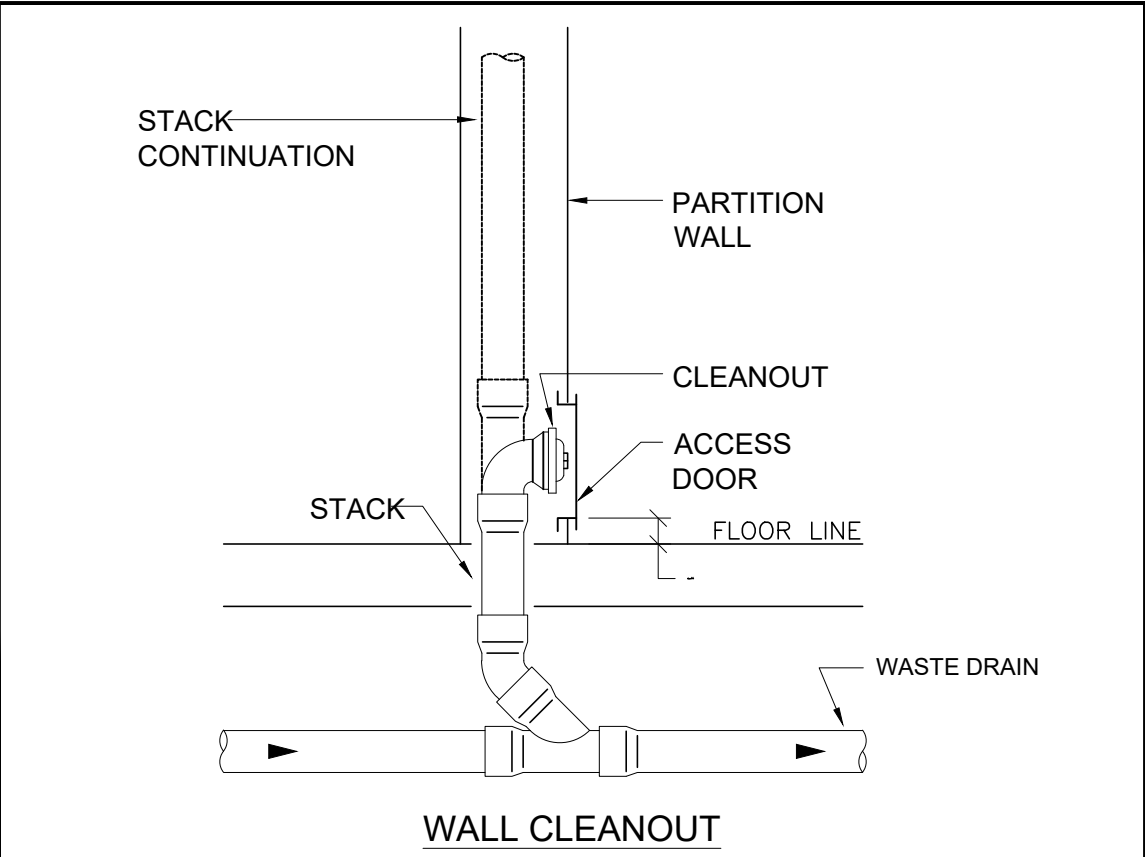
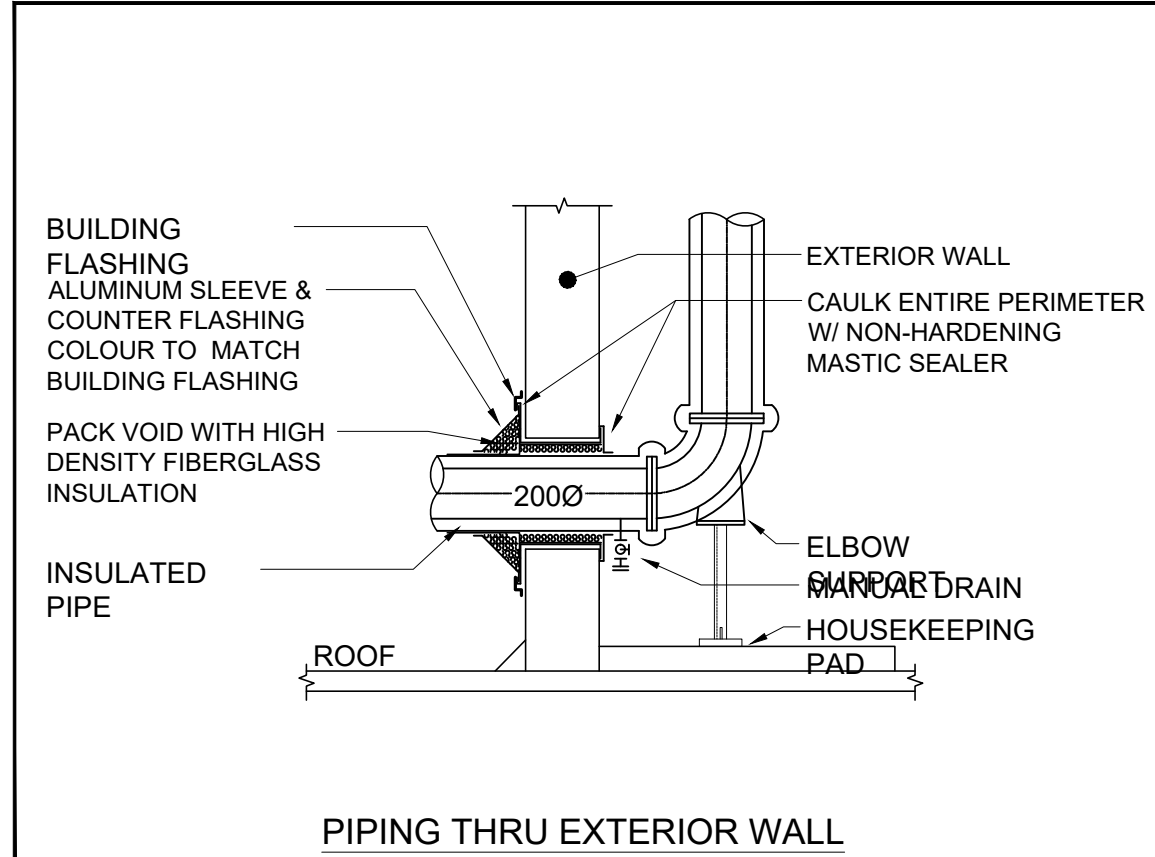
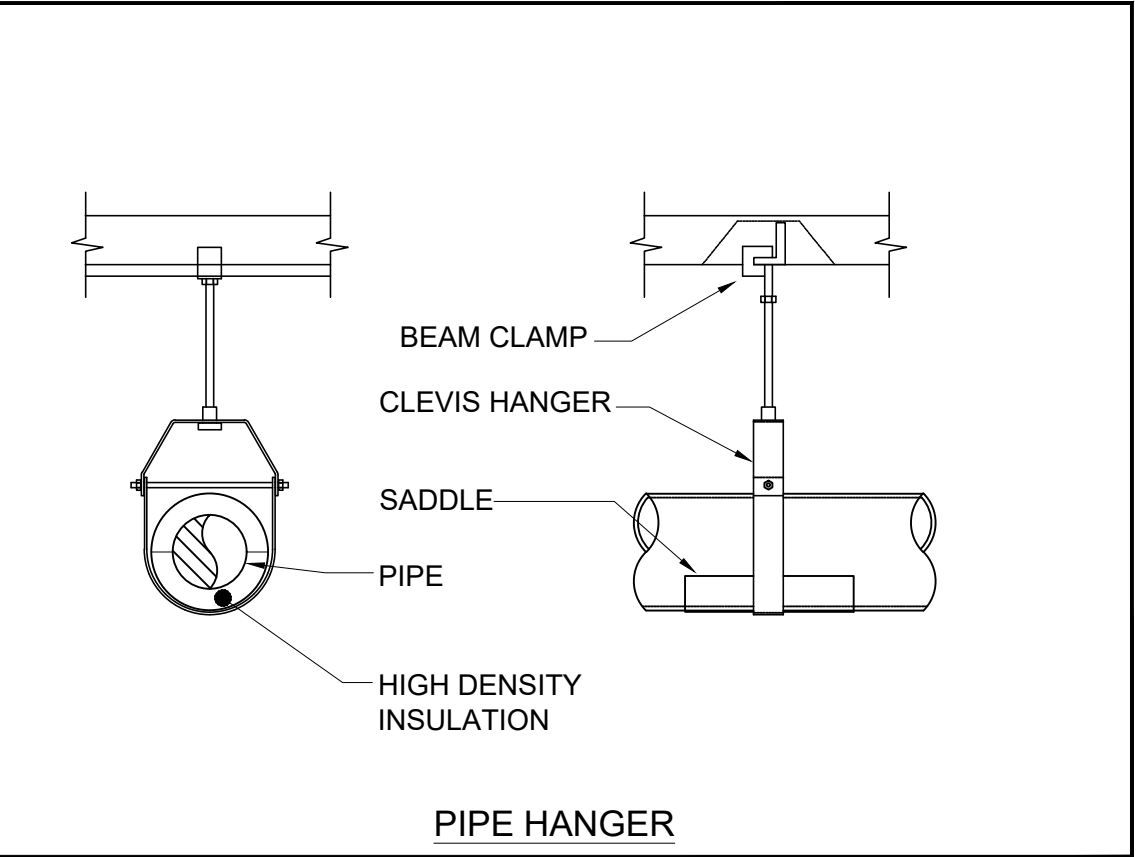
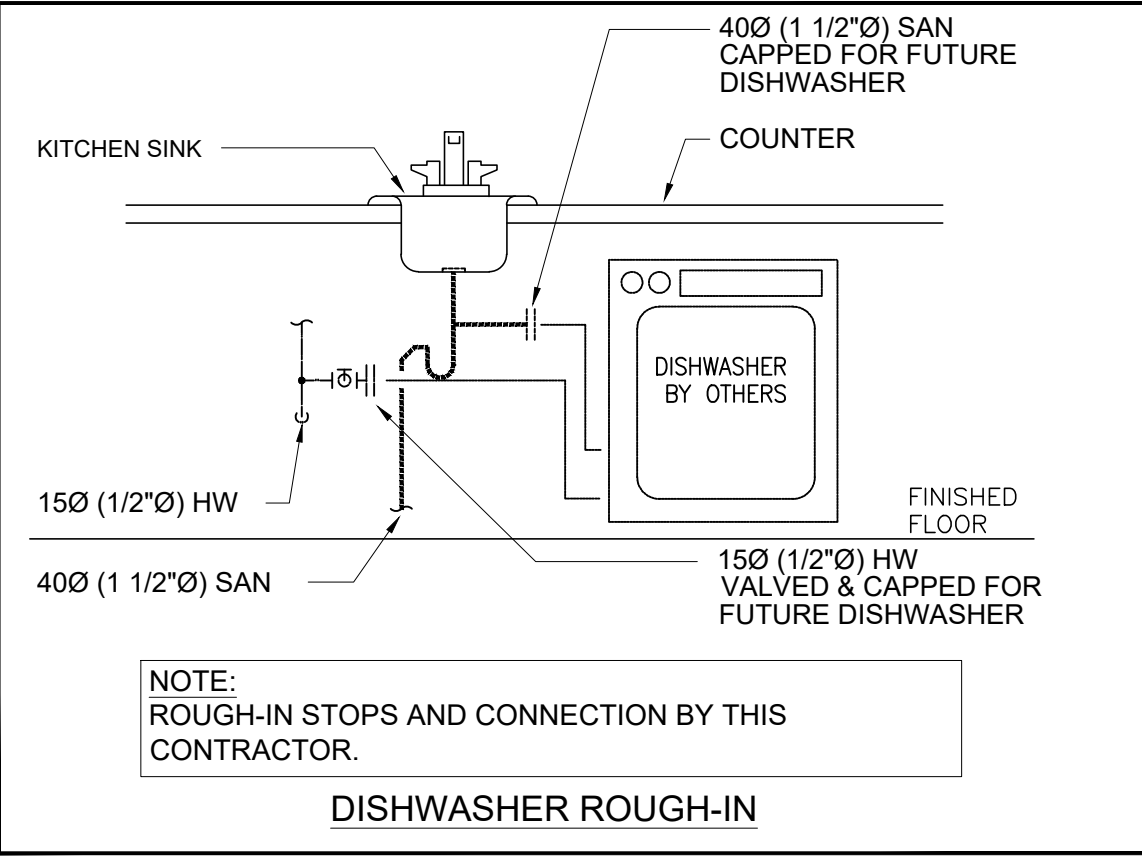
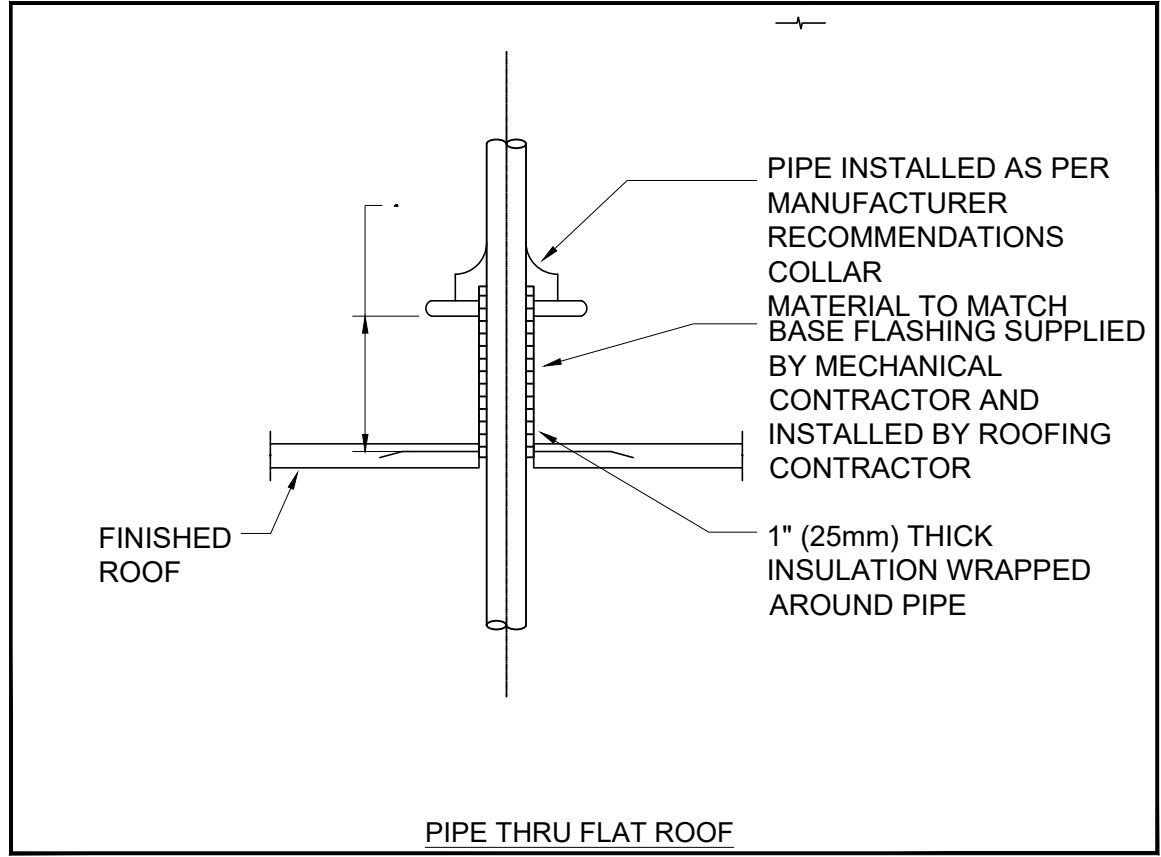
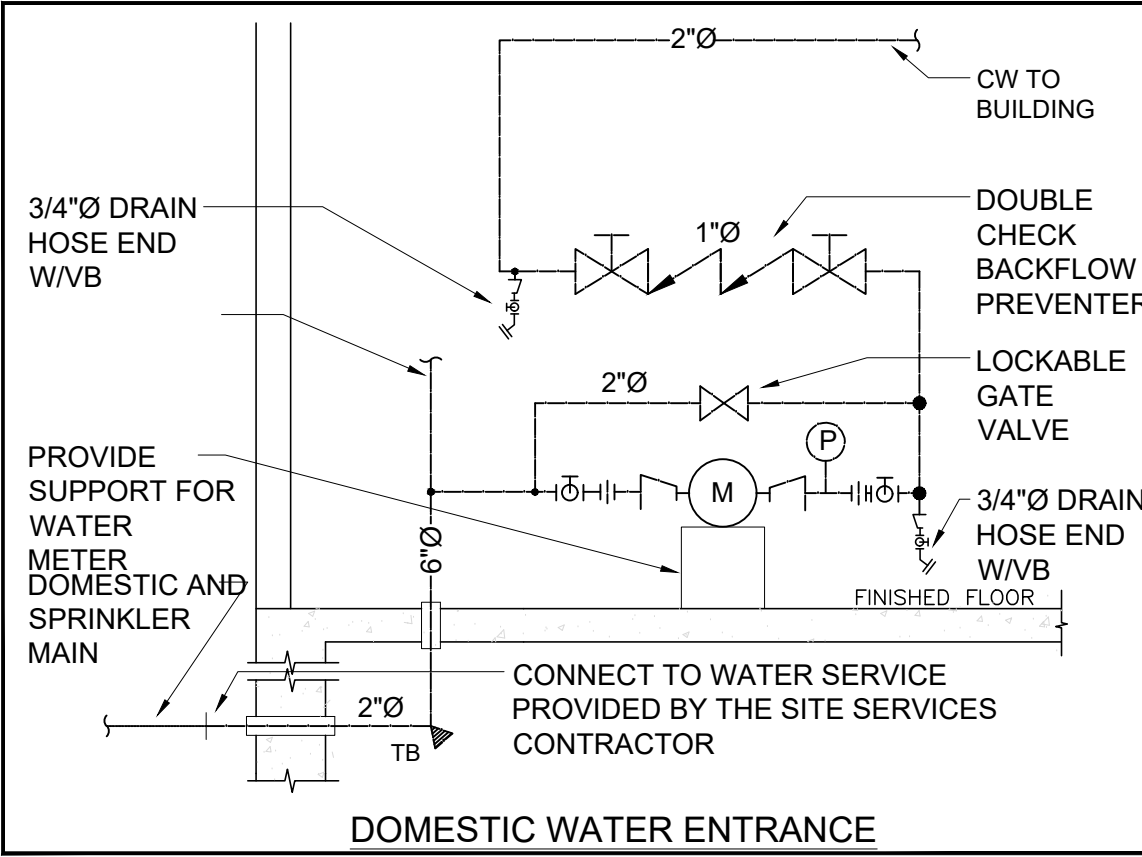
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Drawing Title
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BUILDING B3
PLUMBING PLAN**

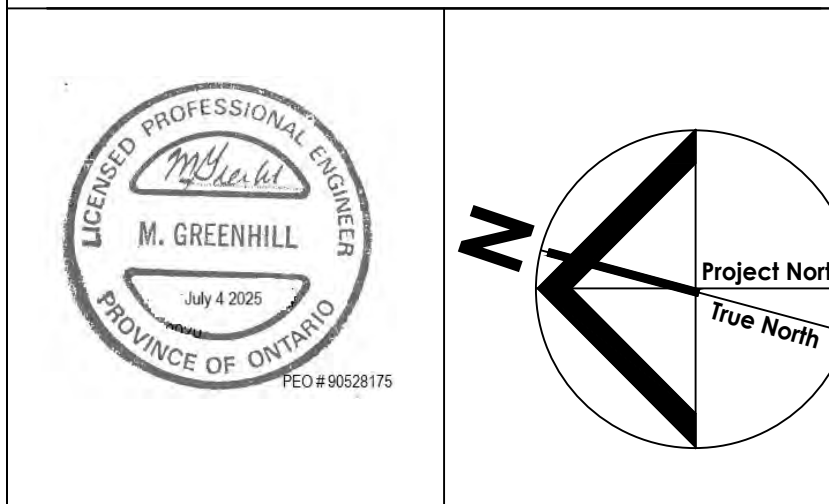
Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

**10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO**

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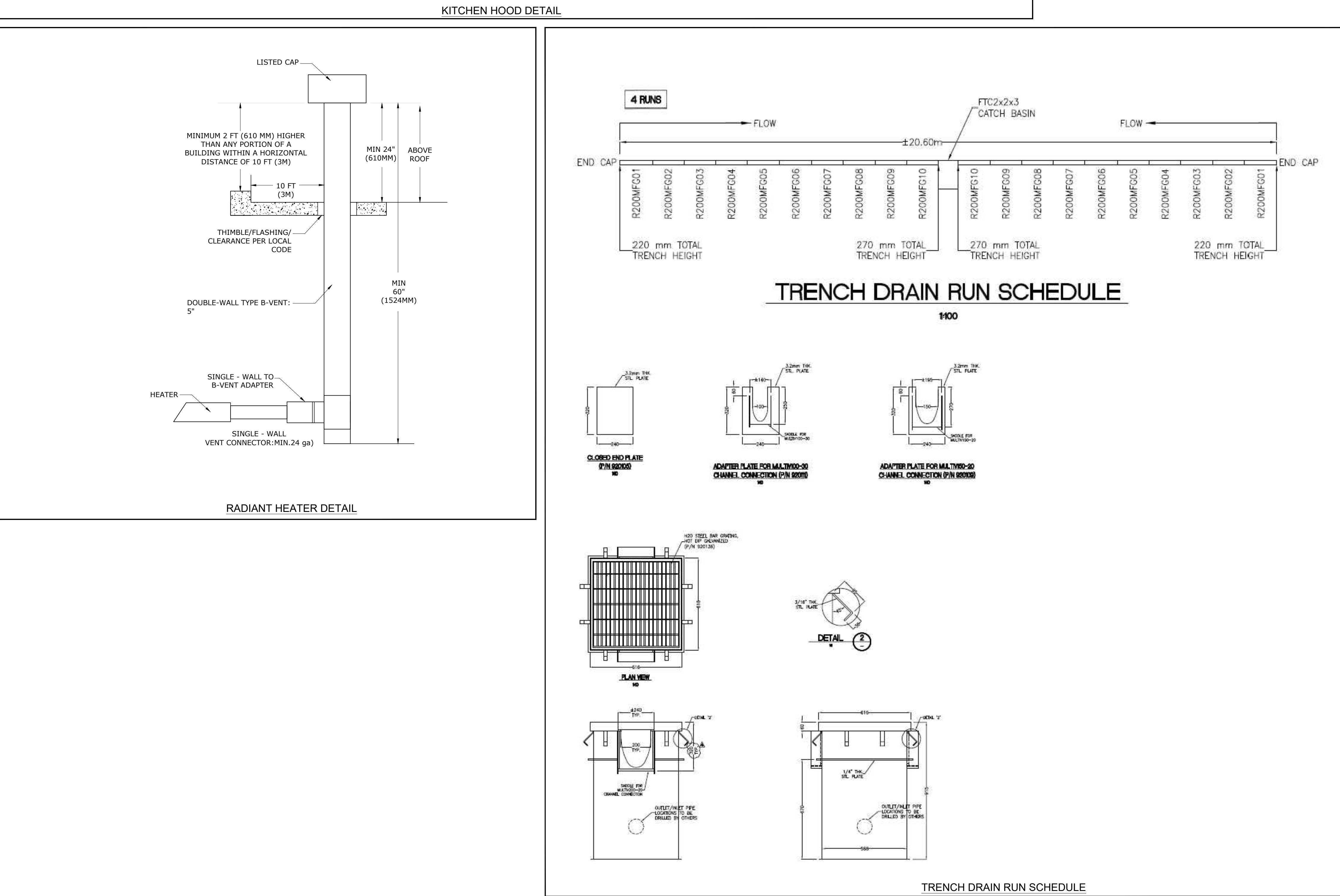
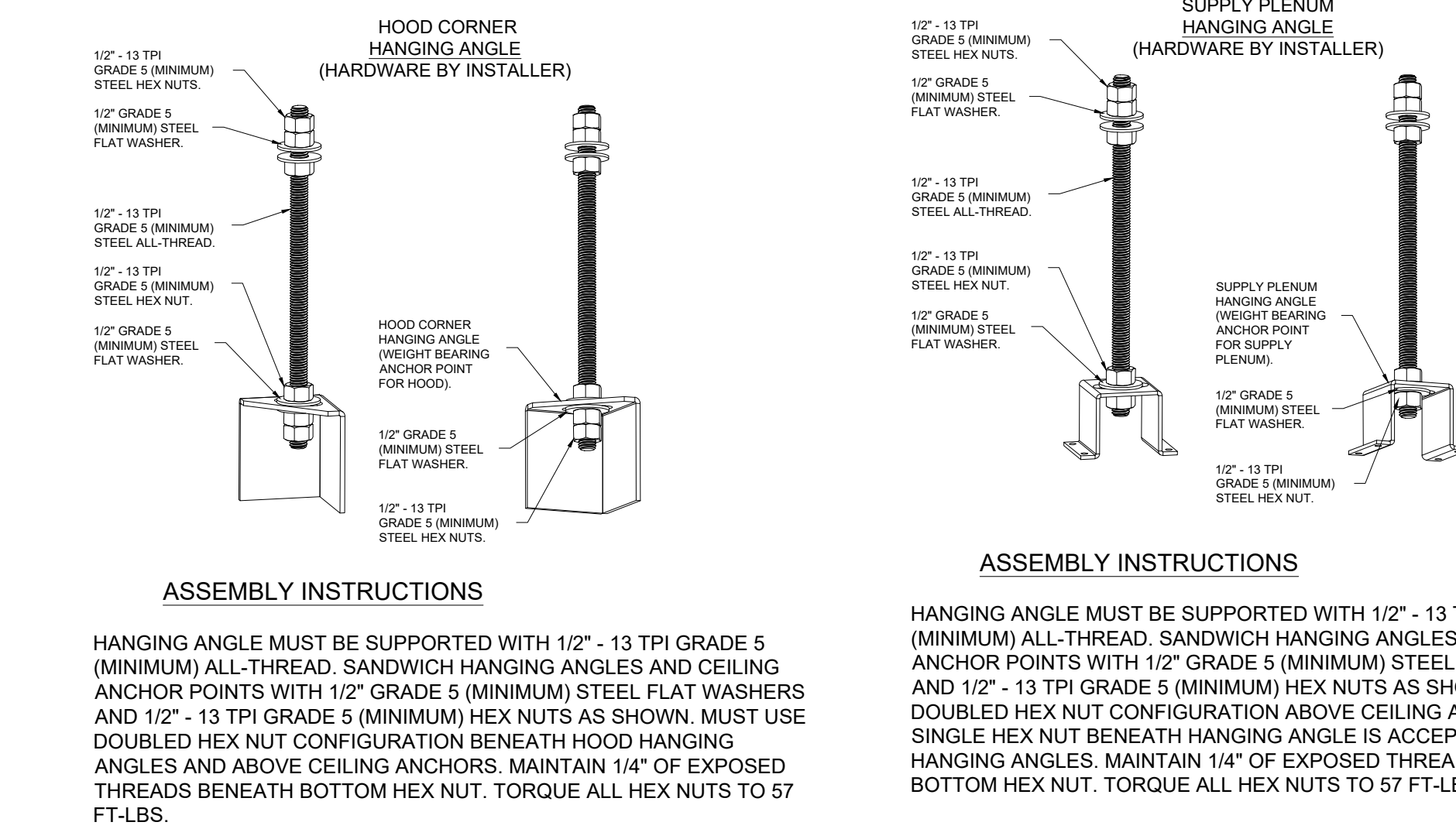
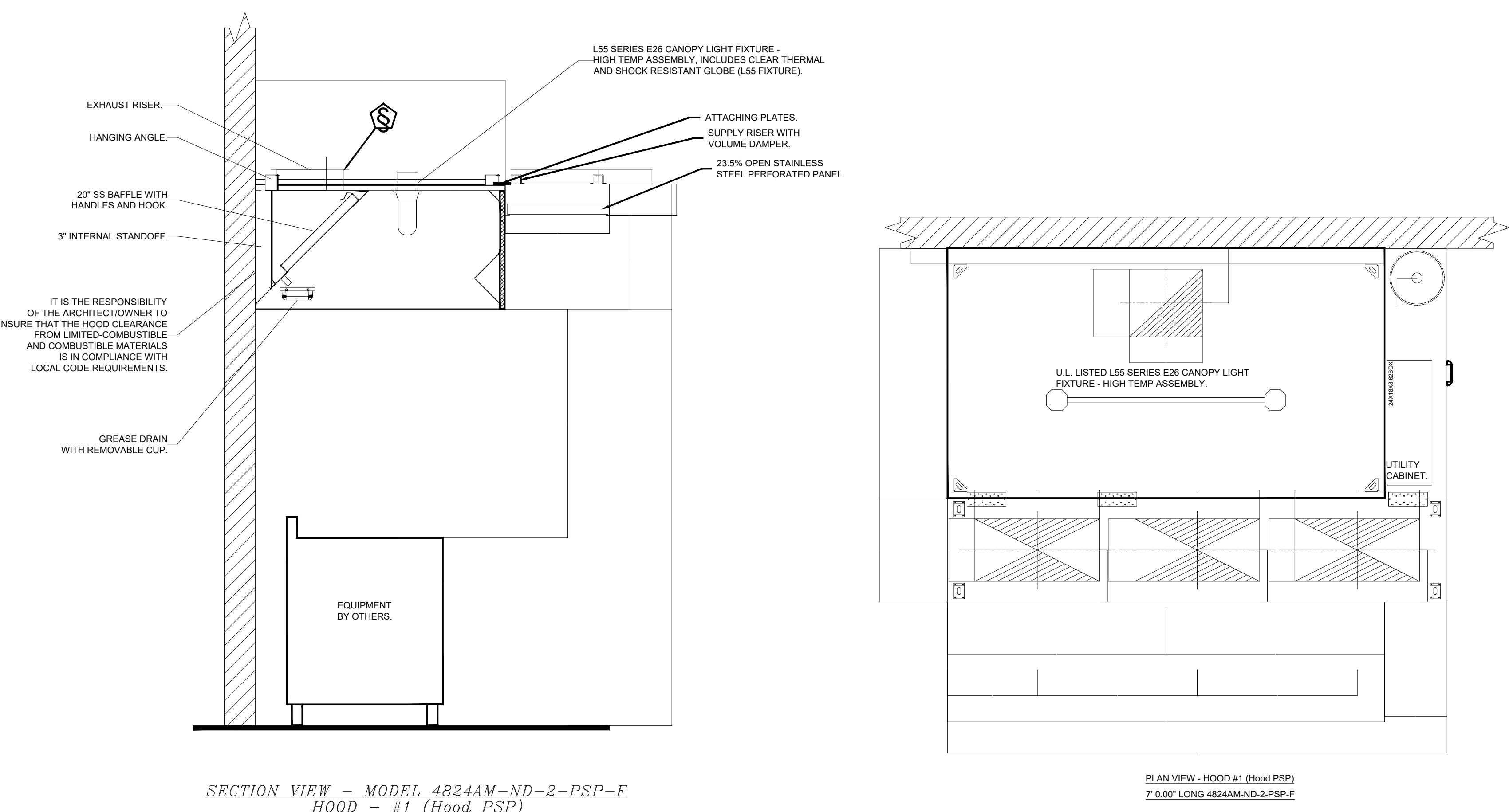
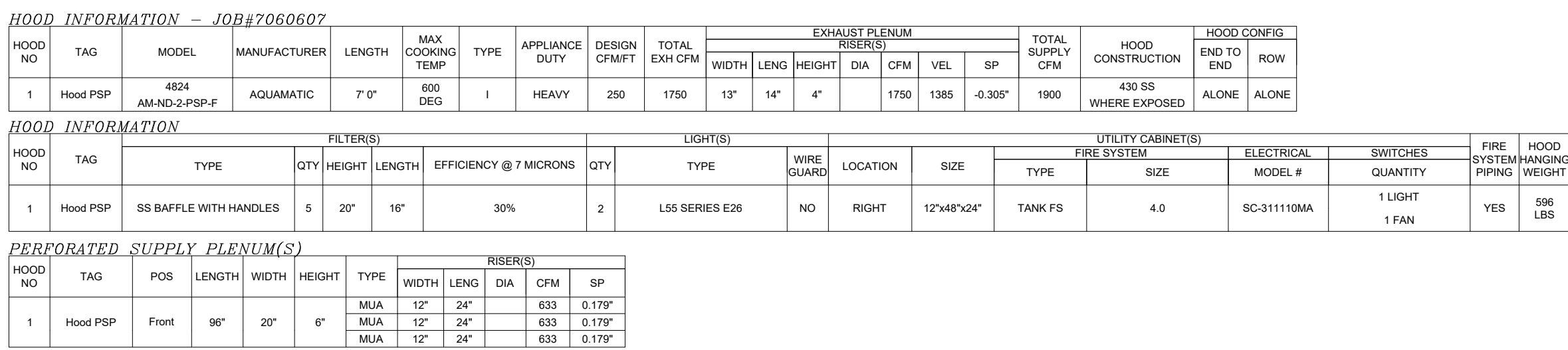
PLUMBING DETAILS

Project

TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

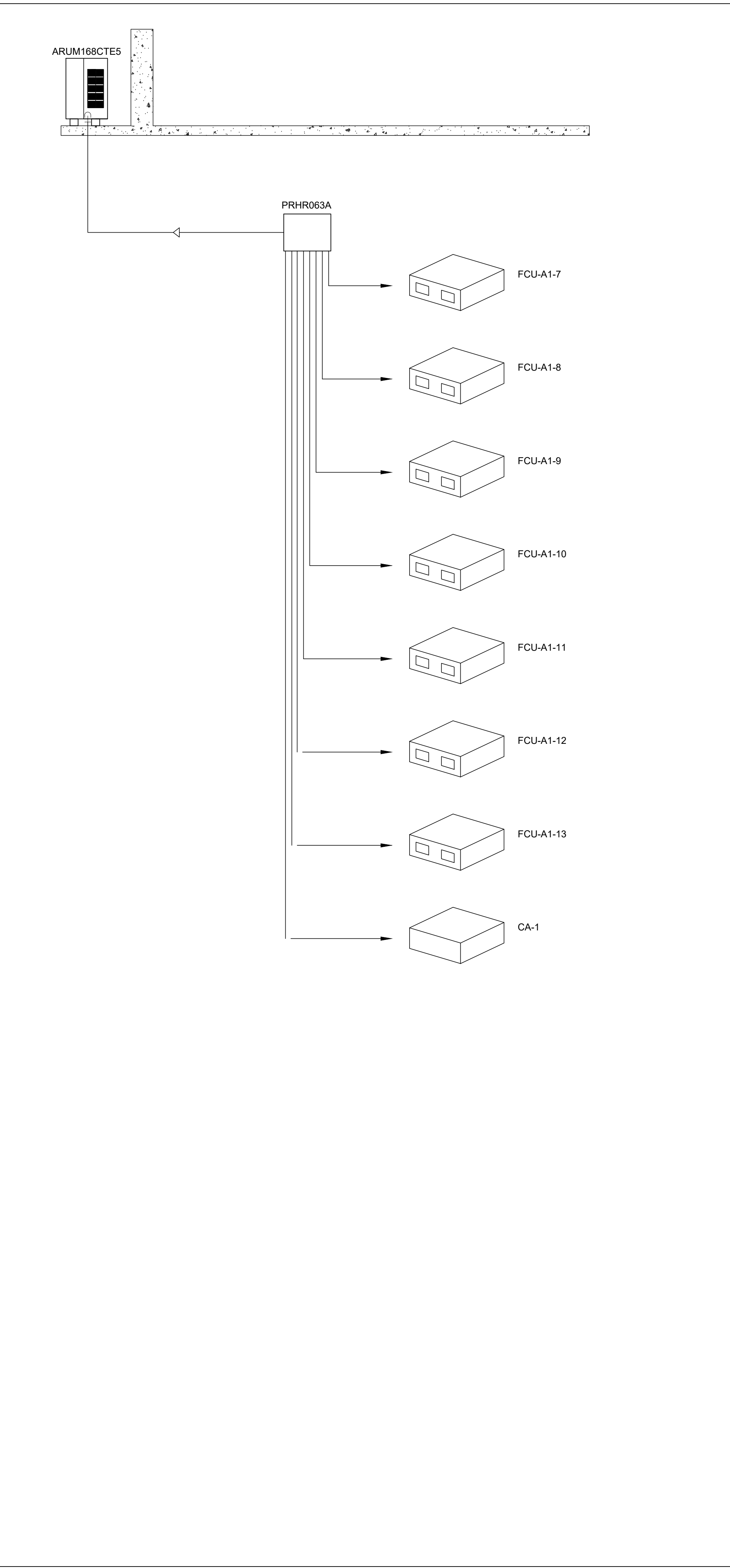
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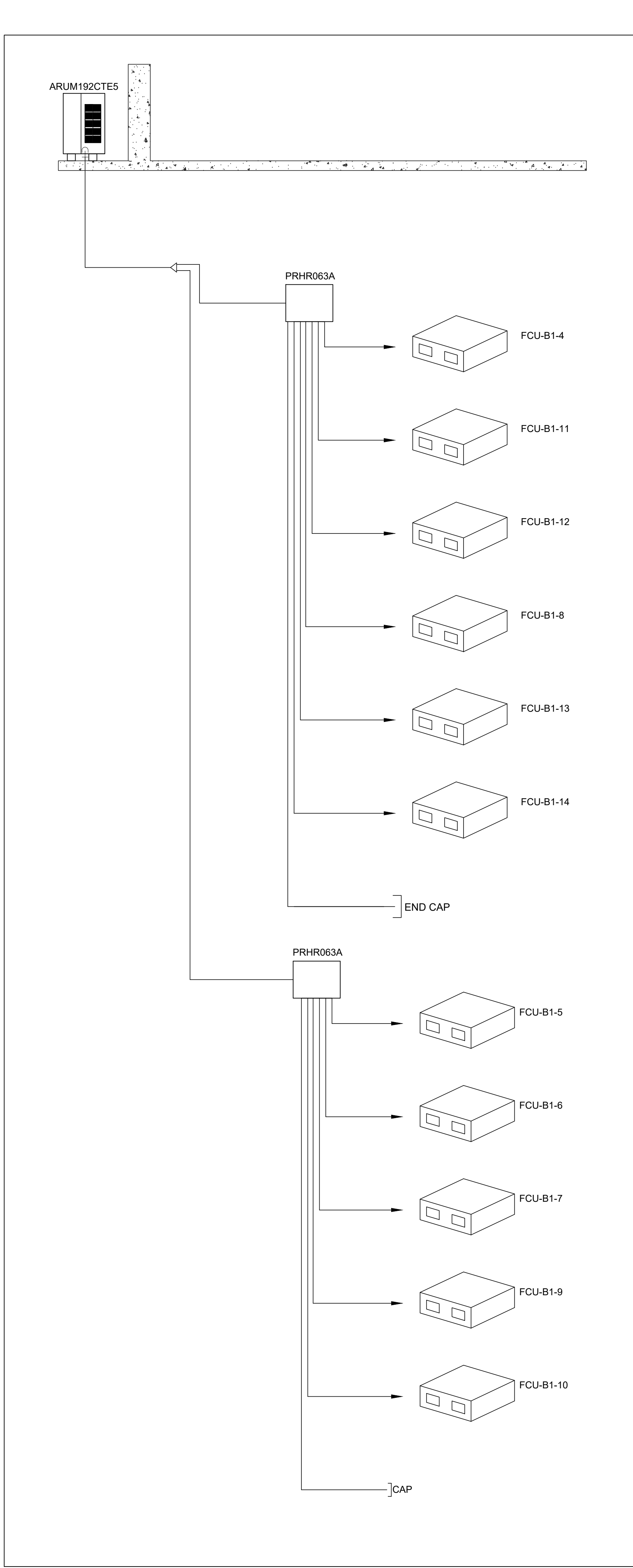
The seal of the Professional Engineer, M. Greenhill, is shown on the left. It is a circular seal with the text "LICENSED PROFESSIONAL ENGINEER" at the top, "M. GREENHILL" in the center, "July 4, 2020" below the name, and "PROVINCE OF ONTARIO" at the bottom. The PEO #1602170 is printed below the seal. To the right of the seal is a North Arrow pointing towards the top right, labeled "Project North" and "True North".

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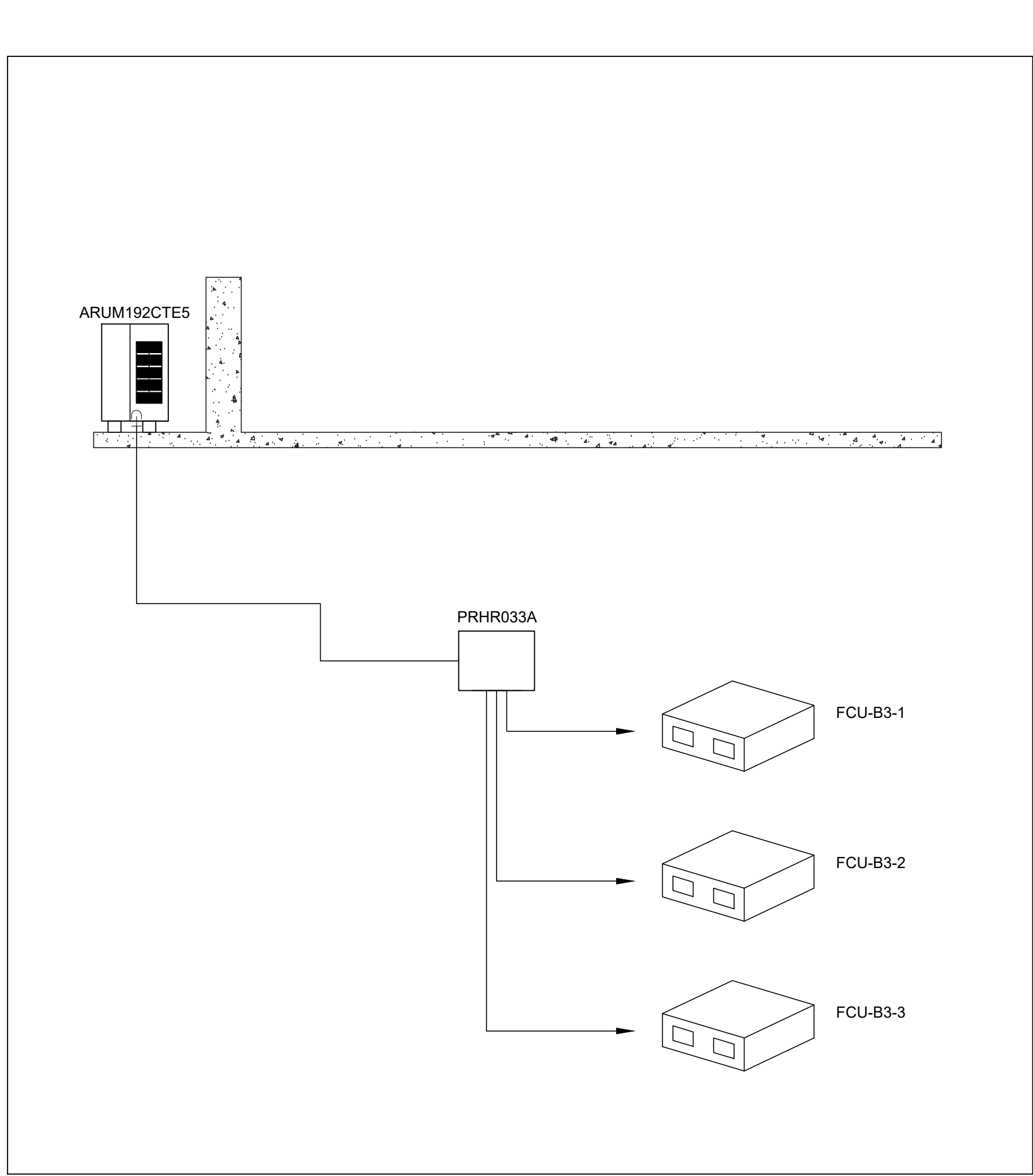
Drawing Title	
MECHANICAL DETAILS	
Project	
TOWN OF ORANGEVILLE FIRE STATION PROJECT	
10 COMMERCIAL DRIVE, ORANGEVILLE, ONTARIO	
Scale	
N.T.S	
Issued by	
MG	
File No.	
2341A-23	
Plot Date	
2024-05-10	



1 BUILDING A - REFRIGERANT PIPING SCHEMATIC
M-202 SCALE: N.T.S



2 BUILDING B1 - REFRIGERANT PIPING SCHEMATIC
M-202 SCALE: N.T.S



3 BUILDING B3 - REFRIGERANT PIPING SCHEMATIC
M-202 SCALE: N.T.S

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No.	Issued For	Date
02	ISSUED FOR TENDER	08-18-2025
01	ISSUED FOR PERMIT #1	07-02-2025



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Drawing Title

MECHANICAL SCHEMATICS

Project

TOWN OF ORANGEVILLE
FIRE STATION PROJECT

10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

Scale
N.T.S
Issued by
MG
File No.
2341A-23
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GENERAL NOTES:

- GENERAL SCOPE OF WORK
FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND SUPPORTS AS WELL AS SUPERVISION TO PROVIDE A COMPLETE INSTALLATION, TESTED AND IN WORKING ORDER, AS SHOWN ON THE DRAWINGS.
THE CONTRACTOR SHALL PERFORM THE WORK STIPULATED IN THE CONTRACT AND ANY OR ALL CONTRACT CHANGES AND CHANGE DIRECTIVES, AND SHALL FURNISH, UNLESS OTHERWISE PROVIDED IN THE CONTRACT, EVERYTHING NECESSARY FOR THE PROPER PERFORMANCE AND COMPLETION OF THE WORK.
ALL WORK SHALL BE FULLY TESTED, COMMISSIONED AND IN GOOD WORKING ORDER AT TIME OF HAND-OVER TO OWNER.
MAKE GOOD ANY DAMAGES TO EXISTING EQUIPMENT AND/OR SYSTEM(S), COORDINATE WORK AND WORKING HOURS WITH THE OWNER AND OTHER TRADES TO MINIMIZE DISRUPTION.
SPECIFICATIONS
1.5.1. COMPLY WITH THE GENERAL SECTIONS AND APPLICABLE SECTIONS OF THE GENERAL CONTRACT SPECIFICATIONS.
- WARRANTY
WARRANT ALL LABOR AND MATERIALS INCLUDED IN THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION, ASSUME FULL RESPONSIBILITY FOR LAYOUT OF ALL WORK AND FOR ANY DAMAGE CAUSED TO OWNER OR OTHERS BY IMPROPER CARRYING OUT OF THE WORK.
- DRAWINGS
DRAWINGS SHOW GENERAL INTENT OF THE WORK AND PROPOSED ROUTING ONLY. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT BEFORE PROCEEDING WITH THE WORK.
CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING POSSIBLE INTERFERENCES AND INFORMING THE ENGINEER.
- SITE CONDITIONS
EXAMINE SITE CONDITIONS TO ENSURE THAT WORK CAN BE SATISFACTORILY CARRIED OUT AS SHOWN. IF SITE EXAMINATION REVEALS ANY DIFFICULTIES THAT WILL PREVENT THE WORK FROM BEING CARRIED OUT AS DESIGNED, THESE MUST BE INDICATED IN THE TENDER PRICE, AND BROUGHT TO THE ATTENTION OF THE ENGINEER.
THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY ADDITIONAL DIFFICULTIES, INTERFERENCES AND SITE CONSTRAINTS THAT MAY BE IDENTIFIED DURING THE CONSTRUCTION PERIOD.
COORDINATE SITE ACCESS AND DELIVERIES WITH GENERAL CONTRACTOR.
- CLEANING
5.1. CLEAN PREMISES DAILY AT THE END OF EACH WORK DAY.
5.2. DO NOT ACCUMULATE EQUIPMENT, TOOLS, DEBRIS AND WASTE MATERIALS ON SITE. REMOVE FROM SITE DAILY.
5.3. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE ONCE WORK IS COMPLETE.
5.4. ALL MATERIALS TO BE DISPOSED OFF CONSTRUCTION SITE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- OPEN FLAMES AND WELDING
6.1. HOT WORK PERMIT MUST BE VISIBLE AT ALL TIMES.
6.2. ADEQUATE NUMBER OF FIRE EXTINGUISHERS MUST BE PROVIDED DURING THE OPEN FLAME PROCESS.
- MATERIALS
7.1. USE ONLY NEW CSA AND ULC CERTIFIED EQUIPMENT AND MATERIALS UNLESS OTHERWISE INDICATED.
7.2. ONLY FIRST CLASS WORKMANSHIP WILL BE ACCEPTED WITH RESPECT TO STANDARD PRACTICES, SAFETY, ACCESSIBILITY, DURABILITY AND NEATNESS OF INSTALLATION WORK.
- SHOP DRAWINGS
8.1. SUBMIT 2 COPIES OF SHOP DRAWINGS, UNLESS OTHERWISE INDICATED, FOR ENGINEER'S REVIEW.
8.2. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR ENGINEER'S REVIEW COVERING ALL RELEVANT DETAILS, DIMENSIONS AND PERFORMANCE.
8.3. SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE CONTRACTOR AND THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO CONSULTANT / ENGINEER FOR REVIEW.
- CUTTING, PATCHING AND PAINTING REQUIREMENTS
9.1. PROVIDE CUTTING, PATCHING AND PAINTING FOR ALL OPENINGS, USE QUALIFIED TRADES FOR THIS WORK. RESTORE FINISHES TO MATCH EXISTING SURROUNDINGS.
9.2. SUPPLY AND INSTALL APPROVED FIRESTOPS AS REQUIRED TO MAINTAIN FIRE RATING. PIPING AND VENTS THROUGH SH-1 WALL AND ROOF SHALL BE BY THE MECHANICAL DIVISION CONTRACTOR, INCLUDING ALL PATCHING.
9.3. PENETRATIONS THROUGH FLOORS AND WALLS
10.1. UNLESS OTHERWISE SPECIFIED ON DRAWINGS, CLASS FIBRE FIRE RETARDANT INSULATION AND FIRESTOP CAULKING SHALL BE PACKED AROUND PIPE OPENINGS IN FLOORS AND WALLS AT TIME OF PIPE INSTALLATION. FIRESTOP CAULKING SHALL BE "3M FIRE BARRIER" FIRESTOP CAULK OR EQUIVALENT.
10.2. APPLY FIRESTOP SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER INSTRUCTIONS. ALL SYSTEMS SHALL MEET CSA F-SYSTEM RATINGS FOR THE PARTICULAR FIRE RATING OF THE PENETRATED SURFACE.
10.3. MATERIALS SHALL BE ASBESTOS-FREE ELASTOMERIC MATERIALS, TESTED, LISTED AND LABELED BY ULC IN ACCORDANCE WITH CAN 4-S115-M85, AND CANULC-S101-M FOR INSTALLATION IN ULC FIRE STOPPING AND SMOKE SEAL SYSTEMS, TO PROVIDE A POSITIVE FIRE, WATER AND SMOKE SEAL AND A FIRE RESISTANCE RATING (FLAME, HOSE STREAM AND TEMPERATURE) NOT LESS THAN THE FIRE RATING FOR SURROUNDING CONSTRUCTION. MATERIALS SHALL BE COMPATIBLE WITH ABUTTING DISSIMILAR MATERIALS AND FINISHES.
- DIELECTRIC ISOLATION
11.1. PROVIDE ISOLATION WHEN USING DISSIMILAR MATERIALS, TO PREVENT GALVANIC ACTION.
- VIBRATION ISOLATION
12.1. PROVIDE AND INSTALL MINIMUM 3/4" THICK MSB ELASTOMERIC PADS W/ MOUNTS UNDER FLOOR MOUNTED HVAC EQUIPMENT AS PER MANUFACTURER RECOMMENDATIONS OR AS INDICATED ON DRAWINGS.
- ELECTRICAL
13.1. ALL LOW VOLTAGE CONTROL WIRING (<50V) SHALL BE BY THIS DIVISION, TO ELECTRICAL DIVISION STANDARDS. FOR SUB 750V WIRING, RETAIN THE SERVICES OF A LICENSED ELECTRICIAN TO DISCONNECT EXISTING (AND MAKE SAFE) AND RE-CONNECT TO THE NEW EQUIPMENT.
- AS-BUILT DRAWINGS
14.1. MAINTAIN A RECORD OF ALL REVISIONS. PREPARE RECORD DRAWINGS IN A NEAT MANNER SHOWING ALL DEVIATIONS IN WORK, ON COMPLETION OF WORK, SUBMIT TO THE ENGINEER ONE HARD COPY OF AS BUILT DRAWINGS AND ELECTRONIC FORMAT DRAWINGS (IN AUTOCAD).
- OPERATION AND MAINTENANCE MANUALS
15.1. SUBMIT THREE (3) COPIES OF O&M MANUALS TO ENGINEER FOR REVIEW. ALSO INCLUDE 1 COPY IN PDF FORMAT. MANUALS SHALL INCLUDE AS BUILT DRAWINGS (CAD AND PDF FORMAT), APPROVED SHOP DRAWINGS OF ALL NEW EQUIPMENT, TEST AND BALANCING REPORTS, COMMISSIONING REPORTS, WARRANTIES, TRAINING RECORDS, AND OPERATION & MAINTENANCE PROCEDURES.
16. CO-ORDINATE ALL DIMENSIONS WITH EQUIPMENT SHOP DRAWINGS.
- THOROUGHLY INSPECT EXISTING STRUCTURE AND CHECK SITE CONDITIONS WITH CONDITION SHOWN ON CONTRACT DRAWINGS BEFORE PROCEEDINGS WITH WORK. MAKE ADJUSTMENTS TO WORK TO SUIT EXISTING CONDITION AND IN CONFORMANCE WITH DESIGN INTENT. REPORT ANY DISCREPANCIES TO THE ENGINEER.
- WELDING SHALL BE UNDERTAKEN BY A COMPANY CERTIFIED BY CANADIAN WELDING BUREAU UNDER REQUIREMENTS OF DIVISION 1 OR DIVISION 2:1 OR W47:1.
- MATERIALS AND WORK WHICH FAILS TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED BY THE ENGINEER WHENEVER FOUND AT ANY TIME PRIOR TO FINAL ACCEPTANCE AND REGARDLESS OF PREVIOUS INSPECTIONS.
WHEN REJECTED, DEFECTIVE MATERIALS OR WORK SHALL BE PROMPTLY REMOVED, REPLACED OR REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO EXPENSE TO THE OWNER.
- THERMAL INSULATION
20.1. FOR ALL OTHER PROCESSES AND PLUMBING PIPES, UNLESS OTHERWISE INDICATED, PROVIDE AND INSTALL FIBERGLASS INSULATION WITH REINFORCED VAPOR RETARDER FACING AND FACTORY APPLIED ADHESIVE CLOSURE SYSTEM. INSULATION SHALL BE JOHNS MANVILLE MICRO-LOK AP-1 PLUS OR EQUIVALENT.
20.2. MINIMUM PIPE THICKNESS SHALL BE IN ACCORDANCE WITH LATEST EDITION OF ASHRAE STD. 90.1.
20.3. MINIMUM PIPE INSULATION SHALL BE 1" FOR ALL HOT AND COLD WATER PIPES UNLESS OTHERWISE INDICATED.
20.4. PROVIDE AND INSTALL PVC JACKET AND VAPOR RETARDER IF NOT PROVIDED ELSEWHERE FOR INDOOR INSULATED PIPE APPLICATIONS. JACKETING SHALL BE JOHNS MANVILLE ZESTON 300 SERIES OR EQUIVALENT.
20.5. PROVIDE AND INSTALL ALUMINUM JACKET WITH A LAMINATED MOISTURE RETARDER FOR OUTDOOR INSULATED PIPE APPLICATIONS. SECURE JACKET USING METAL BANDS AT BUTT JOINT OVERLAPS AND BETWEEN JOINTS.
20.6. INSTALL ALL INSULATION AND JACKETS AS PER MANUFACTURER RECOMMENDATIONS.
20.7. MAINTAIN UNINTERRUPTED CONTINUITY AND INTEGRITY OF VAPOR RETARDER AND FINISHES. HANGERS AND SUPPORTS TO BE OUTSIDE VAPOR OF RETARDER.
21. PIPE HANGERS AND SUPPORTS
- RESPONSIBILITIES FOR THE INSTALLER
22.1. BEFORE LEAVING INSTALLATION, INSTALLER SHALL ENSURE THAT THE APPLIANCE, ACCESSORY, COMPONENT, EQUIPMENT, OR PIPING AND TUBING THEY INSTALLED, COMPLIES WITH THE CODE REQUIREMENTS AND THE PERSON INITIALLY ACTIVATING THE APPLIANCE SHALL ENSURE THAT THE APPLIANCE IS IN SAFE WORKING ORDER.
22.2. THE INSTALLER SHALL INSTRUCT THE USER IN THE SAFE AND CORRECT OPERATION OF ALL APPLIANCES OR EQUIPMENT THAT THEY INSTALL.
22.3. THE INSTALLER SHALL ENSURE THAT THE MANUFACTURERS INSTRUCTION SUPPLIED WITH THE APPLIANCE ARE LEFT WITH USER.
22.4. AN APPLIANCE SHALL NOT BE INSTALLED IN A LOCATION THAT HAS AN ENVIRONMENT CORROSIVE TO APPLIANCE OR VENTING SYSTEM.
- ELECTRICAL CONNECTION
23.1. ELECTRICAL CONNECTIONS BETWEEN AN APPLIANCE AND BUILDING WIRING SHALL COMPLY WITH THE LOCAL ELECTRICAL CODE OR, IN THE ABSENCE OF SUCH, WITH THE CANADIAN ELECTRICAL CODE, PART-1.
- GENERAL
1.1. THE SYSTEM SHALL BE A PRE-ENGINEERED, FIXED PIPE, AUTOMATIC DRY CHEMICAL FIRE SUPPRESSION SYSTEM FOR PROTECTION OF ALL APPLICABLE HAZARD AREAS, INCLUDING WORK AREAS, PLENUMS, EXHAUST VENTILATION PITS, AND DUCTWORK.
1.2. ALL REQUIREMENTS OUTLINED IN THIS SPECIFICATION SHALL BE COMPLETED IN THEIR ENTIRETY. THESE REQUIREMENTS, COMBINED WITH GOOD ENGINEERING PRACTICES MUST BE FOLLOWED IN ORDER TO PROVIDE A SAFE AND EFFECTIVE FIRE PROTECTION AND SUPPRESSION SYSTEM.
2. CODES & STANDARDS COMPLIANCE
2.1. THE SYSTEM SHALL CONFORM TO, AND BE IN ACCORDANCE WITH, THE FOLLOWING (AS APPLICABLE):
A. UL 1254, STANDARD FOR PRE-ENGINEERED DRY CHEMICAL EXTINGUISHING SYSTEM UNITS
F. FM APPROVALS, WHERE APPLICABLE
C. NFPA 17, STANDARD ON DRY CHEMICAL EXTINGUISHING SYSTEMS
D. NFPA 33, STANDARD FOR SPRAY APPLICATION USING FLAMMABLE OR COMBUSTIBLE MATERIALS
E. NFPA 70: NATIONAL ELECTRICAL CODE® (NEC)
F. NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE
G. KIDDE INO DRY CHEMICAL SYSTEM FOR VEHICLE SPRAY BOOTHS DESIGN, INSTALLATION, OPERATION AND MAINTENANCE (DIOM) MANUAL, PART NUMBER 83-1000036-001, AND ALL APPLICABLE APPENDA, AS IDENTIFIED BY UNDERWRITERS LABORATORIES FILE NO. UL EX2153
H. ALL APPLICABLE INSURANCE COMPANY REQUIREMENTS

- ALL APPLICABLE LOCAL AND STATE CODES AND STANDARDS
J. REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION (LAHJ)
2.2. THE FIRE SUPPRESSION SYSTEM MUST HAVE THE FOLLOWING LISTINGS AND APPROVALS:
A. UNDERWRITER'S LABORATORIES (UL)
B. UNDERWRITER'S LABORATORIES CANADA (ULC)
C. FIRE DEPARTMENT, CITY OF NEW YORK, CERTIFICATE OF APPROVAL
2.3. THE MANUFACTURER SHALL MEET ISO 9001 REQUIREMENT FOR THE DESIGN, PRODUCTION AND DISTRIBUTION OF THE DRY CHEMICAL FIRE SUPPRESSION SYSTEMS.
- SYSTEM DESCRIPTION
3.1. THE MANUFACTURER SHALL WARRANT ALL FIRE SUPPRESSION SYSTEM PRODUCTS FOR THREE (3) YEARS FROM THE DATE OF PURCHASE.
3.2. THE SYSTEM SHALL BE INSTALLED BY A FACTORY AUTHORIZED, FIRE SYSTEMS DISTRIBUTOR. THE ORGANIZATION AND INSTALLATION SHALL BE TRAINED BY THE MANUFACTURER TO DESIGN, INSTALL, TEST AND MAINTAIN THE DRY CHEMICAL FIRE SUPPRESSION SYSTEM AND SHALL BE ABLE TO PRODUCE A CERTIFICATE STATING SUCH ON REQUEST.
3.3. THE DRY CHEMICAL FIRE SUPPRESSION SYSTEM SHALL BE A PRE-ENGINEERED, MODEL DESIGNED FOR VEHICLE SPRAY BOOTH APPLICATIONS.
3.4. THE SYSTEM SHALL CONSIST OF DRY CHEMICAL STORAGE CYLINDER(S), CONTROL CLOTH, CLASS B (FLAMMABLE LIQUID) AND CLASS C (ELECTRICAL) FIRES AND SHALL EMPLOY 90 MULTIPURPOSE ABC DRY CHEMICAL AGENT.
- COMPONENTS
4.1. CYLINDER AND VALVE ASSEMBLY
A. THE DRY CHEMICAL AGENT SHALL BE CONTAINED IN ONE OR MORE STORED PRESSURE DOTTC RATED STEEL CYLINDER AND VALVE ASSEMBLIES. CYLINDERS REQUIRING AN EXTERNAL SOURCE TO PRESSURIZE THE AGENT SHALL NOT BE ACCEPTABLE.
B. THE CYLINDER(S) SHALL BE OF THE APPROPRIATE TYPE, QUANTITY, AND SIZE FOR THE PROTECTED HAZARD AREA(S), AS REQUIRED BY THE MANUFACTURER MANUAL.
C. THE CYLINDER(S) SHALL HAVE A TIN-NICKEL ALLOY PLATED BRASS VALVE, WITH PRESSURE GAUGE, AGENT CYLINDERS WITHOUT PRESSURE GAUGES SHALL NOT BE ACCEPTABLE. THE VALVE SHALL CONTAIN A CHECK STEM WHICH IS OPERATED BY THE STROKE OF THE ACTUATING ASSEMBLY. AGENT CYLINDERS UTILIZING A BURST DISC AS A MEANS OF SEALING THE DISCHARGE OUTLET WILL NOT BE ACCEPTABLE.
D. THE CYLINDER AND VALVE ASSEMBLIES SHALL BE FACTORY PRESSURIZED WITH NITROGEN TO 380 PSIG (24.8 BAR) AT 70°F (21°C). THE CYLINDER AND VALVE ASSEMBLIES SHALL BE CAPABLE OF BEING STORED AND OPERATED AT A TEMPERATURE RANGE OF 0°F TO 120°F (-17.8°C TO 48.9°C).
E. THE CYLINDER SHALL HAVE A SHIELD TO PROTECT THE GAUGE. THE SHIELD SHALL BE A SEPARATE ASSEMBLY FROM THAT OF THE GAUGE, AND SHALL BE SEPARATELY MOUNTED.
F. BRACKETING SHALL BE PROVIDED TO MOUNT THE CYLINDER SECURELY TO THE LISTED AND COMPATIBLE CONTROL PANEL.

- CONTROL EQUIPMENT
A. THE SYSTEM CONTROL EQUIPMENT SHALL BE CAPABLE OF ALL FUNCTIONS ASSOCIATED WITH AUTOMATICALLY AND MANUALLY DISCHARGING THE DRY CHEMICAL AGENT FROM ALL CYLINDER AND VALVE ASSEMBLIES, INCLUDING AUTOMATIC SHUTDOWN OF THE FUEL AND HEAT SOURCE(S), AND ELECTRICAL POWER, TO ALL PROTECTED AREAS UPON SYSTEM DISCHARGE.
B. THE SYSTEM CONTROL EQUIPMENT SHALL INCLUDE A CONTROL HEAD, FOR EACH SYSTEM, AND A SYSTEM VALVE, FOR EACH CYLINDER VALVE. THE CYLINDER AND VALVE HEAD SHALL BE CAPABLE OF ATTACHMENT DIRECTLY TO A CYLINDER ACTUATOR, OR WALL MOUNTED, WHICHEVER IS APPLICABLE.
C. THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC AND MANUAL ACTUATION. THE CONTROL HEAD SHALL BE CAPABLE OF ACTUATION BY ELECTRICAL AND/OR MECHANICAL MEANS. THE CONTROL HEAD SHALL BE EQUIPPED WITH MICRO-SWITCH CONTACTS FOR ADDIBLE ALARM AND/OR EQUIPMENT SHUTDOWN. ALL CYLINDERS PROTECTING A SINGLE HAZARD AREA MUST BE CONNECTED FOR SIMULTANEOUS DISCHARGE BY ALL METHODS OF SYSTEM ACTUATION.
D. THE CYLINDER AND VALVE ASSEMBLIES SHALL BE FACTORY PRESSURIZED WITH NITROGEN TO 380 PSIG (24.8 BAR) AT 70°F (21°C). THE CYLINDER AND VALVE ASSEMBLIES SHALL BE CAPABLE OF BEING STORED AND OPERATED AT A TEMPERATURE RANGE OF 0°F TO 120°F (-17.8°C TO 48.9°C).

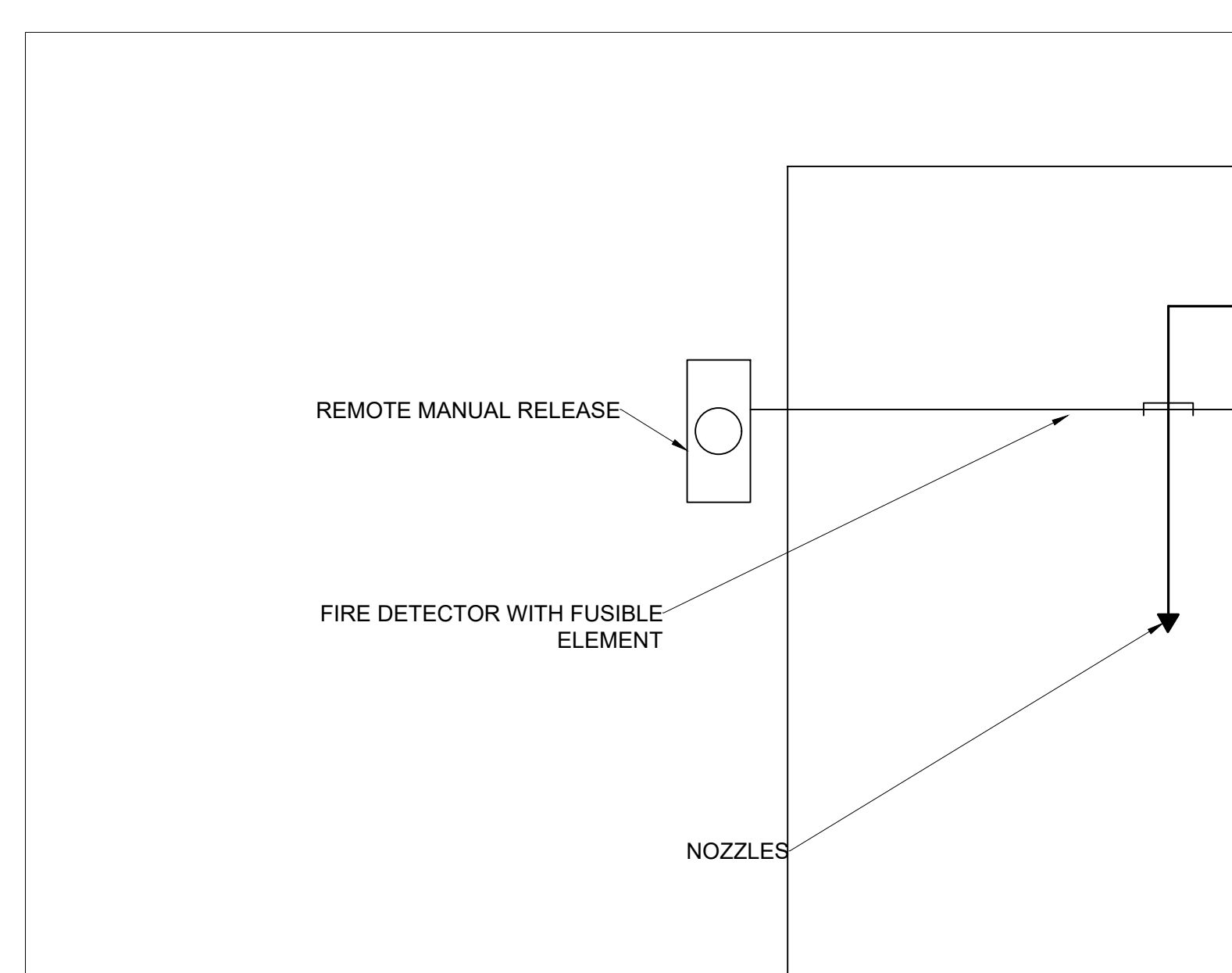
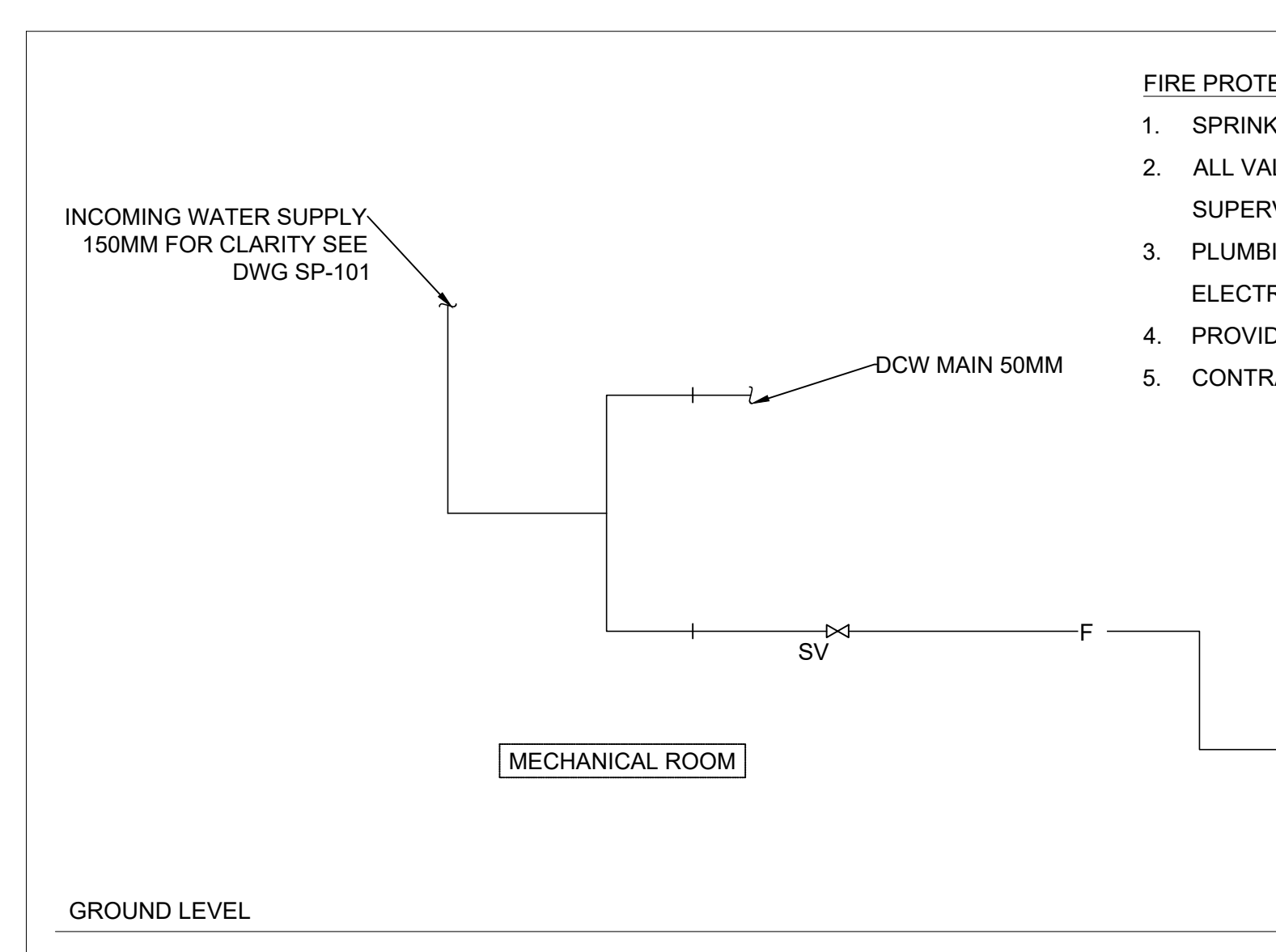
- DISTRIBUTION NOZZLES
NOZZLE TYPE(S) AND QUANTITY SHALL BE SELECTED AND LOCATED TO PROTECT ALL HAZARDS REQUIRING PROTECTION, INCLUDING EXHAUST DUCT(S), PLENUM(S), AND WORK AREAS PER MANUFACTURER MANUAL, ALL APPLICABLE CODES, AND REQUIREMENTS OF THE LOCAL LAHJ.
4.4. DISTRIBUTION PIPING
A. THE DISTRIBUTION PIPE NETWORK SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE. PIPE THREAD COMPOUND OR TAPE SHALL NOT BE USED.
B. ALL FITTINGS SHALL BE 150LB CLASS MINIMUM, GALVANIZED MALLEABLE IRON, DUCTILE IRON, OR STEEL. COUPLINGS AND UNIONS SHALL BE PERMISSIBLE.
C. USE OF REDUCING BUSHINGS AND REDUCING TEES SHALL BE PERMISSIBLE FOR CHANGES IN PIPE DIAMETER.
- SYSTEM INSTALLATION AND COMMISSIONING
5.1. FIRE SUPPRESSION SYSTEM EQUIPMENT
A. FACTORY AUTHORIZED FIRE SYSTEMS DISTRIBUTOR SHALL INSTALL AND COMMISSION THE SYSTEM IN ACCORDANCE WITH FIRE SYSTEMS MANUFACTURER DIOM MANUAL.
5.2. TRAINING REQUIREMENTS
THE INSTALLER SHALL BE TRAINED AND CERTIFIED BY FIRE SYSTEMS ON DESIGN, INSTALLATION, TESTING AND MAINTENANCE OF THE DRY CHEMICAL FIRE SUPPRESSION SYSTEM.
5.3. ROUTINE MAINTENANCE
ROUTINE MAINTENANCE SHALL BE PERFORMED BY AN AUTHORIZED FIRE SYSTEMS DISTRIBUTOR, AND IN ACCORDANCE WITH DIOM MANUAL, ALL APPLICABLE CODES, INCLUDING NFPA 17 & NFPA 33, AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.

- SPRINKLER SYSTEM
1. ALL SPRINKLER WORK SHALL CONFORM TO NFPA 13 AND ALL REQUIREMENTS. ALL EXISTING LIFE SAFETY, STANDPIP (IF APPLICABLE), SPRINKLERS AND FIRE PROTECTION SERVICES MUST BE MAINTAINED IN OPERATION DURING CONSTRUCTION.
2. NEW SPRINKLER HEAD LAYOUT AND TYPES OF HEADS SHALL BE AS BASE BUILDING DESIGN. ADD NEW SPRINKLER HEADS AND PIPING WHERE REQUIRED DUE TO SITE CONDITIONS TO OBTAIN THE NECESSARY APPROVALS FROM LOCAL AUTHORITIES AND UNDERWRITERS.
3. HAVE DRAWINGS SUBMITTED TO THE OWNERS INSURANCE UNDERWRITER AND OBTAIN THEIR APPROVAL. UPON COMPLETION OF SPRINKLER WORK CONTRACTOR TO SUBMIT CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ABOVE GROUND PIPING AS PER NFPA 13.
4. HAVE SPRINKLER INSTALLATION PERFORMED BY A CONTRACTOR APPROVED BY THE LANDLORD, LISTED BY IAO AND LICENSED FOR SPRINKLER INSTALLATION BY THE AUTHORITIES. E. IT IS THE RESPONSIBILITY OF THIS SPRINKLER CONTRACTOR TO PREPARE SHOP DRAWINGS AND ALL PERTINENT DOCUMENTS AS REQUIRED TO OBTAIN PERMITS.
7. USE ASTM A-53 SCHEDULE 40 PIPE FOR SPRINKLER. SUPPORT PIPES AS PER CODE REQUIREMENTS.
8. INSTALL ALL PIPING, DROPS AND HEADS. HAVE SYSTEM TESTED TO THE APPROVAL OF AUTHORITIES, UNDERWRITERS AND THE OWNER.
9. ENSURE SPRINKLER SYSTEM INSTALLATION IS COORDINATED WITH DUCTWORK INSTALLATION. SPRINKLER HEAD POSITIONING SHALL COMPLY WITH NFPA-13 REQUIREMENTS FOR DISTANCE AND HEIGHT INSTALLATION.
10. COORDINATE 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.
13. FLEXIBLE PIPING IS NOT ALLOWED.

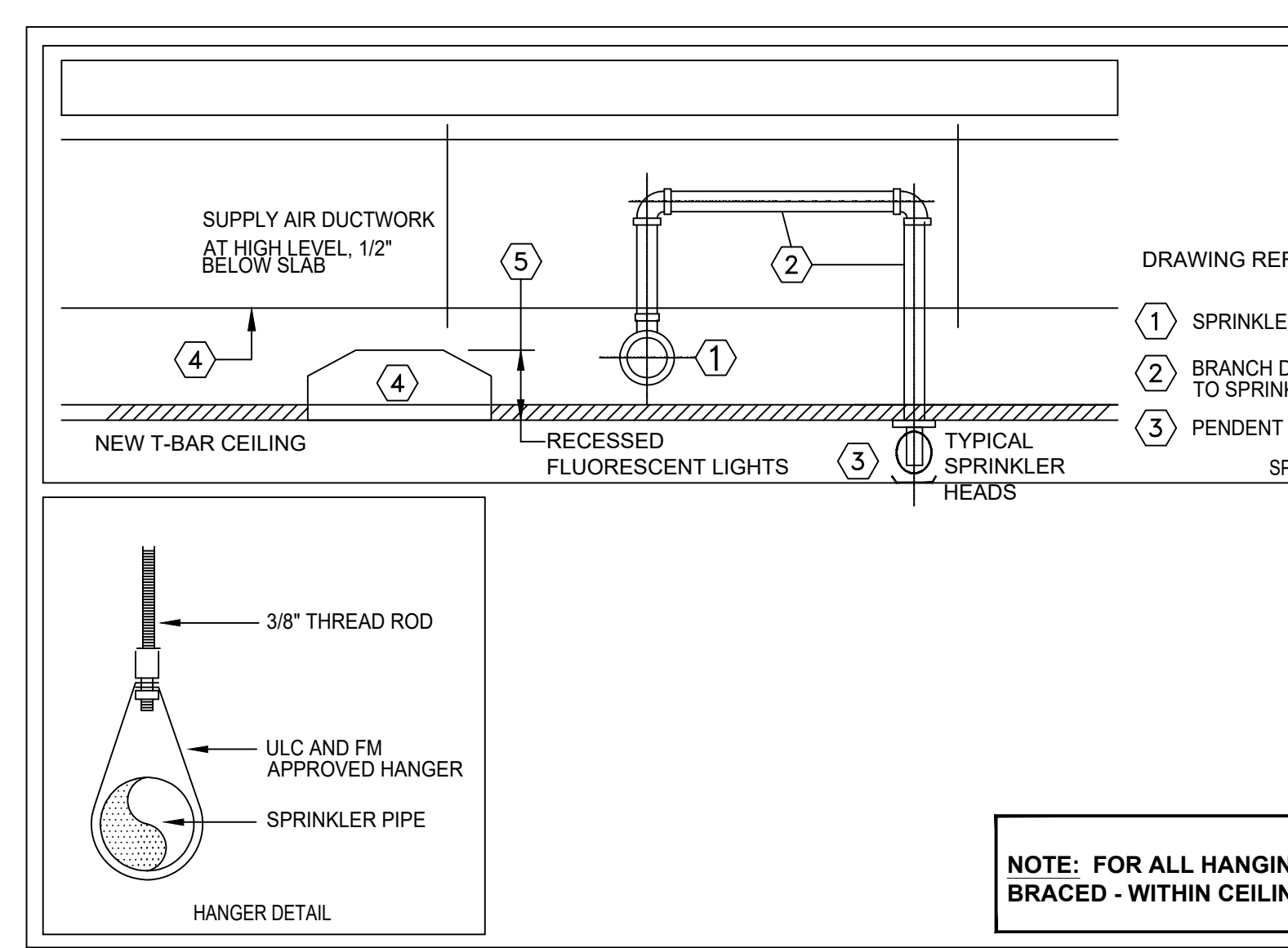
- NOTE
SPRINKLER TO VERIFY HEAD LOCATIONS AND TYPES ON SITE. CONTRACTOR TO ADJUST EXISTING HEADS AS NECESSARY.
SPRINKLER HEAD: TYCO SERIES TY-B STANDARD RESPONSE PENDANT SPRINKLER HEAD 4JULIS LISTED, FM APPROVED, NOMINAL K factor: 5.6, 1/2" 155 °F.
WAREHOUSE AREA
CLASS 1-4 COMMODITIES
0.457 gpm, OVER 2000 sq.ft. PLUS 500 GPM HOSE ALLOWANCE
DATA TAKEN FROM DWG FP-1 ISSUED BY GENERAL SPRINKLER
- DRAWING REFERENCE NOTES
1 SPRINKLER PIPING 3" (75MM)
2 RECESSED TYCO SPRINKLER HEADS
3 PENDENT HEADS
4 SPRINKLER PIPING TO BE INSTALLED CLEAR OF LIGHTING FIXTURES & DUCTWORK
5 CLEAR SPACE TO BE MAINTAINED FOR LIGHT FIXTURE INSTALLATION & MAINTENANCE
SPRINKLER HEAD INSTALLATION DETAIL
3/8" THREAD ROD
ULC AND FM APPROVED HANGER
SPRINKLER PIPE
HANGER DETAIL
NOTE: FOR ALL HANGING EQUIPMENT INSIDE BUILDING TO BE SEISMICALLY BRACED - WITHIN CEILING SPACE OR HANGING FROM JOISTS.

- SPRINKLER HEAD INSTALLATION:
- PIPING 2" DIA. OR SMALLER SHALL BE ASTM-A-53, SCHEDULE 10S GRADE A CARBON STEEL WITH ROLLED GROOVE MECHANICAL JOINTS
 - PIPING 2 1/2" DIA. TO 4" DIA. SHALL BE ASTM-A-53, SCHEDULE 40 GRADE A CARBON STEEL WITH THREADED OR CUT GROOVE JOINTS
 - FITTINGS SHALL BE STANDARD WEIGHT CAST IRON TO ANSI B164, 1206 6 KPA HANGERS AND EQUIPMENT SUPPORT:
- PIPING & EQUIPMENT PROVIDED UNDER THE MECHANICAL DIVISION SHALL BE c/w ALL NECESSARY SUPPORTS & HANGERS REQUIRED FOR A SAFE & WORKMANLIKE INSTALLATION
 - PIPE HANGERS SHALL BE FASTENED TO ROOF JOISTS OVER WITH APPROVED TYPE CLAMP
 - INSTALL ALL PIPE HANGERS TO PROVIDE THE FOLLOWING FUNCTIONS: - SECURE PIPE IN PLACE, PREVENT VIBRATIONS, MAINTAIN PROPER GRADE & PROVIDE FOR CONTRACTION & EXPANSION
 - ALL HANGER RODS SHALL HAVE MACHINE THREAD WITH NUTS BELOW & ABOVE YOKES FOR ADJUSTMENT PERFORATED STRAP OR CHAIN HANGERS ARE NOT TO BE USED
 - HANGERS SHALL BE INSTALLED AT VALVES, CLOSE TO POINTS WHERE PIPES CHANGE DIRECTION OR WHERE BRANCH PIPING DROPS OR RISSES FROM THE MAIN
 - ALL HANGERS SHALL BE DIRECTLY SUSPENDED FROM THE BUILDING STRUCTURE, PIPES OR EQUIPMENT SHALL NOT BE SUPPORTED FROM OTHER PIPES, DUCTS, EQUIPMENT, SUSPENDED CEILINGS, OTHER HANGERS ETC
 - SUSPENDED PIPING SHALL BE SUPPORTED BY ADJUSTABLE ROD HANGERS SIZED AS FOLLOWS:

PIPE SIZE	HANGER ROD DIA MAX SPACING	
INCHES (MM)	INCHES (MM)	FT (MM)
1 / 2" (12)	3 / 8 (9)	6 (2)
3 / 4" (20) TO 1 1 / 4" (32)	3 / 8 (9)	8 (2.5)
1 1 / 2" (40) & 2" (50)	3 / 8 (9)	10 (3)



- NOTES:
1. THE SERVICES OF AN APPROVED FIRE PROTECTION COMPANY WILL BE RETAINED TO PROVIDE STAMPED ENGINEERING DRAWINGS FOR DRY CHEMICAL SYSTEM AND DISTRIBUTION SCHEMATIC.
2. FOLLOW NFPA17 FOR SPECIFIC SPACING REQUIREMENTS FOR NOZZLE HEADS. FINAL REQUIREMENTS WILL BE BASED ON HAZARD LEVEL AS WELL AS FLOW CALCULATIONS AND MAY NEED TO BE ADJUSTED BASED ON ANY INSTRUCTIONS THAT MAY BE PRESENT IN THE AREA OF THE NOZZLE HEAD.
3. CONTRACTOR AND SUPPLIER SHALL CONFIRM LOCATION OF THE NOZZLE AND SENSOR AND THE SIZING REQUIREMENT OF THE DRY CHEMICAL SYSTEM AS PER MANUFACTURER AND CODE REQUIREMENT.



- GENERAL
- EXISTING TO REMAIN
 - EXISTING TO BE DEMOLISHED
 - EXISTING TO BE REMOVED FOR RELOCATION
 - EXISTING RELOCATED IN NEW WORK
 - NEW WORK
 - CAP
 - PIPE DOWN
 - PIPE UP
 - TEE UP
 - TEE DOWN
 - BOTTOM TAKE OFF
 - TOP TAKE OFF

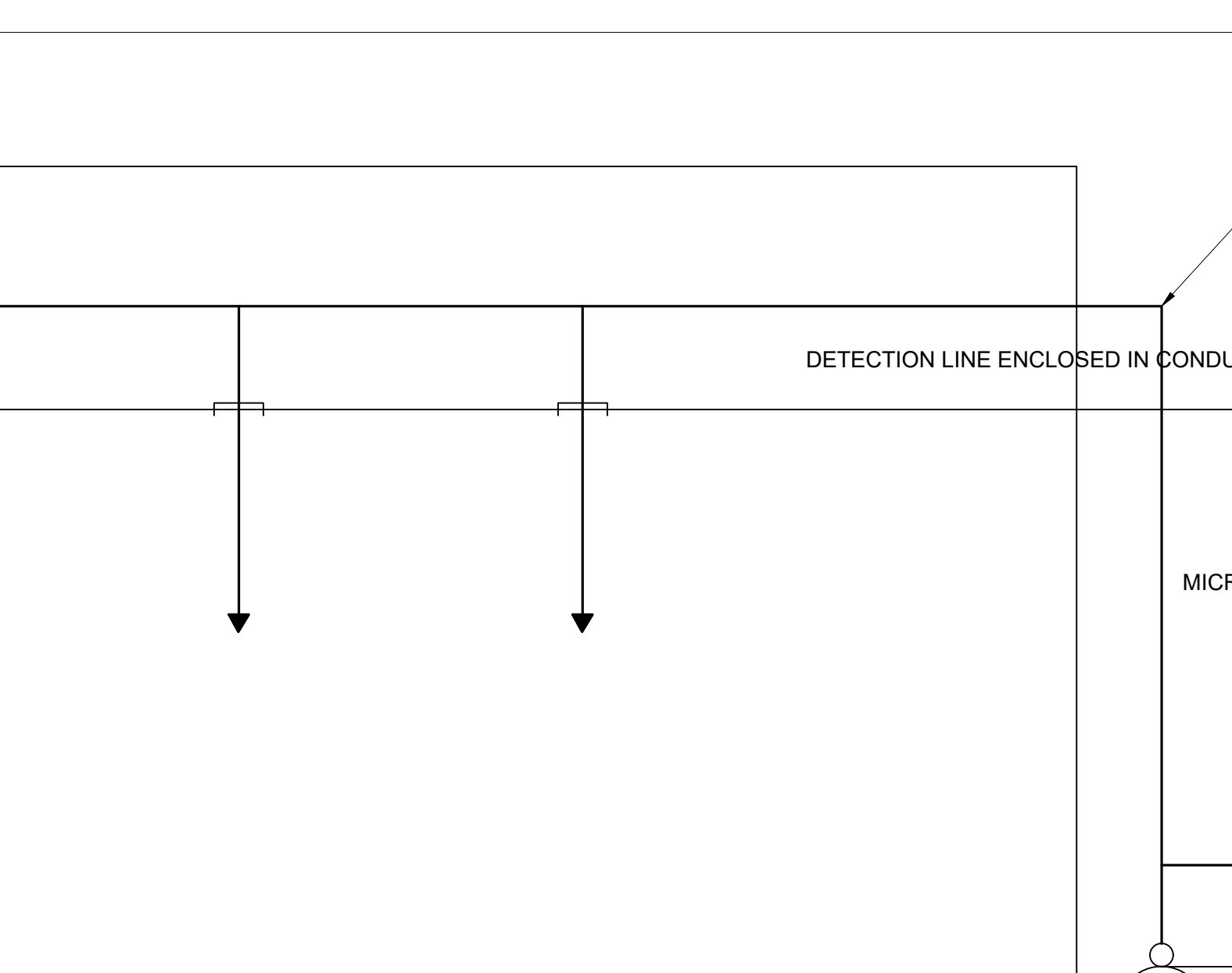
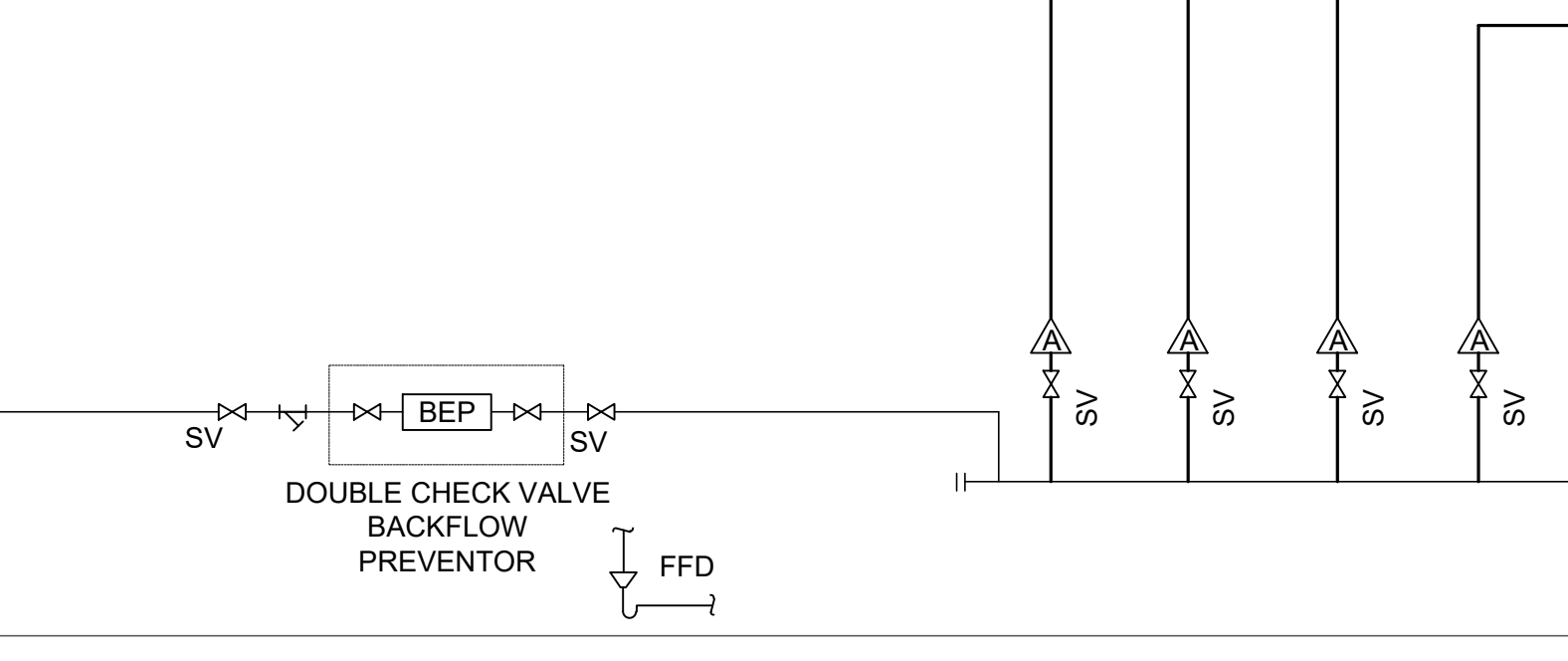
- PLUMBING LEGEND
- DOMESTIC COLD WATER SUPPLY

- SPRINKLER LEGEND
- SPRINKLER MAIN
 - FIRE STANDPIPE
 - PENDENT SPRINKLER HEAD
 - UPRIGHT SPRINKLER HEAD

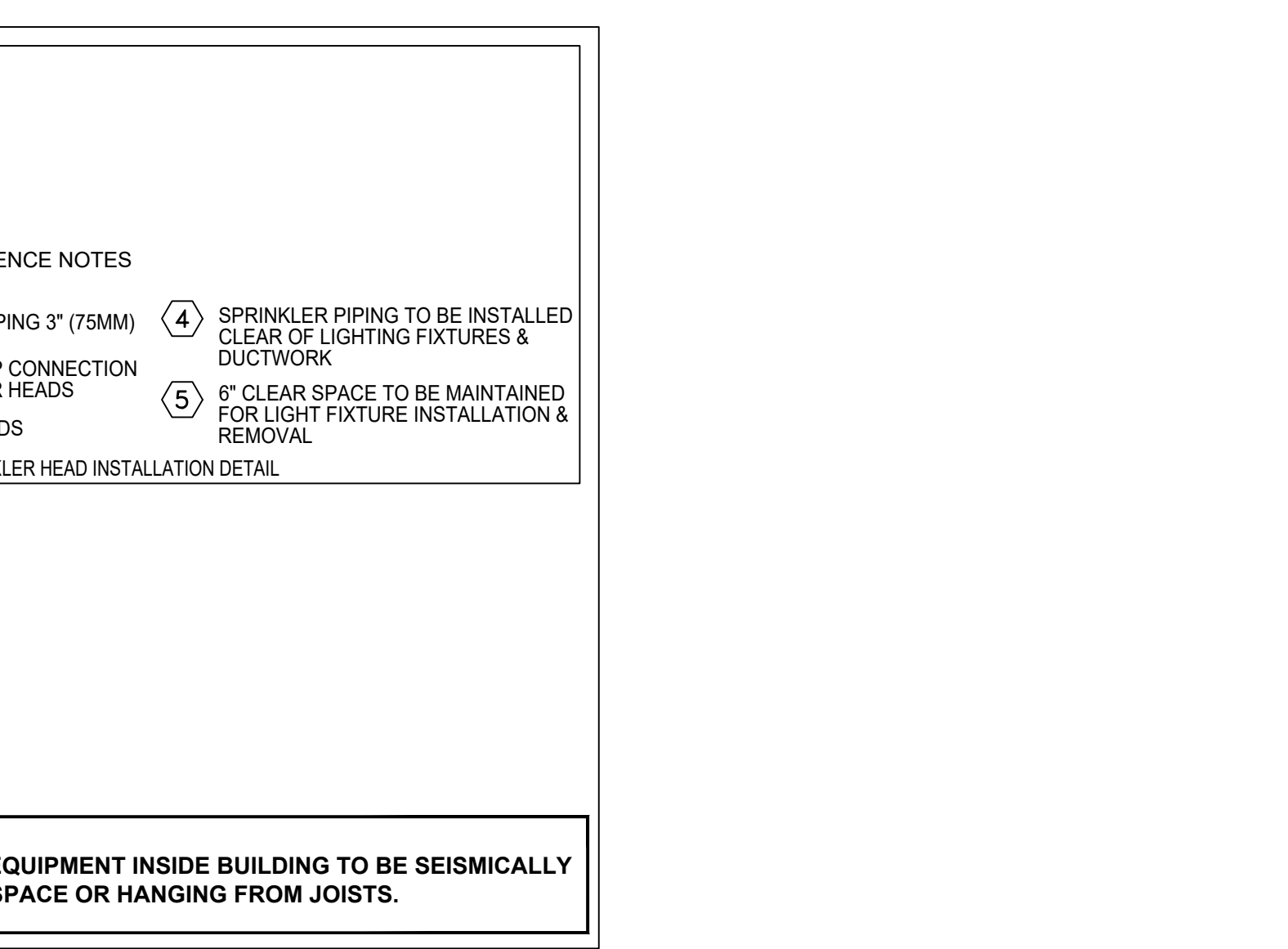
- FIRE PROTECTION LEGEND
- FIRE DEPT. CONNECTION
 - FIRE LINE
 - SPRINKLER LINE (WET)
 - SPRINKLER LINE (DRY)
 - SPRINKLER LINE (GLYCOL)
 - ALARM CHECK VALVE
 - DRY ALARM CHECK VALVE
 - PREACTION ALARM CHECK VALVE
 - CHECK VALVE WITH BALL DRIP
 - UPRIGHT SPRINKLER HEAD
 - SEMI-RECESSED SPRINKLER HEAD
 - RECESSED OR PENDENT STYLE SPRINKLER HEAD
 - SIDE WALL SPRINKLER HEAD
 - FIRE GONG
 - CARBON MONOXIDE DETECTOR
 - SIAMESE PUMPER CONNECTION
 - FIRE HOSE CABINET
 - FIRE HOSE RACK
 - FIRE EXTINGUISHER
 - FIRE EXTINGUISHER WITH CABINET
 - FIRE STANDPIPE
 - SPRINKLER STANDPIPE

- DRAWING LIST
- SP-001 SPRINKLER LEGEND, DETAIL AND DRAWING LIST
 - SP-100 BUILDING A SPRINKLER PLAN
 - SP-101 BUILDING B1 SPRINKLER PLAN
 - SP-102 BUILDING B2 SPRINKLER PLAN
 - SP-103 BUILDING B3 SPRINKLER PLAN

- FIRE PROTECTION NOTES:
- SPRINKLER SYSTEM TO BE GRADED TO ALLOW DRAINAGE IN ACCORDANCE WITH N.F.P.A. 13.
 - ALL VALVES FOR SPRINKLERS ON STANDPIPES SHALL BE O.S.&Y. TYPE & ELECTRICALLY SUPERVISED. COMPLETE VALVES & CONTROLS BY PLUMBING CONTRACTOR. N.B.C.
 - PLUMBING CONTRACTOR TO CO-ONATE ALL LOCATIONS OF DRUM DRIPS WITH ELECTRICAL CONTRACTOR BEFORE SPRINKLER INSTALLATION.
 - PROVIDE TEST CONNECTIONS FOR ALL SPRINKLER SYSTEMS AS PER N.F.P.A. 13.
 - CONTRACTOR TO PROVIDE DEFLECTORS ON ELECT. ROOMS SPRINKLERS.



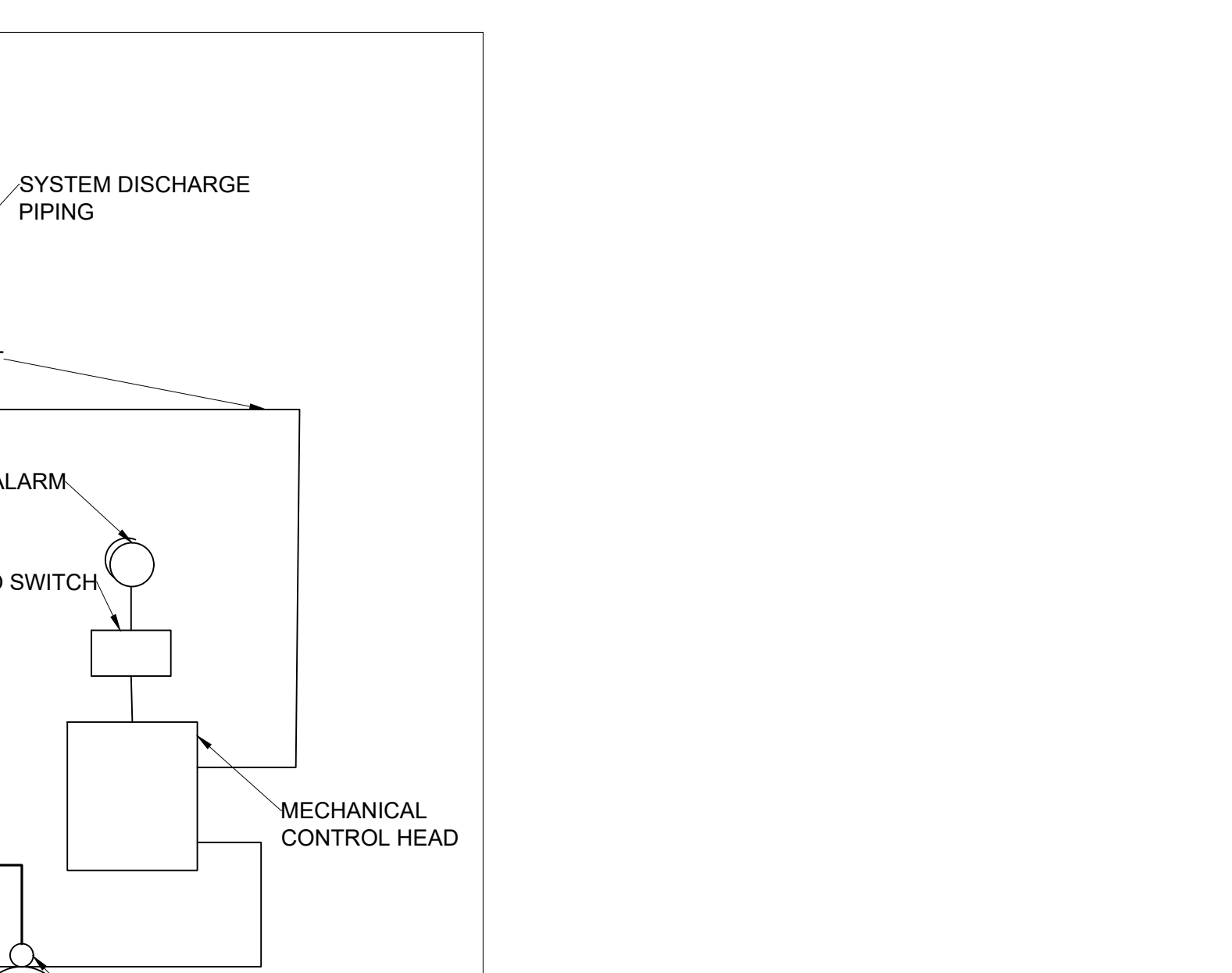
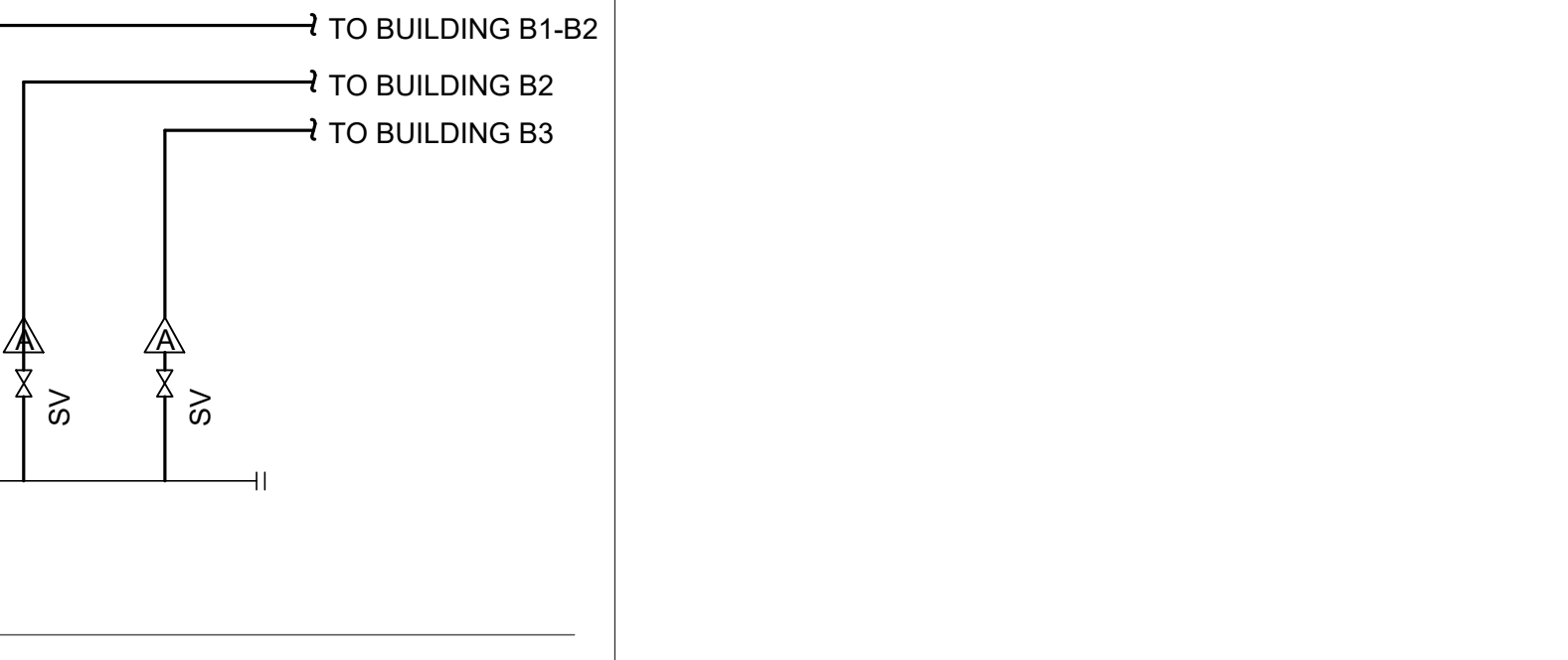
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- FIRE PROTECTION LEGEND
- FIRE DEPARTMENT VALVE
 - SUPERVISED VALVE
 - FIRE HOSE CABINET
 - CHECK VALVE
 - FLOW SWITCH
 - WATER GAUGE
 - TEST AND DRAIN VALVE

- DRAWING LIST
- SP-001 SPRINKLER LEGEND, DETAIL AND DRAWING LIST
 - SP-100 BUILDING A SPRINKLER PLAN
 - SP-101 BUILDING B1 SPRINKLER PLAN
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- GENERAL
1.1. THE SYSTEM SHALL BE A PRE-ENGINEERED, FIXED PIPE, AUTOMATIC DRY CHEMICAL FIRE SUPPRESSION SYSTEM FOR PROTECTION OF ALL APPLICABLE HAZARD AREAS, INCLUDING WORK AREAS, PLENUMS, EXHAUST VENTILATION PITS, AND DUCTWORK.
1.2. ALL REQUIREMENTS OUTLINED IN THIS SPECIFICATION SHALL BE COMPLETED IN THEIR ENTIRETY. THESE REQUIREMENTS, COMBINED WITH GOOD ENGINEERING PRACTICES MUST BE FOLLOWED IN ORDER TO PROVIDE A SAFE AND EFFECTIVE FIRE PROTECTION AND SUPPRESSION SYSTEM.
2. CODES & STANDARDS COMPLIANCE
2.1. THE SYSTEM SHALL CONFORM TO, AND BE IN ACCORDANCE WITH, THE FOLLOWING (AS APPLICABLE):
A. UL 1254, STANDARD FOR PRE-ENGINEERED DRY CHEMICAL EXTINGUISHING SYSTEM UNITS
F. FM APPROVALS, WHERE APPLICABLE
C. NFPA 17, STANDARD ON DRY CHEMICAL EXTINGUISHING SYSTEMS
D. NFPA 33, STANDARD FOR SPRAY APPLICATION USING FLAMMABLE OR COMBUSTIBLE MATERIALS
E. NFPA 70: NATIONAL ELECTRICAL CODE® (NEC)
F. NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE
G. KIDDE INO DRY CHEMICAL SYSTEM FOR VEHICLE SPRAY BOOTHS DESIGN, INSTALLATION, OPERATION AND MAINTENANCE (DIOM) MANUAL, PART NUMBER 83-1000036-001, AND ALL APPLICABLE APPENDA, AS IDENTIFIED BY UNDERWRITERS LABORATORIES FILE NO. UL EX2153
H. ALL APPLICABLE INSURANCE COMPANY REQUIREMENTS

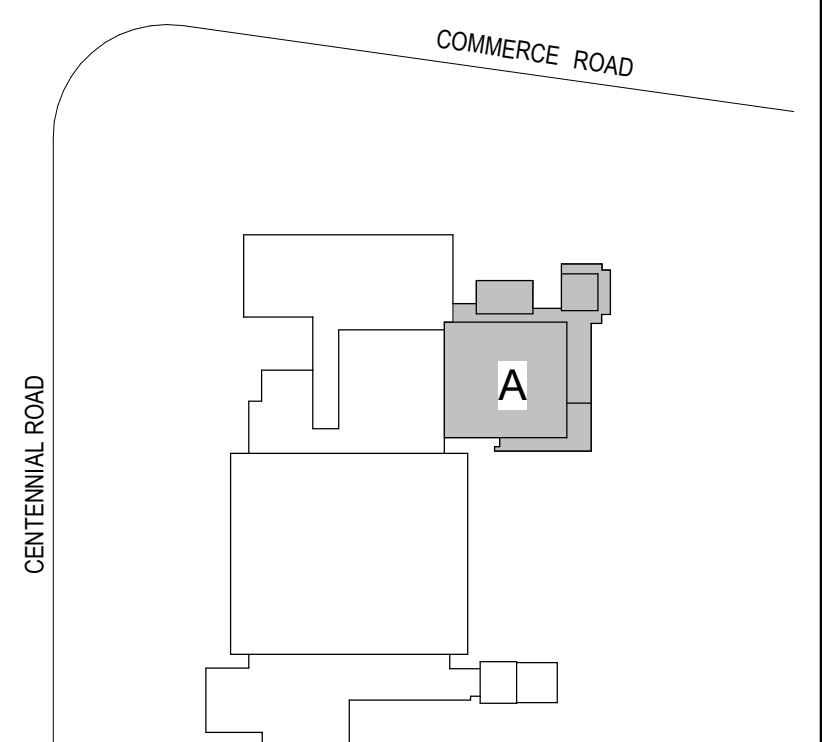
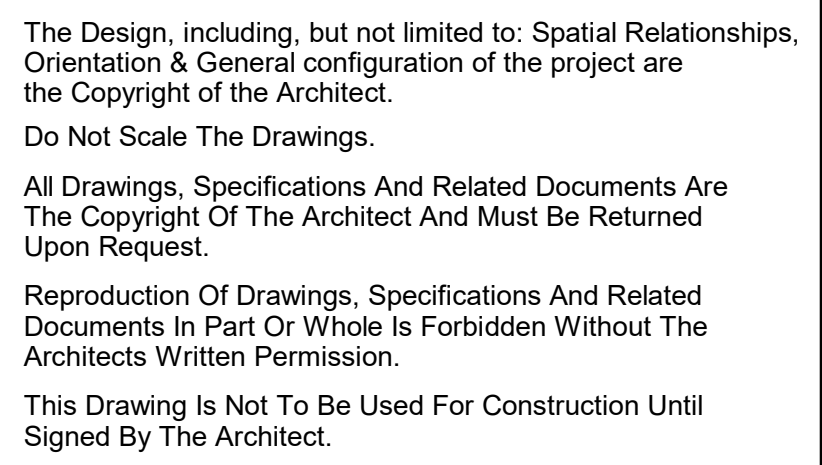
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Development File Number
D 00-000

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Woodbridge, ON L4L 9R4
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F: (905) 856-4912
info@alaimoarchitecture.com

Project
TOWN OF ORANGEVILLE
FIRE STATION PROJECT

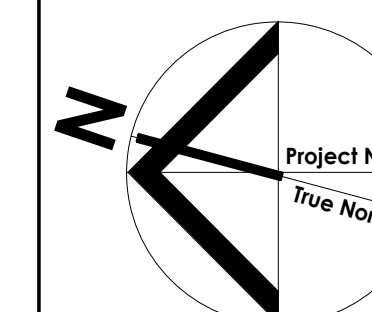
10 COMMERCE ROAD,
ORANGEVILLE, ONTARIO

AS INDICATED	Scale
MG	Issued by
2341A-23	File No.
2025-07-02	Plot Date

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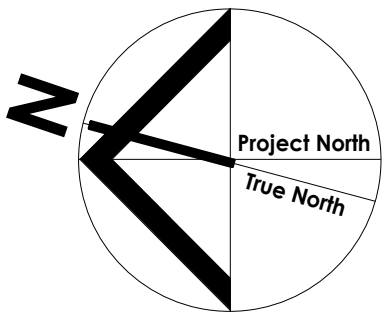
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Project
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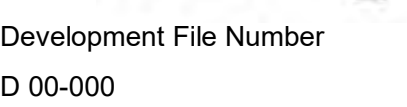
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2025-07-02	Plot Date

SP-101

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01	ISSUED FOR PERMIT #1	07-02-2025



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Drawing Title

**BUILDING B2 SPRINKLER
PLAN**

Project

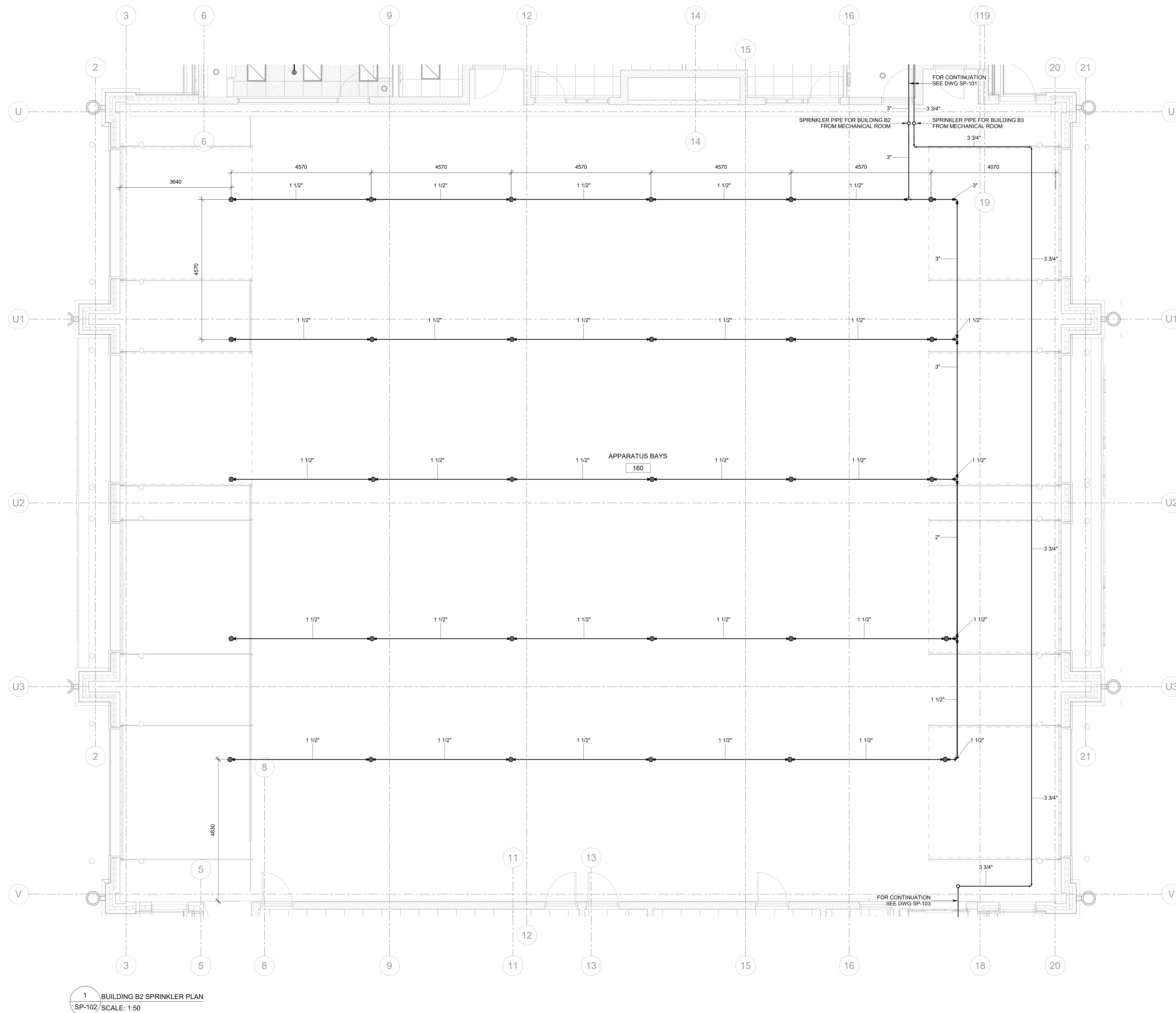
TOWN OF ORANGEVILLE

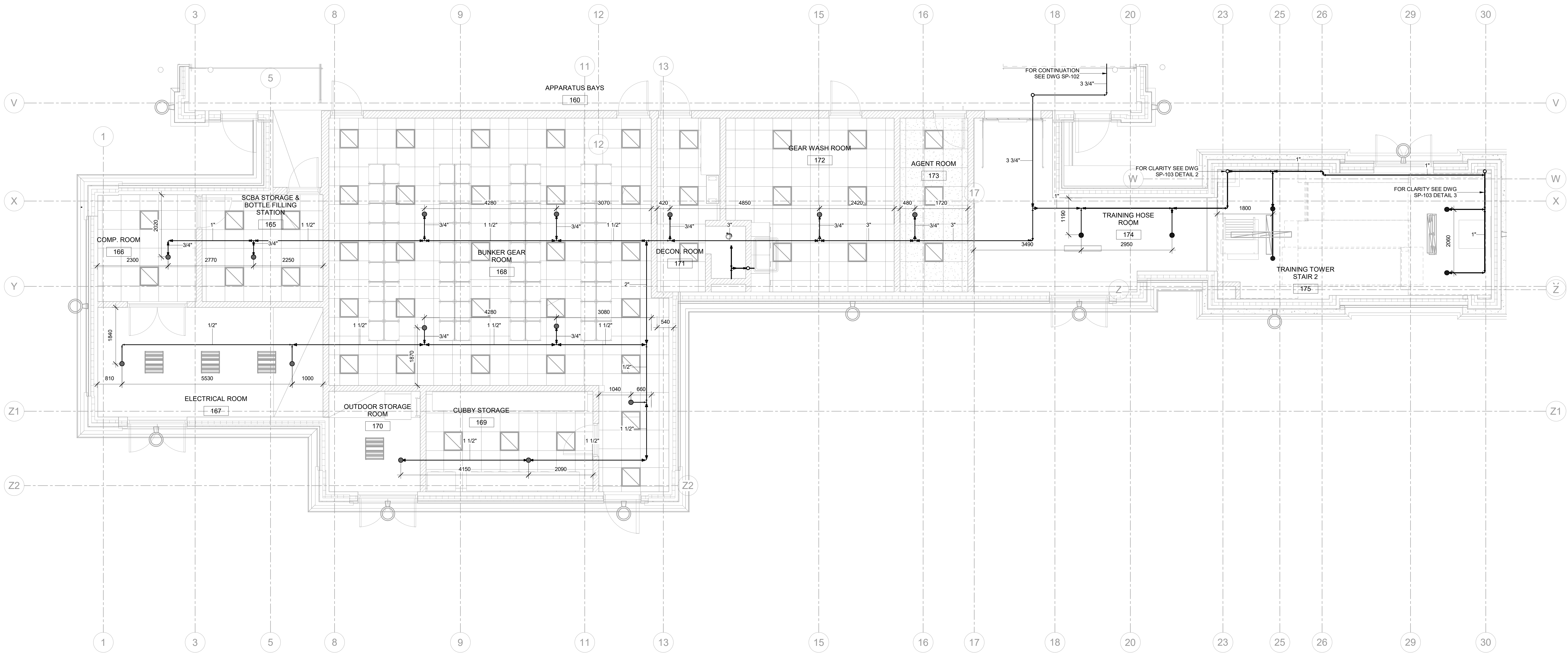
FIRE STATION PROJECT

0 COMMERCE ROAD,
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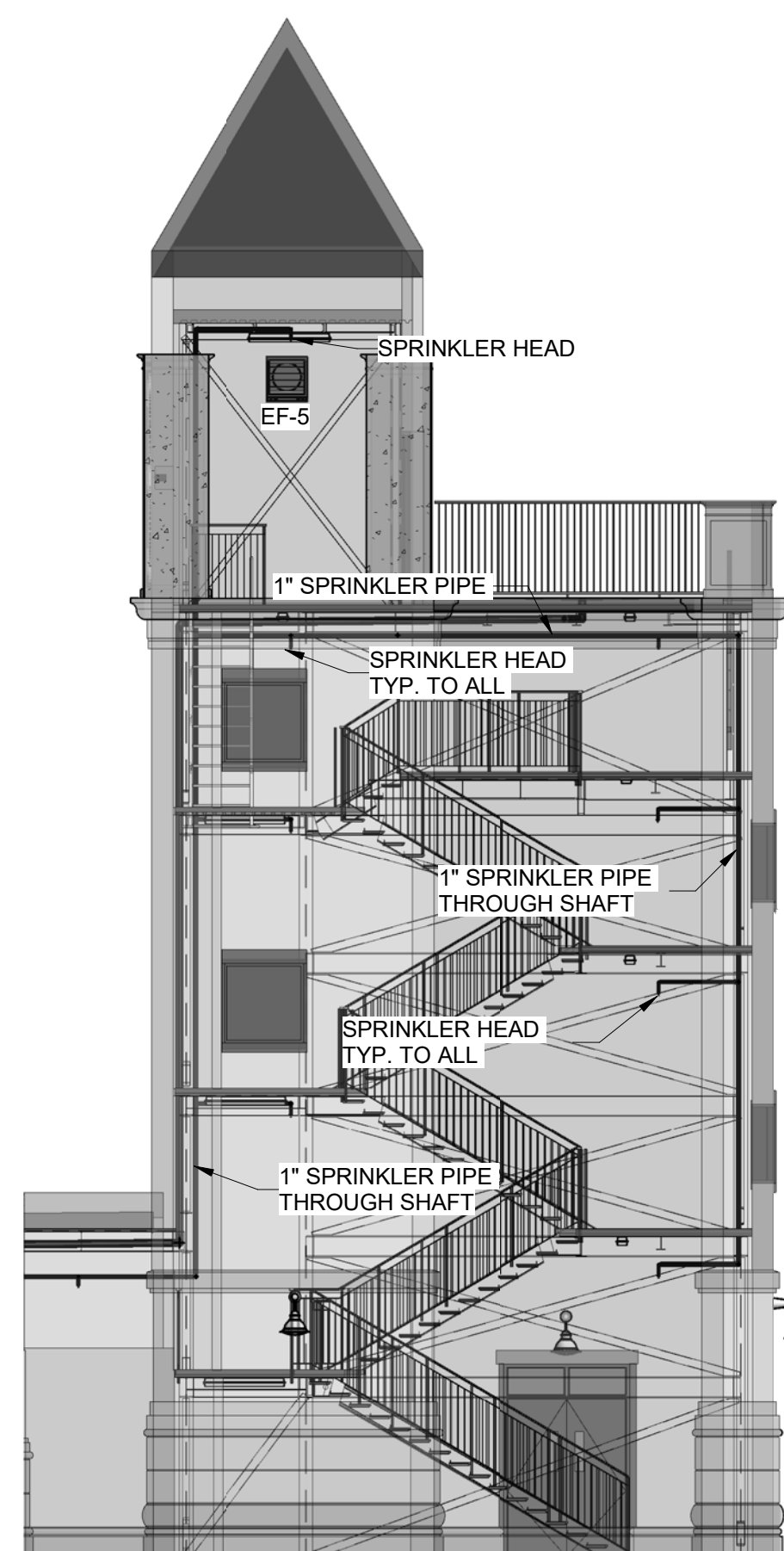
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MG	Issued by
2341A-23	File No.
2025-07-02	Plot Date

SP-102

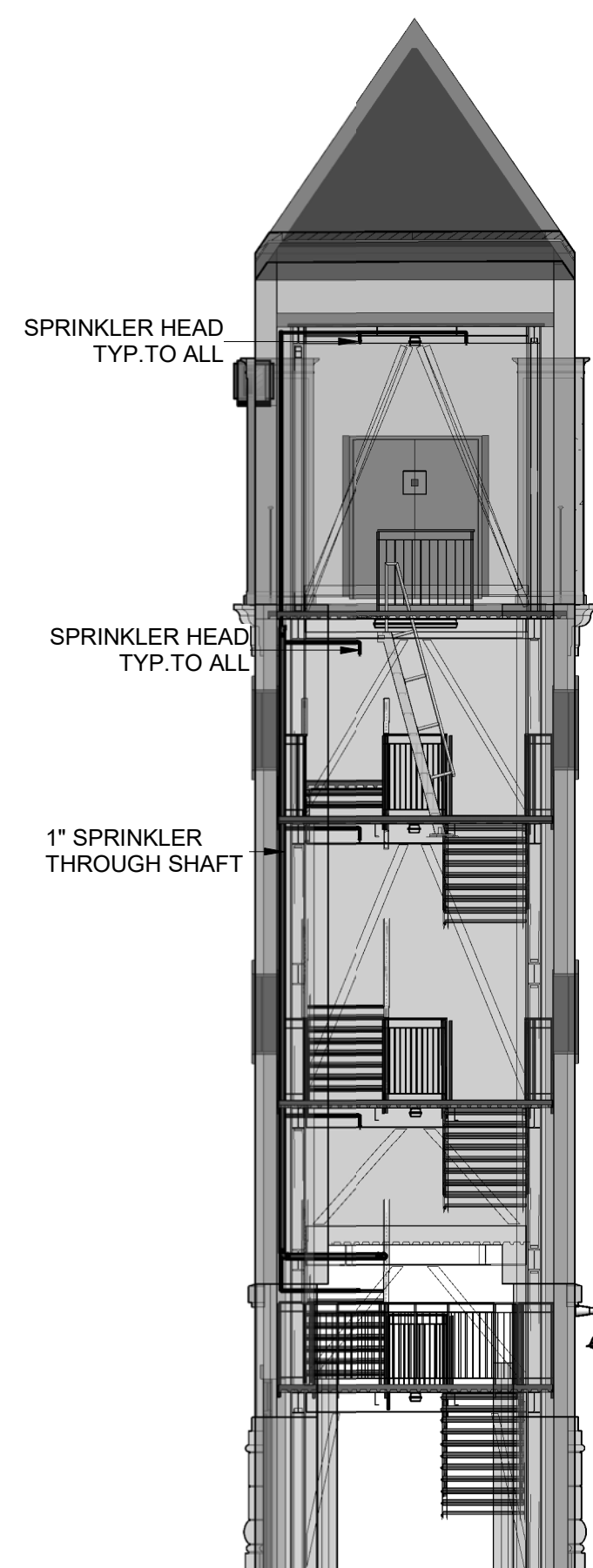




1 BUILDING B3 SPRINKLER PLAN
SP-103/ SCALE: 1:50



2 HOSE TOWER SPRINKLER SECTION DETAIL
SP-103/ SCALE: 1:100



3 HOSE TOWER SPRINKLER SECTION DETAIL
SP-103/ SCALE: 1:100

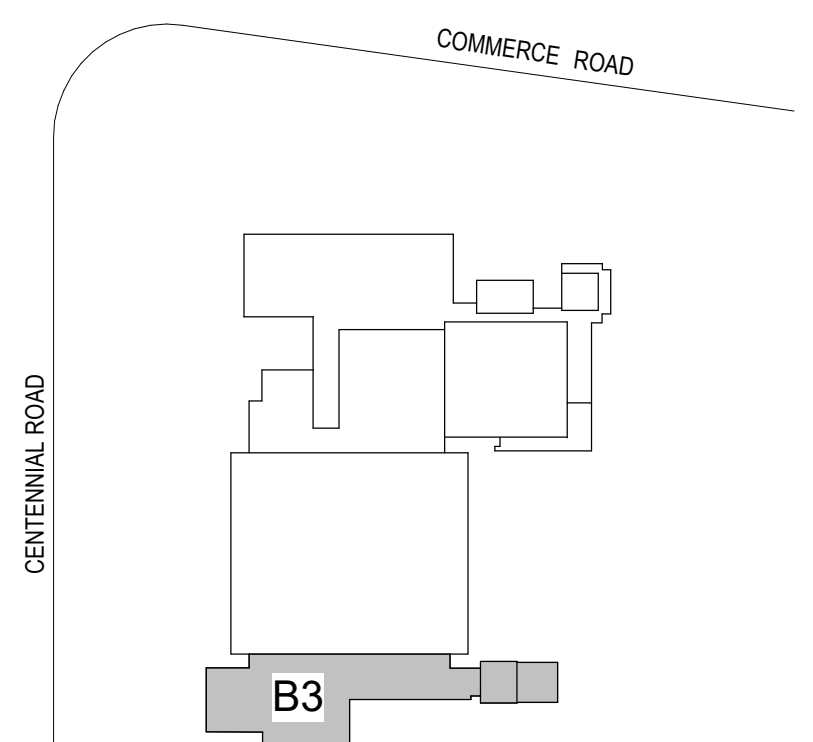
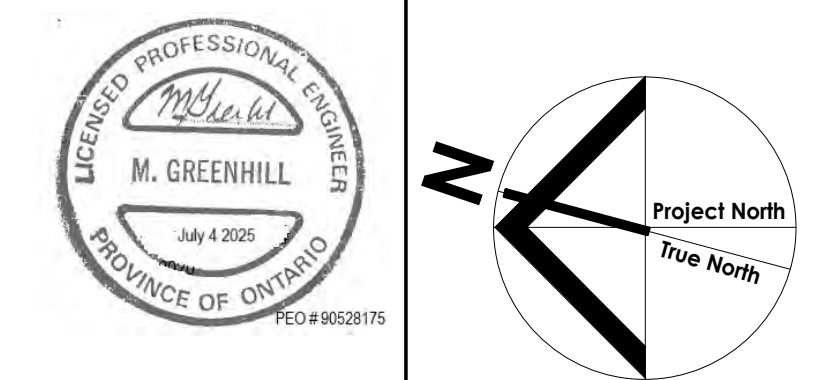
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KEYPLAN 'B3'



No.	Issued For	Date
02	ISSUED FOR TENDER	08-18-2025
01	ISSUED FOR PERMIT #1	07-02-2025



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Drawing Title
BUILDING B3 SPRINKLER PLAN

Project
**TOWN OF ORANGEVILLE
FIRE STATION PROJECT**

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