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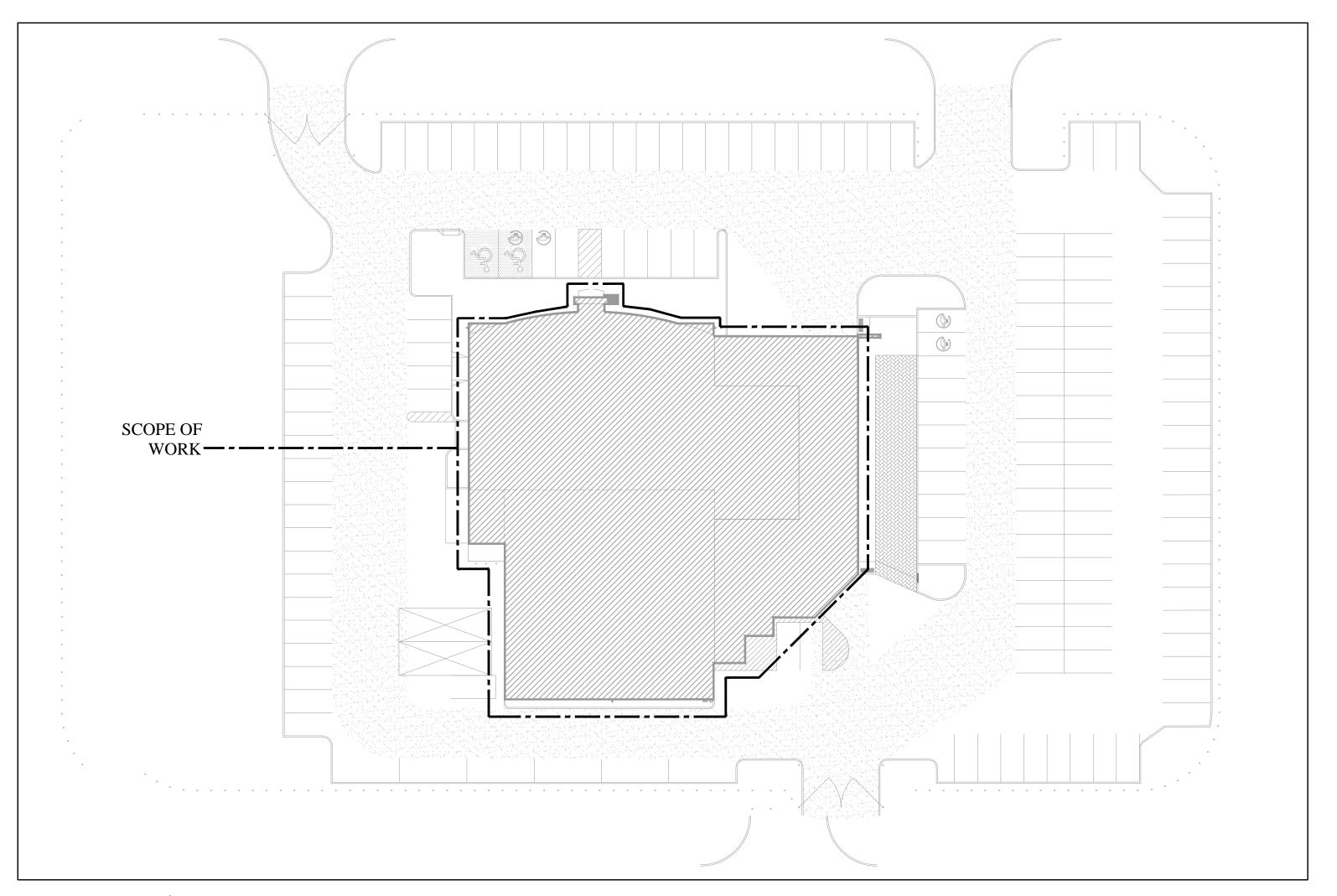
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CLARINGTON TOYOTA

10 SPICER SQUARE, BOWMANVILLE, ONTARIO L1C 5M2

MECHANICAL DRAWINGS

	DRAWING LIST												
NUMBER	DESCRIPTION	NUMBER	DESCRIPTION										
M-1	COVER SHEET	P-1	GROUND FLOOR - DEMOLITION PLUMBING AND DRAINAGE PLAN										
M-2	SPECIFICATIONS SHEET	P-2	SECOND FLOOR - DEMOLITION PLUMBING AND DRAINAGE PLAN										
M-3	LOAD CALCULATION AND LEGEND SHEET	P-3	GROUND FLOOR — NEW PLUMBING AND DRAINAGE PLAN										
M-4	DEMOLITION MECHANICAL ROOF PLAN	P-4	SECOND FLOOR — NEW PLUMBING AND DRAINAGE PLAN										
M-5	GROUND FLOOR — DEMOLITION HVAC PLAN	M-10	DETAILS SHEET NO. 1										
M-6	SECOND FLOOR - DEMOLITION HVAC PLAN	M-11	DETAILS SHEET NO. 2										
M-7	NEW MECHANICAL ROOF PLAN	M-12	DETAILS SHEET NO. 3										
M-8	GROUND FLOOR — NEW HVAC PLAN	M-13	EQUIPMENT SCHEDULES SHEET NO. 1										
M-9	SECOND FLOOR — NEW HVAC PLAN	M-14	EQUIPMENT SCHEDULES SHEET NO. 2										

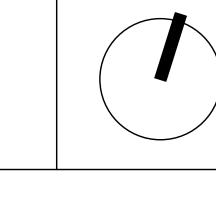


KEY PLAN SCALE: N.T.S.

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CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

COVER SHEET

DRAWING No. M-1

N.T.S. DRAWN BY: 23217 CHECKED BY:

GENERAL SPECIFICATIONS

1. GENERAL

- 1.1. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE ONTARIO BUILDING CODE, CSA, ASHRAE, NFPA, ETC. WHERE CODES/STANDARD ARE PRESENT FROM MULTIPLE SOURCES, THE MOST STRINGENT SHALL BE UTILIZED.
- 1.2. THE FOLLOWING SPECIFICATIONS FORM AN ESSENTIAL PART OF THE CONTRACT DOCUMENTS. REFER TO AND COORDINATE WITH ALL OTHER DIVISIONS, SECTIONS AND SPECIFICATIONS TO PROVIDE A COMPLETE AND OPERATIONAL INSTALLATION. ADHERE TO AND BE GOVERNED BY CONTRACT DOCUMENTS.
- 1.3. FOR THE PURPOSE OF THESE SPECIFICATIONS, DRAWINGS AND CONTRACT DOCUMENTS, THE WORD 'PROVIDE' REFERS TO THE SUPPLY, INSTALLATION AND TESTING OF THE RESPECTIVE EQUIPMENT/COMPONENTS.
- 1.4. CONTRACTOR SHALL REPORT ALL APPARENT DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS PRIOR TO BID SUBMISSION. NO EXCEPTIONS WILL BE GIVEN TO CONTRACTORS WHO DO NOT COMPLETELY UNDERSTAND THE SCOPE OF WORK.
- 1.5. ALL MECHANICAL WORK SHALL BE COORDINATED AND SCHEDULED WITH ALL OTHER DIVISIONS/TRADES.
- 1.6. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO BID SUBMISSION. AS SUCH AND WHERE REQUIRED. THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.
- 1.7. PROVIDE NEW MATERIALS AND EQUIPMENT OF ACCEPTABLE QUALITY THAT ARE MANUFACTURED IN CANADA OR THE UNITED STATES AND BEAR THE APPROVAL OF RECOGNIZED NORTH AMERICAN STANDARD ASSOCIATIONS SUCH AS CSA, ASME, ETC. THE CONTRACTOR SHALL MAXIMIZE THE UTILIZATION OF CANADIAN EQUIPMENT, MATERIALS, ETC.
- 1.8. ALL EQUIPMENT, MATERIALS, ETC. SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.
- 1.9. THE MECHANICAL DRAWINGS DISPLAY A GENERAL DESIGN AND INSTALLATION. THEREFORE THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO INSTALLATION.
- 1.10. THESE DRAWINGS HAVE BEEN PREPARED FOR MECHANICAL AND DO NOT ACCURATELY DISPLAY ALL ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS. REFER TO OTHER DIVISION'S DRAWINGS FOR CLARIFICATION.
- 1.11. IN NO CASE SHALL THESE DRAWINGS BE SCALED. ALL ROUGH-IN'S SHALL BE COORDINATED WITH OTHER DIVISIONS/TRADES.
- 1.12. DO NOT PROCEED WITH WORK OUTSIDE THE SCOPE OF THE DESIGN DRAWINGS AND SPECIFICATIONS WITHOUT WRITTEN CONSENT FROM THE OWNER. THIS APPLIES TO ALL MECHANICAL DIVISION CHANGE NOTICES AS ISSUED BY THE CONSULTANT.
- 1.13. IN REGARDS TO MECHANICAL CHANGE NOTICES, THE CONTRACTOR SHALL PROVIDE A BREAKDOWN INCLUDING, BUT NOT LIMITED TO, MATERIALS, LABOUR, MARK-UP, ETC. QUOTATIONS SHALL BE BASED ON THE ALLPRISER PRICE BOOK FOR EQUIPMENT AND THE MECHANICAL CONTRACTORS OF AMERICA, SMACNA, AND NATIONAL ELECTRICAL CONTRACTORS FOR LABOUR
- 1.14. WHERE MECHANICAL EQUIPMENT HAS BEEN PRE-PURCHASED, THE CONTRACTOR SHALL ACCEPT ALL RESPONSIBILITY FOR EQUIPMENT DELIVERY, INSTALLATION, TESTING AND WARRANTY, SIMILAR TO AS IF THE EQUIPMENT WAS PURCHASED BY MECHANICAL DIVISION.
- 1.15. THE CONTRACTOR SHALL WARRANTY ALL MATERIALS, EQUIPMENT, INSTALLATION AND QUALITY OF WORKMANSHIP FOR A MINIMUM OF ONE (1) YEAR UNLESS OTHERWISE NOTED.
- 1.16. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO PAY FOR ALL CHARGES AND DAMAGES ASSOCIATED WITH EQUIPMENT THAT IS NOT PROVIDED AS SPECIFIED AND INCLUDES NOT MEETING THE MANUFACTURER'S RATINGS, PUBLISHED DATA AND/OR THE APPLICABLE GOVERNING STANDARDS.
- 1.17. THE CONTRACTOR MAY SUBMIT FOR ALTERNATE MATERIALS AND EQUIPMENT ONLY WHEN THE SPECIFIED ARE NOT AVAILABLE OR WILL ADVERSELY IMPACT THE COMPLETION SCHEDULE. THE CONTRACTOR SHALL COMPENSATE THE PRIME CONSULTANTS FOR THE TIME REQUIRED TO REVIEW THE ALTERNATE SUBMITTALS.
- 1.18. PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL CONFIRM ON HIS SUBMISSION LETTER IDENTIFYING ALL ADDENDA HAVE BEEN RECEIVED AND INCLUDED IN THE BID.

2. SUBMITTALS

- 2.1. THE CONTRACTOR SHALL SUBMIT THREE (3) HARD COPIES OF MECHANICAL SHOP DRAWINGS TO THE CONSULTANTS FOR REVIEW. ELECTRONIC SUBMISSION OF SHOP DRAWINGS SHALL BE DEEMED ACCEPTABLE UPON APPROVAL FROM CONSULTANT. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE DOCUMENT SUBMITTAL PROCESS.
- 2.2. ALL SHOP DRAWINGS SUBMITTED FOR REVIEW MUST BEAR THE REVIEW STAMP OF THE MECHANICAL AND GENERAL CONTRACTOR. SHOP DRAWINGS THAT DO NOT BEAR THE CONTRACTOR'S STAMP WILL BE REJECTED BY THE
- 2.3. SHOP DRAWINGS SHALL INCLUDE ALL INFORMATION REQUIRED FOR THE CONSULTANT TO PERFORM A REASONABLE REVIEW OF THE SUBMITTALS AS THEY PERTAIN TO THE MECHANICAL DESIGN DRAWINGS AND SPECIFICATIONS.
- 2.4. THE CONTRACTOR SHALL MAINTAIN ON SITE ONE (1) RECORD OF MECHANICAL <u>DRAWINGS</u> THAT SHALL INDICATE WITH RED LINES ALL PROJECT CONDITIONS, LOCATIONS, CONFIGURATIONS AND ANY OTHER CHANGES OR DEVIATIONS WHICH MAY VARY FROM THE ORIGINAL CONTRACT DOCUMENTS AND DRAWINGS. IN ADDITION, THIS SET SHALL INCLUDE REVISIONS AS A RESULT OF ALL ADDENDAS, CHANGE NOTICES, SITE INSTRUCTIONS, ETC. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER AND ENGINEER ONE (1) COPY EACH OF A HARDCOPY AND ELECTRONIC COPY (PDF) FOR REVIEW. ONE (1) SET OF BOTH COPIES SHALL ALSO BE INCLUDED IN THE CLOSEOUT DOCUMENT PACKAGE.
- 2.5. TWO (2) COPIES OF OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW UPON PROJECT COMPLETION. THE MANUALS SHALL CONTAIN THE FOLLOWING:
 - DESCRIPTION OF EACH SYSTEM - DESCRIPTION OF EACH MAJOR COMPONENT OF SYSTEM
 - ALL SHOP DRAWINGS WITH APPROVAL STAMPS - EQUIPMENT MANUFACTURER'S INSTALLATION AND OPERATION
- MANUALS AND SPARE PARTS LIST WIRING DIAGRAMS
- LUBRICATION SCHEDULE - EQUIPMENT IDENTIFICATION LIST WITH SERIAL NUMBERS
- VALVE TAG SCHEDULES AND FLOW DIAGRAMS - FINAL AND REVIEWED BALANCING REPORTS (AIR AND WATER) WATER TREATMENT PROCEDURE AND TESTS
- CONTROL DRAWINGS AND SEQUENCES OF OPERATION - AS-BUILT DRAWINGS (HARDCOPY AND ELECTRONIC)
- WARRANTY DOCUMENTATION SPRINKLER DOCUMENTATION
- PHOTOS OF MAIN PLUMBING, DRAINAGE CONNECTION AND LOCATION IN
- 2.6. SUBMIT A COMPLETE SET OF AS-BUILT DRAWINGS AND FINAL CERTIFICATE OF APPROVAL FROM THE BUILDING INSPECTION DEPARTMENT TO THE LANDLORD UPON PROJECT COMPLETION.

3. <u>EXECUTION</u>

- 3.1. PERIODIC INSPECTIONS OF THE WORK WILL BE CONDUCTED BY THE CONSULTANT OVER THE COURSE OF THE PROJECT. ALL REPORTED DEFICIENCIES SHALL BE RECTIFIED BY THE CONTRACTOR IN A TIMELY FASHION. FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR NOT MEETING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND ISSUANCE OF A COMPLIANCE LETTER.
- 3.2.IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL INSPECTIONS WITH MUNICIPAL OFFICIALS AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
- 3.3.IN REGARD TO TEMPORARY SERVICES, PROVIDE, AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION, TEMPORARY FIRE PROTECTION SYSTEMS. REFRAIN FROM USING INSTALLED SYSTEMS FROM THE CONTRACT DOCUMENTS

GENERAL SPECIFICATIONS CONT'D

- AS TEMPORARY SERVICES. THIS REQUIREMENT SHALL ALSO APPLY TO ALL OTHER MECHANICAL SYSTEMS INCLUDING HVAC, PLUMBING AND DRAINAGE,
- 3.4. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND RESTORATION. WHERE REQUESTED, THE CONTRACTOR SHALL CONTRACT THE SERVICES OF THE BASE BUILDING TRADES AT MECHANICAL DIVISION EXPENSE.
- 3.5. PROVISIONS SHALL BE MADE FOR THE PROTECTION OF MECHANICAL DIVISION WORK UNTIL THE COMPLETION OF THE PROJECT. THIS MAY INCLUDE, BUT IS NOT LIMITED TO, COVERING OF EQUIPMENT OPENINGS AND DUCTWORK, PLUMBING FIXTURES, FLOOR DRAINS, ETC.
- 3.6. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL MAKE ALL FINAL ADJUSTMENTS TO EQUIPMENT AS WELL AS REMOVE ALL PROTECTION. ALL INSTALLATIONS SHALL BE CLEANED THOROUGHLY AND TESTED FOR PROPER OPERATION. CHANGE ALL AIR AND WATER FILTERS AS REQUIRED.

3.7.IN REGARD TO INTERRUPTION OF SERVICES, THE CONTRACTOR SHALL CARRY

OUT HIS WORK IN A MANNER THAT CAUSES THE LEAST DISTURBANCE TO THE

- OWNER. PROVIDE NOTIFICATION TO THE OWNER IN WRITING BEFORE AT LEAST 72 HOURS OF THE SCHEDULED INTERRUPTION. 3.8. ARRANGE AND PAY FOR THE SAFE DISPOSAL OF REMOVED ITEMS AS SPECIFIED. PROVIDE PROOF OF SAFE DISPOSAL FOR ITEMS SUCH AS HVAC REFRIGERANT. COORDINATE THE TIME AND METHOD OF DISPOSAL WITH THE
- OWNER. FOR EXAMPLE, CLEARLY INDICATE THE ROUTE THAT WILL BE TAKEN FROM THE INSIDE OF THE BUILDING TO THE OUTDOORS, AS WELL AS THE STORAGE LOCATION OUTDOORS IF APPLICABLE 3.9. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN
- AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
- 3.10. PERFORM WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECTED BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL INSTALLATION SHALL BE COVERED BY MECHANICAL DIVISION. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
- 3.11. WHERE CUTTING OR CORE DRILLING OF THE EXISTING CONCRETE STRUCTURE IS REQUIRED, THE MECHANICAL CONTRACTOR SHALL CONTRACT THE SERVICES OF AN EXPERIENCED AND REPUTABLE COMPANY TO CARRY OUT X-RAYING. THE RESULTS SHALL BE SUBMITTED TO THE BASE BUILDING STRUCTURAL ENGINEER AND NO CUTTING OR CORING SHALL TAKE PLACE UNTIL WRITTEN APPROVAL IS RECEIVED. THE CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST TO PERFORM X-RAYING AT LEAST 72 HOURS IN ADVANCE.

4. ACCESS DOORS AND PANELS

- 4.1. PROVIDE ADEQUATE ACCESS TO CONCEALED EQUIPMENT AND COMPONENTS THAT REQUIRE ACCESS FOR MAINTENANCE, ADJUSTMENT AND INSPECTION. PROVIDE MARKINGS TO THE OWNER'S SATISFACTION THAT INDICATE THE LOCATIONS WHERE CONCEALED EQUIPMENT IS LOCATED.
- 4.2. ENSURE THAT THE SIZE OF THE DOOR COMPLIES WITH THE MANUFACTURER'S SUGGESTED ACCESS REQUIREMENTS.
- 4.3. COORDINATE ALL ACCESS DOOR AND PANEL SIZES AND LOCATIONS WITH ARCHITECT/INTERIOR DESIGNER. SUBMIT LAYOUT FOR REVIEW PRIOR TO

5. FIRESTOPPING

- 5.1. PROVIDE FIRESTOPPING SYSTEMS AND PRODUCTS FOR ALL DUCTS, PIPING, FTC. THAT PENETRATE FIRE SEPARATIONS. FIRESTOPPING SYSTEMS AND PRODUCTS SHALL BE ULC LISTED AND COMPLY WITH CAN4-S115S AND THE AUTHORITIES HAVING JURISDICTION.
- 5.2. MAINTAIN ALL NEW AND EXISTING FLOOR/CEILING AND WALL FIRE RATINGS IN COMPLIANCE WITH BASE BUILDING STANDARDS AND THE AUTHORITIES HAVING JURISDICTION AND MEET ALL CODE REQUIREMENTS.

6. PIPE, DUCT AND EQUIPMENT INSTALLATION

- 6.1. INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT TO PROVIDE ADEQUATE CLEARANCES FOR SERVICING AS WELL AS MAXIMUM USABLE SPACE FOR ALL OTHER DIVISIONS/TRADES.
- 6.2. INSTALL PIPING AND DUCTWORK STRAIGHT, IN A NEAT AND CLEAN FASHION AND TIGHT TO STRUCTURES ABOVE (UNLESS OTHERWISE NOTED).
- 6.3. TAKE MEASURES AND PROVIDE CSA APPROVED MATERIALS TO PREVENT COPPER PIPING CORROSION FROM CONTACT WITH DISSIMILAR METALS.

7. HANGERS AND SUPPORTS

- 7.1. PROVIDE HANGER SYSTEMS FOR ALL DUCTWORK, PIPING AND EQUIPMENT TO RENDER A SAFE AND FUNCTIONAL INSTALLATION. HANGER RODS SHALL BE ATTACHED DIRECTLY TO THE STRUCTURE AND IN NO WAY SHALL BE ATTACHED TO OTHER MECHANICAL COMPONENTS OR CEILING SYSTEMS. WHERE COMPONENTS ARE TO BE SUSPENDED BETWEEN JOISTS OR BEAMS, PROVIDE AUXILIARY STEEL CHANNEL SUPPORTS TO SUIT.
- 7.2. FOR GENERAL CONDITIONS, PROVIDE ROUND STEEL THREADED RODS CONFORMING TO ASTM A-36. WHERE SPECIAL CONDITIONS EXIST, SUCH AS HIGH HUMIDITY OR EXPOSURE TO ELEMENTS, PROVIDE HANGER COMPONENTS
- 7.3.IN REGARD TO ALL PIPING, PROVIDE SUPPORTS AT CONNECTIONS AND AT EVERY CHANGE IN DIRECTION.
- 7.4. PROVIDE ONLY BASE BUILDING APPROVED EQUIPMENT. CONTRACTOR SHALL COORDINATE WITH BASE BUILDING OPERATORS PRIOR TO BID SUBMISSION AND INSTALLATION.

8. STRUCTURAL AND SEISMIC

- 8.1. WHERE THERE IS NO STRUCTURAL DIVISION AS PART OF THE PROJECT, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE STRUCTURAL REINFORCING FOR ALL MECHANICAL SCOPE INSTALLATIONS. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER WHO IS TO PROVIDE A DESIGN BEARING THE ENGINEER'S PROFESSIONAL SEAL. THE CONTRACTOR SHALL APPLY FOR BUILDING PERMIT AND ASSUME ALL RESPONSIBILITY AND COST FOR THE PERMIT PROCESS. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT A LETTER COMPLETE WITH PROFESSIONAL SEAL FROM THE STRUCTURAL ENGINEER TO INDICATE THAT THE WORK HAS BEEN COMPLETED TO THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, THE AUTHORITIES HAVING JURISDICTION, AND ALL OTHER RELEVANT CODES AND STANDARDS.
- 8.2. WHERE APPLICABLE, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE THE REQUIREMENTS FOR SEISMIC BRACING AND SUPPORTS WITH STRUCTURAL DRAWINGS. THIS CONTRACTOR SHALL CONTRACT THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER TO DESIGN SUPPORTS AND BRACING IN ACCORDANCE WITH ALL CURRENT CODES AND THAT MEET THE REQUIREMENTS OF THE LOCATION IN WHICH THE SYSTEMS ARE BEING INSTALLED. UPON COMPLETION OF THE PROJECT, SEISMIC ENGINEER SHALL PROVIDE A LETTER BEARING THE ENGINEER'S PROFESSIONAL SEAL INDICATING THAT THE INSTALLATION MEETS THE SEISMIC DESIGN DOCUMENT AND CONFORMS TO THE BUILDING CODE AND TO THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.

9. ELECTRICAL

- 9.1. ALL ELECTRICAL MOTORS, STARTERS, CONTACTORS, ISOLATION DISCONNECT SWITCHES AND CONTROL DEVICES FOR MECHANICAL WORK SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.
- 9.2. ELECTRICAL SHALL BE RESPONSIBLE FOR POWERING LOAD SIDE OF STARTERS AND CONTACTORS, PROVIDING POWER FOR ELECTRICAL HEAT TRACING, AND PROVIDING CONTROLS, LINE SIDE POWER TO LOOSE STARTERS AND DISCONNECTS.
- 9.3. ALL LOW VOLTAGE WIRING AND CONNECTION ARE TO BE PROVIDED BY THE MECHANICAL CONTRACTOR.

HVAC SPECIFICATIONS

GENERAL 1.1. PROVIDE ALL LABOUR AND MATERIALS TO SUPPLY AND INSTALL THE DUCTWORK AND SHEET METAL SYSTEMS AS INDICATED ON MECHANICAL

AND EQUIPMENT TO PROVIDE A COMPLETE SYSTEM.

1.2. UNLESS OTHERWISE NOTED, FABRICATE ALL DUCTWORK SYSTEMS, INCLUDING DUCTWORK, HOUSINGS, DAMPERS AND ACCESS DOORS, WITH GALVANIZED STEEL SHEET METAL MEETING ASTM A653 AND A924. CONSTRUCTION OF THE DUCTWORK SYSTEMS SHALL BE IN STRICT ACCORDANCE WITH SMACNA, SMACNA DUCT CLEANLINESS AND ASHRAE. ALL DUCTWORK SHALL BE SMOOTH ON THE INSIDE AND SHALL BE FREE FROM RATTLING OR VIBRATION. DUCTWORK NOT MEETING THESE STANDARDS WILL BE REPLACED AT NO EXTRA CHARGE TO THE OWNER.

DRAWINGS. THIS INCLUDES INSTALLING THE DUCTWORK, ACCESSORIES,

ASSOCIATED ITEMS AND ALL NECESSARY CONNECTIONS TO OUTLETS, INLETS

- 1.3. CONSTRUCT DUCTWORK AND SEAL ACCORDING TO THE APPROPRIATE SMACNA STANDARDS. LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED WITH THE ONE (1) INCH PRESSURE CLASSIFICATION AND ALL OTHER DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE THREE (3) INCH CLASSIFICATION.
- DUCT PRESSURES SHALL BE CLASSIFIED AS FOLLOWS: 1.3.1. LOW: DUCT PRESSURES (LOW) OF 1/2" TO 2" W.C. AND NOT EXCEEDING
- AN AIR VELOCITY OF 2000 FPM. 1.3.2. MEDIUM: DUCT PRESSURES EXCEEDING 2" W.C. OR AND AIR VELOCITY OF
- 1.4. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. CONTRACTOR TO TAKE INTO ACCOUNT DUCT LINERS, ETC. WHEN PERFORMING
- TAKE-OFFS. 1.5. MAKE ALL DUCT CONNECTIONS, CONCENTRIC AND ECCENTRIC TRANSITIONS,
- 1.6. PROVIDE <u>DUCT ACCESS DOORS</u> AT LOCATIONS AS SHOWN ON DRAWINGS, AS WELL AS AT THE LINKAGE SIDE OF AUTOMATIC DAMPERS, FIRE DAMPERS AND ANY OTHER SERVICE, BALANCE OR CONTROL DEVICE REQUIRING PERIODIC MAINTENANCE. THE DOORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA AND SHALL MATCH THE PRESSURE RATING OF THE DUCTWORK SYSTEM TO WHICH IT IS BEING INSTALLED.
- 1.7. PROVIDE FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET CONNECTION FOR EACH FAN BETWEEN DUCTWORK AND INLET AND OUTLET COLLARS. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE NEOPRENE COATED FIBERGLASS FABRIC. FOR OUTDOOR CONNECTIONS, PROVIDE A CONNECTOR THAT IS SUITABLE FOR EXPOSURE TO SUNLIGHT AND THE ELEMENTS.
- 1.8. PROVIDE FIRE DAMPERS WHERE INDICATED ON MECHANICAL DRAWINGS. ALL DAMPERS SHALL BE SELECTED TO SUIT THE RATING OF THE FLOOR OR WALL ASSEMBLY IN WHICH IT WILL BE INSTALLED, WITH A RATING OF NO LESS THAN 1-1/2 HOURS. FIRE DAMPERS SHALL BE ULC LISTED AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, NFPA 90A AND THE AUTHORITIES HAVING JURISDICTION. TYPE A FIRE DAMPERS ARE PERMITTED FOR NON-DUCTED TRANSFER DUCTWORK. TYPE B FIRE DAMPERS SHALL BE USED IN ALL OTHER CASES UNLESS OTHERWISE NOTED.
- 1.9. MANUAL BALANCING DAMPERS INSTALLED IN DUCTWORK NOT EXCEEDING 12" ON THE LONGEST SIDE SHALL BE CONSTRUCTED AS PER SMACNA. PROVIDE OPPOSED BLADE DAMPERS WHERE THE DIMENSION OF THE LONGEST SIDE OF THE DUCTWORK EXCEEDS 12", OPPOSED-BLADE DAMPERS SHALL BE OF GALVANIZED STEEL CONSTRUCTION WITH LOCK SCREWS AT OPPOSITE ENDS. PROVIDE BALANCING DAMPERS AT WHERE SHOWN ON DRAWING AS WELL AS ON BRANCHES OFF OF MAIN DUCTWORK WITH ADEQUATE ACCESS.
- 1.10. PROVIDE ALL DIFFUSERS, REGISTERS, GRILLES, ETC. OF TYPE AND SIZE AS INDICATED ON MECHANICAL DRAWINGS. CONFIRM ALL AIR TERMINAL COLOURS WITH ARCHITECT/INTERIOR DESIGNER, REGARDLESS OF SPECIFICATION ON MECHANICAL DRAWINGS. MECHANICAL CONTRACTOR IS TO COORDINATE INSTALLATION OF DOOR GRILLES WITH ARCHITECTURAL DRAWINGS AND GENERAL CONTRACTOR.
- 1.11. <u>DUCTWORK INSULATION AND LINERS</u> WHERE NOTED ON MECHANICAL DRAWINGS, AS PER THE FOLLOWING:

1.11.1. <u>ACOUSTIC LINING:</u>

2000 FPM.

ETC., IN ACCORDANCE WITH SMACNA.

1.11.1.1. RECTANGULAR DUCTWORK: PROVIDE ONE INCH (1") THICK ACOUSTIC LINING EQUAL TO JOHNS MANVILLE LINACOUSTIC RC COMPLETE WITH PERMACOTE ACRYLIC ANTI-MICROBIAL COATING.

1.11.2. THERMAL INSULATION:

- PROVIDE THERMAL INSULATION WHERE NOTED ON MECHANICAL DRAWINGS. INSULATE ALL DUCTWORK LEAVING OR ENTERING THE BUILDING FOR THE FIRST 6 FT. FROM THE BUILDING PENETRATION WITH 2" OF THERMAL INSULATION.
- 1.11.2.2. DUCTWORK: PROVIDE ONE INCH (1") JOHNS MANVILLE SERIES 814 SPIN-GLAS FIBER GLASS DUCT BOARD INSULATION WITH FSK FACING. IMPALE ON MECHANICALLY FASTENED PINS LOCATED AT NOT MORE THAN 12" ON CENTRE, AND SECURE WITH SPEED WASHERS. WHERE DUCTWORK IS INSTALLED OUTSIDE THE BUILDING OR EXPOSED TO THE ELEMENTS, PROVIDE TWO INCHES (2") OF THERMAL INSULATION, BUTT JOINTS TIGHTLY TOGETHER AND SEAL WASHERS, BREAKS AND JOINTS WITH SELF-ADHERING 4" WIDE PLAIN ALUMINUM TAPE, OR ADHERE FOIL WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE.
- 1.11.2.3. RIGID ROUND (SPIRAL) DUCTWORK: PROVIDE ONE INCH (1") JOHNS MANVILLE MICROLITE EQ FSK FIBER GLASS DUCT WRAP INSULATION WHERE INDICATED ON DRAWINGS. ADHERE INSULATION TO DUCT SURFACE AND LAP ALL EDGES AT LEAST 2". SEAL JOINTS WITH 4" WIDE ALUMINUM FOIL TAPE.
- 1.11.2.4. FLEXIBLE DUCTWORK: PROVIDE ONE INCH (1.25") JOHNS MANVILLE FLEX-GLAS EQ FLEXIBLE DUCTWORK INSULATION WITH FSK FACING. LAP JOINTS AND SEAL WITH 4" WIDE ALUMINUM FOIL TAPE.
- 1.12. CONTRACTOR TO CLEAN ALL REUSED DUCTWORK
- 1.13. CONTRACTOR TO INSPECT THE CONDITION OF ALL EXISTING EQUIPMENT AND PERFORM ALL NECESSARY REPAIRS TO PROVIDE A COMPLETE WORKING
- 1.14. CONTRACTOR TO ENSURE ALL NEW/EXISTING VAV BOXES ARE CONNECTED TO MALL B.A.S. ALL CONTROLS WORK TO BE PERFORMED BY LANDLORD'S CONTROLS CONTRACTOR AT TENANT'S EXPENSE.
- 1.15. CONTRACTOR SHALL RETAIN AN AABC OR NEBB CERTIFIED BALANCING CONTRACTOR TO PERFORM ALL AIR AND WATER BALANCING AND TESTING/ADJUSTMENT OF HVAC SYSTEMS. SUBMIT AIR AND WATER BALANCING REPORT TO LANDLORD. USE LANDLORD APPROVED BALANCING CONTRACTOR. OBTAIN THE LIST OF APPROVED CONTRACTORS FROM MALL OPERATIONS.
- 1.16. CONTRACTOR SHALL VERIFY EXISTING AIR FLOW CAPACITY OF HVAC SYSTEM SERVING THEIR SPACE IMMEDIATELY AFTER REVIEWING THEIR PREMISES. TENANT SHALL NOTIFY THE LANDLORD OF THEIR FINDINGS AND CONFIRM SUFFICIENT AIR IS AVAILABLE TO MEET THEIR COOLING LOADS.

2. FLEXIBLE DUCTWORK

- 2.1. PROVIDE, WHERE INDICATED ON MECHANICAL DRAWINGS, FLEXIBLE DUCTWORK EQUAL TO FLEXMASTER TRIPLE LOCK ALUMINUM DUCTOWRK. THE PRESSURE RATING OF THE DUCTWORK SHALL MATCH THE DUCTWORK SYSTEM TO WHICH IT IS ATTACHED. MATCH THE DUCTWORK SIZE TO THE CONNECTION OUTLET OF THE AIR TERMINAL.
- 2.2. SECURE FLEXIBLE DUCTWORK USING GEAR CLAMPS WITH AN ADJUSTING WORM DRIVE TYPE SCREW. SEAL AROUND CONNECTION WITH DUCT TAPE TO OBTAIN THE APPROPRIATE SMACNA SEAL CLASS.
- 2.3. MAXIMUM LENGTH OF FLEXIBLE DUCTWORK PERMITTED IN LOW PRESSURE SYSTEMS IS 10'-0'' AND 4'-0'' IN ALL OTHER HIGHER PRESSURE SYSTEMS.

3. HVAC BALANCING

- 3.1. PROVIDE BALANCING OF ALL AIR AND WATER SYSTEMS AS INDICATED ON MECHANICAL DRAWINGS. THE BALANCING CONTRACTOR SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE AND BE NEBB CERTIFIED. ALL BALANCING, TESTING ADJUSTING AND REPORTING SHALL BE CARRIED OUT IN ACCORDANCE WITH NEBB. PROCEDURAL STANDARDS FOR TESTING. ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS. WHERE APPLICABLE, THE MECHANICAL CONTRACTOR SHALL CONTRACT THE SERVICES OF THE BASE BUILDING APPROVED TAB CONTRACTOR.
- 3.2. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM

HVAC SPECIFICATIONS CONT'D

- ACCORDING TO THE CURRENT EDITION OF THE NEBB STANDARDS. MARK EQUIPMENT AND BALANCING DEVICE SETTING WITH PAINT OR OTHER SUITABLE PERMANENT IDENTIFICATION MATERIAL TO SHOW FINAL SETTINGS.
- 3.3. BALANCE AIRFLOW AND HYDRONIC FLOW QUANTITIES WITHIN +/- 10% OF THE DESIGN CRITERIA. IN THE EVENT THAT A CONDITION OR DEFICIENCY IS PREVENTING THE ACCEPTANCE RANGE FROM BEING ACHIEVED. IT SHALL BE NOTED WITH DESCRIPTION ON THE TAB REPORT. UPON COMPLETION, SUBMIT A FINAL TAB REPORT TO THE CONSULTANT FOR REVIEW.
- 3.4. INCLUDE FOR ONE ADDITIONAL DAY (8 HOURS) OF FINE TUNING AS MAY BE REQUIRED TO ACCOMMODATE TENANT SPECIFIED REQUIREMENTS. THIS FINAL ADJUSTMENT MAY BE REQUIRED ANY TIME WITHIN THE FIRST SIX MONTHS OF
- 3.5. CONTRACTOR SHALL RETAIN AN AABC OR NEBB CERTIFIED BALANCING CONTRACTOR TO PERFORM ALL AIR AND WATER BALANCING AND TESTING/ADJUSTMENT OF HVAC SYSTEMS. SUBMIT AIR AND WATER BALANCING REPORT TO LANDLORD. USE LANDLORD APPROVED BALANCING CONTRACTOR. OBTAIN THE LIST OF APPROVED CONTRACTORS FROM MALL
- 3.6. CONTRACTOR SHALL VERIFY EXISTING AIR FLOW CAPACITY OF HVAC SYSTEM SERVING THEIR SPACE IMMEDIATELY AFTER REVIEWING THEIR PREMISES. TENANT SHALL NOTIFY THE LANDLORD OF THEIR FINDINGS AND CONFIRM SUFFICIENT AIR IS AVAILABLE TO MEET THEIR COOLING LOADS.

4. CONTROLS

- 4.1. PROVIDE ALL CONTROLS, WIRING, CONDUIT, ACCESSORIES, ETC. AND
- INTERLOCK WITH EQUIPMENT/STARTERS AS INDICATED ON DRAWINGS. 4.2. WHEN INSTALLED IN CEILING PLENUMS, CABLE MAY BE FREE-AIR, UNLESS
- 4.3. WHEN INSTALLED IN OPEN AREAS. PROVIDE EMT CONDUIT. FITTINGS. MOUNTING ACCESSORIES, ETC. TO DELIVER A NEAT AND CLEAN INSTALLATION.
- 4.4. MOUNTING HEIGHTS: 4.4.1. OCCUPANT ADJUSTABLE: MOUNT AT 3'-11" (1200 MM) A.F.F.
- 4.4.2. NON-ADJUSTABLE (SENSOR ONLY): MOUNT AT 5'-0" (1500 MM) A.F.F. **CONFIRM MOUNTING HEIGHTS WITH CONSULTANT PRIOR TO INSTALLATION.
- 4.5. COORDINATE INSTALLATION OF ALL CONTROL DEVICES/SENSORS WITH ARCHITECTURAL DRAWINGS.
- 4.6. INSTALL CONTROL DEVICES/SENSORS CLEAR OF DIMMERS SO AS TO AVOID INTERFERENCE. 4.7. THE MECHANICAL CONTRACTOR SHALL TEST ALL CONTROLS/INTERLOCKS FOR
- GOOD OPERATION PRIOR TO PROJECT CLOSE-OUT. PROVIDE A REPORT FOR REVIEW TO THE ENGINEER INDICATING DEFICIENCIES. 4.8. WIRE ALL DEVICES TO THEIR RESPECTIVE MAGNETIC STARTERS AND PROVIDE POWER TO DIV.15 CONTROL PANELS FROM NEAREST AND MOST SUITABLE
- ELECTRICAL PANEL. 4.9. CONTRACT THE SERVICES OF THE BASE BUILDING APPROVED CONTROLS

CONTRACTOR WHERE APPLICABLE.

SUBMITTED

TO CITY INSPECTOR VISIT.

PROJECT CLOSE-OUT

- UPON COMPLETION OF WORK, PROVIDE A WRITTEN ONE YEAR WARRANTY COVERING THE COMPLETE WORK. RECTIFY ANY DEFECTS ARISING DURING THIS PERIOD AT NO EXTRA COST.
- FOR THE ISSUANCE OF THE MECHANICAL LETTER OF COMPLIANCE. ONE WEEK PRIOR TO OCCUPANCY, THE CONTRACTOR SHALL PROVIDE THE FOLLOWING: OPERATING AND MAINTENANCE MANUALS
 - AS-BUILT RECORD DRAWINGS ON WHITE PRINTS AND ASSOCIATED EXTENDED WARRANTIES FOR EQUIPMENT AS SPECIFIED
- ALL OPERATING TEST CERTIFICATES, E.G. SPRINKLER TEST CERTIFICATE FINAL COMMISSIONING REPORT AND TESTING AND AIR BALANCING
- ENGINEER SIGNED AND SEALED LETTER CONFIRMING THAT THE SPRINKLER INSTALLATION COMPLIES WITH NFPA 13 IDENTIFIED KEYS FOR MECHANICAL EQUIPMENT AND/OR PANELS FOR WHICH KEYS ARE REQUIRED, AND ALL OTHER ITEMS REQUIRED TO BE
- OTHER DATA OR PRODUCTS SPECIFIED CONTRACTOR SHALL NOTIFY THE CONSULTANT MINIMUM THREE (3) DAYS PRIOR
- SUBMIT A LEGIBLE SET OF AS-BUILT DRAWINGS ON WHITE PRINTS TO THE CONSULTANT AND ELECTRONIC CAD FILES. INCLUDE FOR CONSULTANTS COST TO UPDATE DRAWINGS TO AS-BUILT & PLOT. CONTRACTOR TO CARRY \$1,000.00 FOR CONSULTANT COSTS. WHITE PRINTS SHALL INCORPORATE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL TENDER DRAWINGS, SHOW ALL HVAC, PLUMBING AND/OR FIRE PROTECTION LAYOUTS.

PLUMBING SPECIFICATIONS

GENERAL .1. PROVIDE PLUMBING SYSTEMS AS PER DRAWINGS, SPECIFICATIONS, THE LATEST

FITTINGS, SUPPORTS, CURBS, ACCESSORIES, ETC

- 1.2. ALL ITEMS REQUIRED FOR PLUMBING SYSTEMS SHALL BE CSA APPROVED UNLESS OTHERWISE NOTED.
- .3. CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS PRIOR TO BID AND CONTRACT AWARD TO ENSURE THAT PIPING INVERTS, LOCATIONS, DIMENSIONS AND LENGTHS ARE SUFFICIENT IN TERMS OF ARRANGEMENT FOR THE RUNS SHOWN ON MECHANICAL DRAWINGS. REPORT DISCREPANCIES TO ENGINEER IMMEDIATELY.
- .4. CARRY OUT TESTING ON ALL SYSTEMS INCLUDING SANITARY DRAINAGE SYSTEMS. STORM DRAINAGE SYSTEMS AND DOMESTIC WATER SYSTEMS AS PER THE CONSTRUCTION CODE AND THE AUTHORITIES HAVING JURISDICTION. TESTS MAY INCLUDE, BUT ARE NOT LIMITED TO, A WATER TEST, PRESSURE TEST, BALL TEST AND FINAL TEST.
- .5. PROVIDE FIRESTOPPING AT ALL FIRE-RATED WALL AND FLOOR ASSEMBLIES AS PER THE 'GENERAL SPECIFICATIONS'.
- 1.6. COORDINATE EXACT LOCATIONS OF ALL PLUMBING FIXTURES WITH ALL TRADES AND ARCHITECTURAL/INTERIOR DESIGN DRAWINGS. DO NOT SCALE MECHANICAL DRAWINGS

.7. WHERE PLUMBING FIXTURES ARE SPECIFIED, THE CONTRACTOR SHALL PROVIDE

ALL ACCESSORIES AND APPURTENANCES TO PROVIDE A FULL AND COMPLETE

TO ADJUST THE UNDER-SLAB SYSTEMS ROUTING TO MEET THE DESIGN INTENT.

INSTALLATION OF THE RESPECTIVE FIXTURE. THIS MAY INCLUDE, BUT IS NOT

- LIMITED TO, STOP VALVES, RISER PIPING, ESCUTCHEON PLATES, ETC.
- 1.8. PROVIDE VENTING SYSTEMS IN ACCORDANCE WITH THE ONTARIO BUILDING CODE. 1.9. PRIOR TO BID SUBMISSION THE CONTRACTOR SHALL EXAM THE SITE INCLUDING THE SPACES BELOW NEW AND/OR RENOVATED AREAS AND CARRY IN HIS BID
- 1.10. CORE DRILLING FOR SERVICES AND/OR SYSTEM SHALL BE PROVIDED BY THIS CONTRACTOR. ALL LOCATIONS SHALL BE SUBMITTED FOR APPROVAL BY A STRUCTURAL ENGINEER BEFOREHAND.
- 2. CLEANING, FLUSHING AND DISINFECTING OF **DOMESTIC WATER PIPING**
- 2.1. FOLLOW PROCEDURES AS OUTLINED IN THE LATEST EDITION OF STANDARD AWWA C651. ENSURE THAT THE METHODS COMPLY WITH LOCAL BY-LAWS.
- 2.2. PREVENT CONTAMINATING MATERIAL FROM ENTERING THE SYSTEM DURING STORAGE, CONSTRUCTION AND REPAIR.
- 2.3. REMOVE AND FLUSH ALL FOREIGN MATTER THAT HAS ENTERED THE PIPING. 2.4. PROTECT THE EXISTING DISTRIBUTION SYSTEM FROM BACKFLOW DUE TO

HYDROSTATIC PRESSURE AND DISINFECTION PROCEDURES.

2.5. CHLORINATE RESIDUAL CONTAMINATION THAT MAY REMAIN AND FLUSH THE CHLORINATED WATER WHEN COMPLETE. FOLLOWING THIS, DETERMINE THE BACTERIOLOGICAL QUALITY OF THE WATER BY LABORATORY TESTING. CONNECT THE WATER SYSTEM ONLY WHEN TEST RESULTS INDICATE AN APPROVED AND DISINFECTED SYSTEM.

3. <u>PIPING INSULATION</u>

- 3.1. PROVIDE PIPING INSULATION FOR PLUMBING SYSTEMS AS FOLLOWS:
- 4.1.1 DCW: TYPE 'A', 1" ϕ TO 4" ϕ 1/2" THICK, 5" AND UP 1" THICK 4.1.2 DHW(R): TYPE 'A', UP TO 2" $\phi - 1$ " THICK, 2-1/2" ϕ AND UP - 1-1/2" THICK 4.1.3 CD (HORIZONTAL): TYPE 'A', 1/2" AND UP - 1" THICK
- 3.2. TYPE 'A': JOHNS MANVILLE MICRO-LOK FIBER GLASS PIPE INSULATION COMPLETE WITH JACKET AND VAPOUR RETARDER. CONNECT SECTIONS OF INSULATION WITH BUTT STRIPS SUPPLIED BY THE INSULATION MANUFACTURER.
- 3.3. WHERE NOTED, RECOVER INSULATION WITH HEAVY-GAUGE PVC FITTINGS, COVER AND JACKETING EQUAL TO JOHNS MANVILLE ZESTON 300 SERIES.
- ASSEMBLIES AS SPECIFIED. REFER TO PUMP SCHEDULE (WHERE APPLICABLE). 5. PIPING MATERIALS (SEE BELOW FOR MATERIALS

MAKE ALL PIPING AND ELECTRICAL CONNECTIONS TO PUMPS AND MOTOR

- SPECIFICATIONS)
- 5.1. DCW AND DHW(R) 5.1.1. ABOVE GROUND: TYPE 1
- 5.1.2. UNDERGROUND: TYPE 2 5.2. <u>SANITARY & STORM DRAINAGE PIPING</u> 5.2.1. ABOVE GROUND: TYPE 3, TYPE 4
- 5.2.2. UNDERGROUND: TYPE 4 (2"ø MIN.), TYPE 5, TYPE 7
- 5.3.1. ABOVE GROUND: TYPE 3, TYPE 4,
- 5.3.2. UNDERGROUND: TYPE 4, TYPE 5, TYPE 7 TYPE 1: TYPE L HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND
- 95/5 TIN/ANTIMONY SOLDER JOINTS. TYPE 2: TYPE K SOFT ANNEALED COPPER TUBING WITH NO JOINTS. TYPE 3: TYPE DWV COPPER TUBE AND FITTINGS WITH 95:5 TIN: ANTIMONY SOLDER TYPE 4: CAST IRON PIPING AND FITTINGS COMPLYING WITH CAN/CSA-B70. FOR MECHANICAL JOINTS ABOVE GRADE, USE NEOPRENE OR BUTYL RUBBER COMPRESSION GASKETS TO CAN/CSA-B70 WITH STAINLESS STEEL CLAMPS.
- FOR MECHANICAL JOINTS BELOW GRADE, USE MISSION HEAVYWEIGHT COUPLINGS FOR HUB AND SPIGOT CONNECTIONS, PROVIDE NEOPRENE GASKET TO CAN/CSA-B70 AND COLD CAULKING COMPOUNDS. DO NOT USE HUB AND SPIGOT FOR ABOVE GROUND APPLICATIONS.
- TYPE 5: IPEX RING-TITE PVC SDR 35 SEWER PIPE IN COMPLIANCE WITH CSA B182.2 AND CSA B182.7. LATERALS WILL BE IPEX RING-TITE PVC SDR 28 IN COMPLIANCE WITH CSA B182.2. TYPE 6: IPEX SYSTEM 15 PIPING AND FITTINGS COMPLYING WITH CSA B181.2,

SCHEDULE 40 WITH A FLAME SPREAD RATING OF NOT GREATER THAN 25 AND

TYPE 7: ROYAL ABS-DWV PIPING AND FITTINGS CERTIFIED TO CSA B181.1.

6. VALVES 6.1. PROVIDE ASTM DOMESTIC WATER VALVES TO THE FOLLOWING KITZ FIGURE

A SMOKE DEVELOPED CLASSIFICATION OF LESS THAN 50.

- 6.1.1.1. 2"ø AND SMALLER: SOLDERED, 1400 KPA [200PSI] W.O.G., FIG. 44 6.1.1.2. 2-1/2"ø AND LARGER: FLANGED, 1400 KPA [200PSI] W.O.G., FIG. 44
- 6.1.2. GLOBE VALVES 6.1.2.1 2"Ø AND SMALLER: SOLDERED, 2070 KPA [300 PSI], W.O.G. FIG 10 WITH SUITABLE COMPOSITION DISC.

6.1.3.1. 2"Ø AND SMALLER: SOLDERED, 2070 KPA [300 PSI], W.O.G. FIG 23

6.1.2.2. 2-1/2"ø AND LARGER: FLANGED, 1400 KPA [200 PSI], W.O.G. FIG. 76 6.1.3. STANDARD CHECK VALVES

MAIN PIPING, BRANCH PIPING, AT FIXTURES AND EQUIPMENT.

6.1.3.2 2-1/2"ø AND LARGER: FLANGED, 1400 KPA [200 PSI], W.O.G. FIG. 78

KITZ FIG. 59

- 6.1.4 BALL VALVES 6.1.4.1 2"Ø AND SMALLER: BALL VALVES MAY BE PROVIDED AS A SUBSTITUTE FOR GATE AND GLOBE VALVES. PROVIDE BALL VALVES WITH BRASS OR BRONZE BODY, CHROME PLATED SOLID BALL, PTFE SEATS AND SEALS AND FULL PORT,
- 6.2. PROVIDE ISOLATION VALVES FOR DOMESTIC HOT AND COLD WATER SYSTEMS AT
- ONLY PIPING THAT IS TOO LOW TO DRAIN INTO A BUILDING SEWER BY GRAVITY SHALL BE DRAINED TO A SUMP OR RECEIVING TANK. PRIOR TO BID SUBMISSION, THE CONTRACTOR SHALL EXAMINE THE SITE, INCLUDING THE SPACES BELOW NEW AND/OR RENOVATED AREAS, AND REPORT TO THE ENGINEER ANY SITE CONDITIONS THAT MAY PREVENT DRAINAGE BY GRAVITY. FOR ANY ALTERNATIVE TO DRAINAGE BY GRAVITY: CONTRACTOR IS TO PROVIDE A SEPARATE PRICE IN BID, HE IS TO SUBMIT THE REQUIRED DOCUMENTATION TO AND OBTAIN APPROVAL FROM THE AUTHORITY HAVING JURISDICTION AND THE LANDLORD AT HIS OWN TIME AND EXPENSE, AND HE IS TO RETAIN AN ENGINEER AT HIS OWN TIME AND EXPENSE TO PROVIDE SIGNED AND SEALED DRAWINGS FOR ANY ALTERNATIVE DESIGN.

EDITION OF THE ONTARIO BUILDING CODE, MUNICIPAL BY-LAWAS AND THE AUTHORITY HAVING JURISDICTION. THE TERM "SYSTEM" REFERS TO ALL PIPING,

The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify IANUZZIELLO & ASSOCIATES INC. of any variations from the drawings.

drawings.

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2025-04-01 ISSUED FOR PRELIMINARY PRICING ISSUED FOR PERMIT 2025-01-31 DATE REV. DESCRIPTION

REVISION RECORD

NORTH ARROW



PROJECT CLARINGTON

TOYOTA LOCATION

DRAWING TITLE SPECIFICATIONS SHEET

PROJECT NO.

23217 CHECKED BY:

DRAWING No.

Suite 104, 92 Church St. S. Aiax. Ontario L1S 6B4 tel: 905.239.0600 e-mail: rai@raiarchitect.com

10 SPICER SQUARE BOWMNVILLE, ON

N.T.S. DRAWN BY:

NATURAL GAS SPECIFICATIONS

1. GENERAL

- 1.1. PROVIDE A COMPLETE AND OPERATING NATURAL GAS SYSTEM IN ACCORDANCE WITH CAN/CSA B149.1, THE ONTARIO BUILDING CODE AND THE AUTHORITIES HAVING JURISDICTION.
- 1.2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND PAYMENT OF PERMITS WITH ALL PARTIES INCLUDING THE LOCAL GAS UTILITY COMPANY.

2. PRODUCTS

2.1. PIPE AND FITTINGS

- 2.1.1. PROVIDE SEAMLESS SCHEDULE 40 BLACK STEEL PIPING CONFORMING TO ASTM A53/A53M. FOR 1/2"ø TO 2"ø, ENDS SHALL BE SCREWED, AND FOR 2-1/2"ø AND GREATER, ENDS SHALL BE PLAIN.
- 2.1.2. FOR SIZES 1/2" TO 2" ϕ USE MALLEABLE IRON SCREWED FITTINGS TO ANSI B16.3, MALLEABLE IRON UNIONS TO ASTM A47M, AND SCHEDULE 40 NIPPLES TO ASTM A53.
- 2.1.3. ALL PIPING AND FITTINGS FOR SIZES 2-1/2" ϕ AND GREATER SHALL BE WELDING IN ACCORDANCE WITH CSA W47.1.
- 2.1.4. MANUAL SHUTOFF VALVES SHALL BE FULL PORT, FORGED BRASS BALL VALVE WITH TWO PIECE BODY CONSTRUCTION COMPLETE WITH CGA 3.16 APPROVAL, CRN NUMBER AND LEVER HANDLE.

3. EXECUTION

- 3.1. INSTALL ALL APPLIANCES AND EQUIPMENT IN ACCORDANCE WITH CAN/CSA B149.1 AND THE MANUFACTURER'S WRITTEN RECOMMENDATIONS, TECHNICAL BULLETINS, DATASHEETS AND INSTALLATION INSTRUCTIONS.
- 3.2. SLOPE PIPING DOWN IN DIRECTION TO FLOW TO LOW POINTS.
- 3.3. INSTALL DRIP POINTS AT LOW POINTS COMPLETE WITH BLOW-DOWN VALVE, 3/4" MINIMUM SIZE, SCREWED AND CAPPED.
- 3.4. ALL PIPING SHALL BE REAMED AND CLEANED FOR BOTH SCALE AND DIRT ON THE INSIDE AND OUTSIDE OF PIPING.
- 3.5. PROVIDE GAS PIPING SYSTEM SO AS TO MINIMIZE THE AMOUNT OF PIPE DISMANTLING FOR EQUIPMENT REMOVAL.
- 3.6. ALL VALVES SHALL BE INSTALLED WITH STEMS IN THE UPRIGHT OR HORIZONTAL POSITION.
- 3.7. TEST, ADJUST, PURGE AND CLEAN ALL SYSTEMS IN ACCORDANCE WITH CAN/CSA B149.1 AND CAN/CSA B149.2.
- 3.8. IDENTIFY ALL PIPING SYSTEMS IN ACCORDANCE WITH CAN/CSA B149.1. ALL ABOVE GROUND PIPING OUTSIDE THE BUILDING SHALL BE PRIMED AND PAINTED YELLOW THROUGHOUT. INDOOR ABOVE GROUND PIPING MAY BE PAINTED, PROVIDED WITH YELLOW BANDING OF MIN. WIDTH 1", OR PROVIDED WITH PIPE MARKINGS AS PER THE GENERAL SPECIFICATIONS. IDENTIFICATION MARKINGS SHALL NOT EXCEED 20 FT.
- 3.9. PROVIDE PIPE SUPPORT AND SPACING AS PER PART 6 OF CAN/CSA B149.1.
- 3.10. FOR INSTALLATION ON ROOF, PROVIDE PIPING SUPPORTS EQUAL TO MIFAB CXP RUBBER SUPPORTS COMPLETE WITH PIPE STRAP CLAMPS.

VENTILATION AIR	CALCULATIONS	
OFFICE (FT ²) =	13992	
# OF PEOPLE =	146	
VENTILATION	ON AIR	
AREA $(7608 \text{ FT}^2 * 0.06) =$	456	CFM
AREA $(6384 \text{ FT}^2 * 0.12) =$	766	CFM
PEOPLE (18 PPL * 5 CFM) =	90	CFM
PEOPLE (131 PPL * 7.5 CFM) =	982	CFM
ZONE AIR DISTRIBUTION EFFECTIVENESS		0.8
DESIGN OUTDOOR AIRFLOW	2867.5	CFM

	HEATING	/COOLING LOAI	D CALCULATION	S SUMMARY		
	DESIGN COOLI	NG			DESIGN HEATING	
	COOLING	OA DB/WB 86.0 °F	73.4 °F	HEATING (DA DB/WB -4.0 °F	−6.5 °F
ZONE LOADS	DETAILS	SENSIBLE (BTU/HR)	LATENT (BTU/HR)	DETAILS	SENSIBLE (BTU/HR)	LATENT (BTU/HR)
WINDOWS SOLAR LOADS	2036 FT²	19856		2036 FT²		
WALL TRANSMISSION	4677 FT²	-911		4677 FT²	15775	
ROOF TRANSMISSION	8097 FT²	1145		8097 FT²	18833	
WINDOW TRANSMISSION	2036 FT²	4009		2036 FT²	52732	
DOOR LOADS	351 FT²	640		351 FT²	8414	
FLOOR TRANSMISSION	2365 FT²			2365 FT²		
LIGHTING	13992 W	43434				
EQUIPMENT	19170 W	62776				
PEOPLE	146	29565	24845			
VENTILATION	3221 CFM	33665	61950	3221 CFM	252615	
TOTAL SYSTEM LOADS		238224	89279		355335	

SYMBOL	DESCRIPTION
	EXISTING DUCTWORK/EQUIPMENT
	EXISTING DUCTWORK/EQUIPMENT TO BE REMOVED
	NEW RIGID DUCTWORK
	NEW HVAC EQUIPMENT
	EXISTING FLEXIBLE DUCTWORK
	NEW FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK UP
><	SUPPLY AIR DUCTWORK DOWN
	RETURN AIR DUCTWORK UP
	RETURN AIR DUCTWORK DOWN
S/A	'SUPPLY AIR'
R/A	'RETURN AIR'
O/A	'OUTDOOR AIR'
F/D	'FIRE DAMPER'
L BD	'BALANCING DAMPER'
BDD	'BACKDRAFT DAMPER'
1 M/D	'MOTORIZED DAMPER'
\square	SQUARE SUPPLY AIR DIFFUSER
\boxtimes	SUPPLY AIR GRILLE
	RETURN AIR GRILLE
\bigcirc	CIRCULAR SUPPLY AIR DIFFUSER
	LINEAR SLOT DIFFUSER
	TROFFER DIFFUSER
	SPIRAL DIFFUSER
① S	THERMOSTAT, SENSOR
Θ	HUMIDISTAT
©	CARBON DIOXIDE SENSOR
©	CARBON MONOXIDE DETECTOR
A-6"ø 150CFM	DIFF TYPE/SIZE AIR CAPACITY
TYP.	'TYPICAL'
\$	SINGLE POLE SWITCH
<u>\$</u> 3	3-WAY SWITCH
<u>X-XX</u>	EQUIPMENT TAG
CAP	CAP ON DUCTWORK
СТЕ	'CONNECT TO EXISTING'
	CABINET EXHAUST FAN
# / #	INLINE EXHAUST FAN
≿=====	DUCTWORK WITH ACOUSTIC OR THERMAL INSULATION (SEE SPECS.
<u></u>	DUCTWORK WITH ACOUSTIC INSULATION
	DUCTWORK WITH THERMAL INSULATION
	CONTINUATION OF DUCTWORK/PIPING
	EXISTING CONTROL WIRING
	NEW CONTROL WIRING
Щ	SPIN-IN DUCT CONNECTION WITH BALANCING DAMPER
(7)	DRAWING NOTE
O	ROUND SUPPLY AIR DIFFUSER
Ŭ ~	LOUVERED FACE SUPPLY/RETURN GRILLE
U/C	DOOR 'UNDERCUT'
G.	POWER SYMBOL
	AIR TRANSFER DUCT
- √-	RETURN AIR
	SUPPLY AIR

SYMBOL	DESCRIPTION
—EX.SAN—	EXISTING ABOVE GROUND SANITARY DRAINAGE PIPING
EX.SAN	EXISTING UNDERGROUND SANITARY DRAINAGE PIPING
——-SAN ———	ABOVE GROUND SANITARY DRAINAGE PIPING
——SAN——	UNDERGROUND SANITARY DRAINAGE PIPING
—EX.STM—	EXISTING ABOVE GROUND STORM DRAINAGE PIPING
— —EX.STM— —	EXISTING UNDERGROUND STORM DRAINAGE PIPING
STM	ABOVE GROUND STORM DRAINAGE PIPING
——STM ——	UNDERGROUND STORM DRAINAGE PIPING
——EX.V——	EXISTING ABOVE GROUND VENT PIPING
EX.V	EXISTING UNDERGROUND VENT PIPING
	ABOVE GROUND VENT PIPING
V	UNDERGROUND VENT PIPING
——EX.CD——	EXISTING CONDENSATE DRAINAGE PIPING
CD	CONDENSATE DRAINAGE PIPING
	EXISTING DOMESTIC COLD WATER PIPING
	DOMESTIC COLD WATER PIPING
	EXISTING DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER PIPING
	EXISTING DOMESTIC HOT WATER RETURN PIPING
	DOMESTIC HOT WATER RETURN PIPING
——EX.G——	EXISTING GAS PIPING
G	LOW PRESSURE GAS PIPING
——HPG——	HIGH PRESSURE GAS PIPING
	EXISTING PIPING/EQUIPMENT TO BE REMOVED
SSSS	HEAT TRACING ON PIPE
	CONTINUATION OF DUCTWORK/PIPING
₹	GAS COCK VALVE
FD ⊜ FFD	FLOOR DRAIN/FUNNEL FLOOR DRAIN
HD O	HUB DRAIN
AD 🖸	AREA DRAIN
RD 🖶	ROOF DRAIN
СВ	AREA DRAIN
co a—	BURIED CLEANOUT
CO I—	EXPOSED CLEANOUT
ு	SANITARY 'P' TRAP
د	PIPE UP
د	PIPE DOWN
VTR	VENT THROUGH ROOF
CAP	CAP ON PIPING
7>	DRAWING KEY NOTE

PLUMBING LEGEND

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DATE REV. DESCRIPTION

CONSULTANT:



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e-mail: rai@raiarchitect.com

CLARINGTON

10 SPICER SQUARE

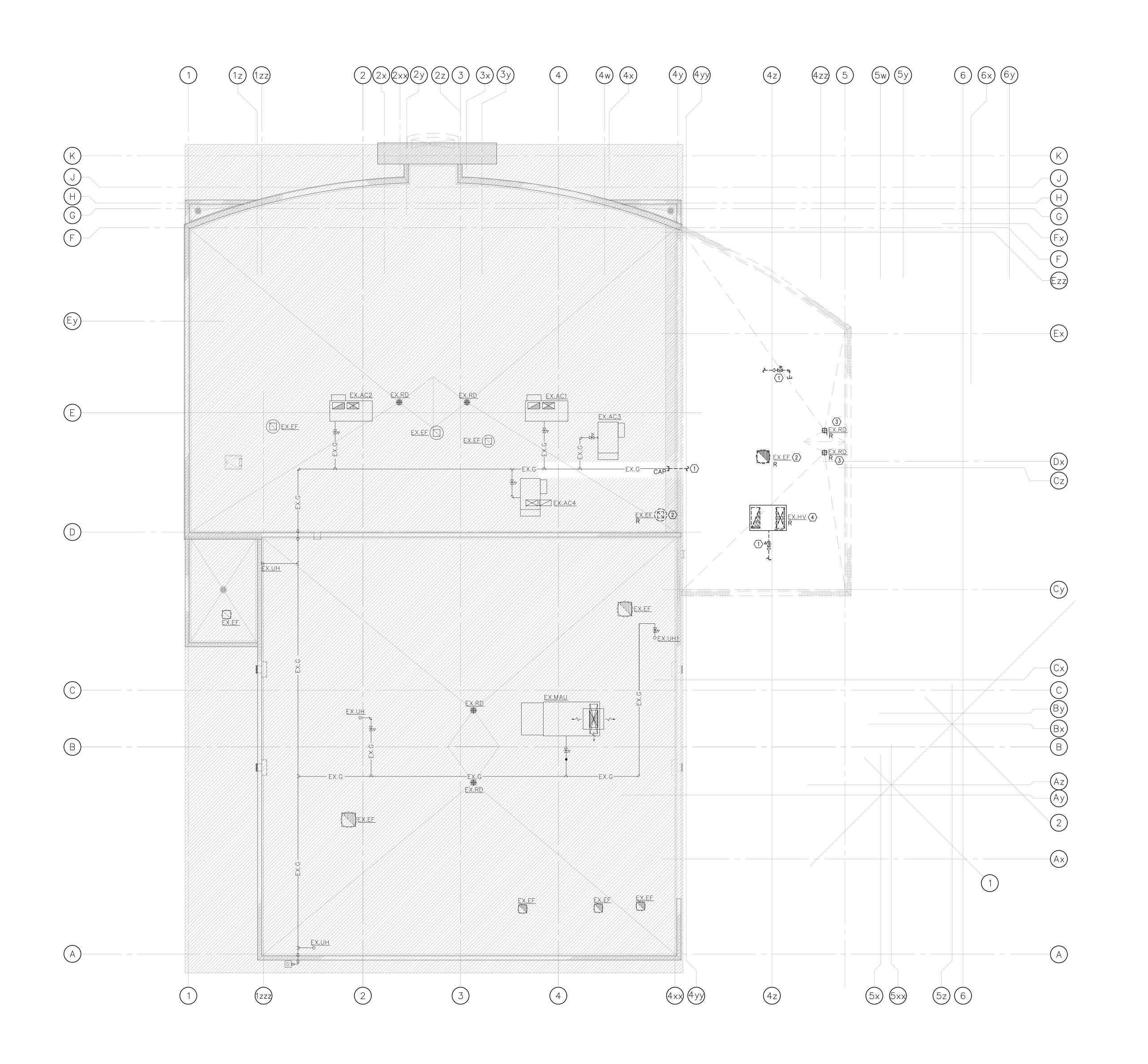
TOYOTA

BOWMNVILLE, ON DRAWING TITLE

LOAD CALCULATION AND LEGEND SHEET

PROJECT NO.

N.T.S. DRAWN BY: 23217 CHECKED BY:



GENERAL DEMOLITION MECHANICAL NOTES

REMOVED ALL EQUIPMENT AS INDICATED AND ITS ASSOCIATED DUCTWORK, PIPING, AND CONTROLS. REPATCH AND REPAIR ALL EXISTING HOLES AND PENETRATION TO MATCH EXISTING.

DEMOLITION MECHANICAL DRAWING NOTES

- (1) EXISTING GAS PIPING TO BE CUT AND CAP AS SHOWN. REFER TO DRAWING M-5 FOR CONTINUATION. EXACT ROUTING TO BE VERIFIED ON SITE. TYPICAL.
- (2) EXISTING ROOF EXHAUST FAN TO BE REMOVED IN ITS ENTIRETY C/W DUCTWORK, WIRING, CONTROLS AND ACCESSORIES. POWER DISCONNECTION BY ELECTRICAL
- (3) EXISTING ROOF DRAIN TO BE REMOVED. REFER TO DRAWING P-1 FOR CONTINUATION AND PIPING DEMOLITION. TYPICAL
- $\overline{\langle 4 \rangle}$ EXISTING HEAT VENTILATION UNIT TO BE REMOVED IN ITS ENTIRETY C/W DUCTWORK, WIRING, CONTROLS AND ACCESSORIÉS. POWER DISCONNECTION BY ELECTRICAL DIVISION.

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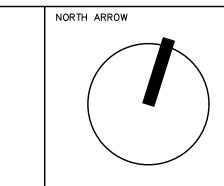
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E-mail: info@ianuzziello.com

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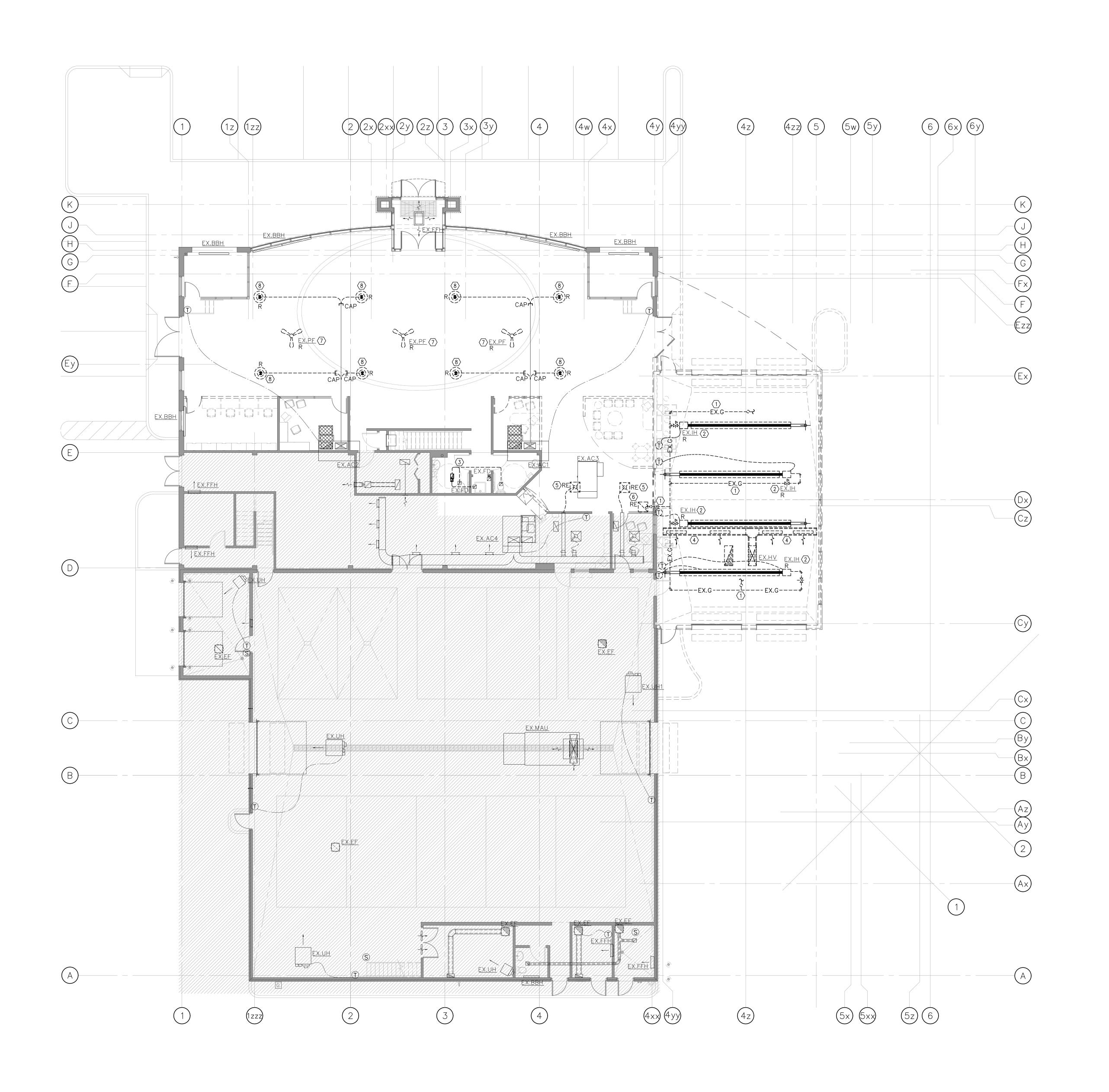
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CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DEMOLITION MECHANICAL ROOF

1:100 DRAWN BY: 23217 CHECKED BY: PROJECT NO.



GENERAL DEMOLITION HVAC NOTES

REMOVED ALL EQUIPMENT AS INDICATED AND ITS ASSOCIATED DUCTWORK, PIPING, AND CONTROLS. REPATCH AND REPAIR ALL EXISTING HOLES AND PENETRATION TO MATCH EXISTING.

DEMOLITION MECHANICAL DRAWING NOTES

(1) EXISTING GAS PIPING TO BE CUT AND CAP AS SHOWN.

REFER TO DRAWING M-4 FOR CONTINUATION. EXACT

(2) EXISTING INFRARED HEATER TO BE REMOVED IN ITS ENTIRETY C/W DUCTWORK, VENT, GAS PIPING, WIRING, CONTROLS AND ACCESSORIES. POWER DISCONNECTION BY ELECTRICAL DIVISION. TYPICAL FOR 4

ROUTING TO BE VERIFIED ON SITE. TYPICAL.

- (3) EXISTING E/A DUCTWORK TO BE REMOVED. KEEP EXISTING FIRE DAMPER READY FOR RE—USE. TYPICAL.
- (4) EXISTING S/A DUCTWORK ASSOCIATED WITH EXISTING HEAT VENTILATION UNIT TO BE REMOVED C/W GRILLES AND/OR REGISTERS. TYPICAL.
- (5) EXISTING S/A DIFFUSER TO BE RELOCATED. TYPICAL FOR 2. (6) EXISTING R/A GRILLE TO BE RELOCATED.
- (7) EXISTING PROPELLER FAN C/W CONTROLS TO BE REMOVED.
- POWER DISCONNECTION BY ELECTRICAL DIVISION. TYPICAL
- (8) EXISTING ROUND DIFFUSER TO BE REMOVED. CUT AND CAP BRANCH DUCTWORK BACK TO MAIN AS SHOWN. TYPICAL FOR

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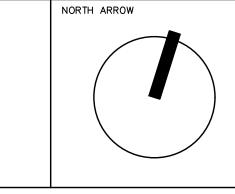


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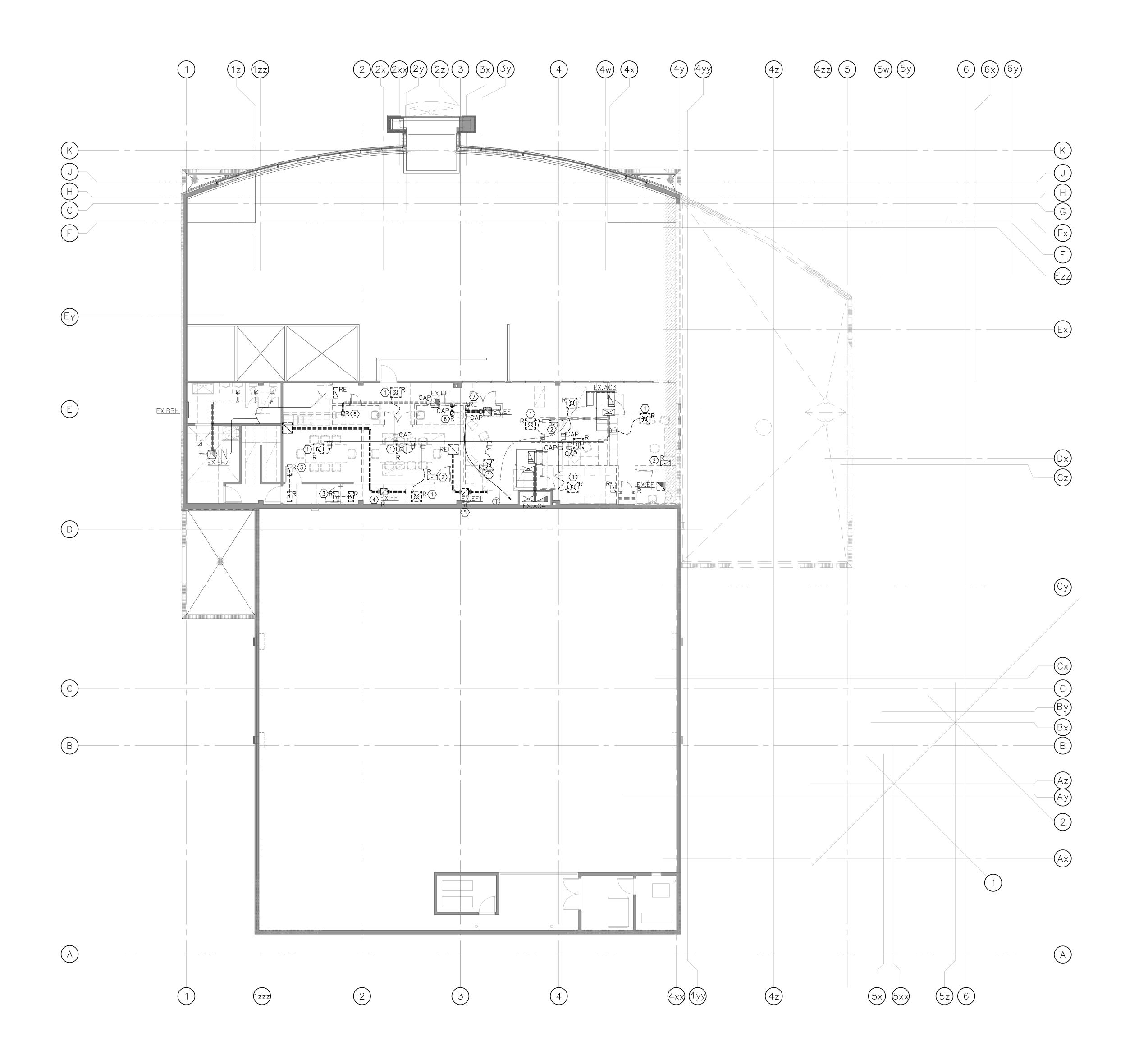
CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

GROUND FLOOR DEMOLITION HVAC PLAN

PROJECT NO.

1:100 DRAWN BY: 23217 CHECKED BY:



GENERAL DEMOLITION HVAC NOTES

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DEMOLITION MECHANICAL DRAWING NOTES

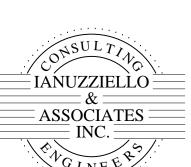
(1) EXISTING S/A DIFFUSER TO BE REMOVED. CUT AND CAP (IF

- SHOWN) BRANCH DUCTWORK BACK TO MAIN. TYPICAL. $\langle 2 \rangle$ EXISTING R/A GRILLE TO BE REMOVED. TYPICAL.
- $\overline{3}$ EXISTING T/A DUCTWORK C/W GRILLE TO BE REMOVED. TYPICAL FÓR 2.
- (4) EXISTING INLINE EXHAUST FAN TO BE REMOVED IN ITS ENTIRETY C/W DUCTWORK, WIRING, GRILLES AND CONTROLS.
- POWER DISCONNECTION BE ELECTRICAL DIVISION. $\langle 5 \rangle$ EXISTING INLINE EXHAUST FAN TO BE RELOCATED C/W
- GRILLE AND CONTROLS. POWER DISCONNECTION BY ELECTRICAL AND RECONNECTION BY ELECTRICAL DIVISION.
- (6) EXISTING E/A GRILLE TO BE REMOVED. CUT AND CAP EXISTING DUCTWORK BACK TO MAIN AS SHOWN. TYPICAL
- (7) EXISTING E/A DUCT DROP TO GROUND FLOOR CEILING SPACE TO BE RELOCATED. TYPICAL FOR 2.

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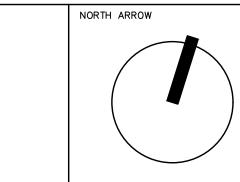


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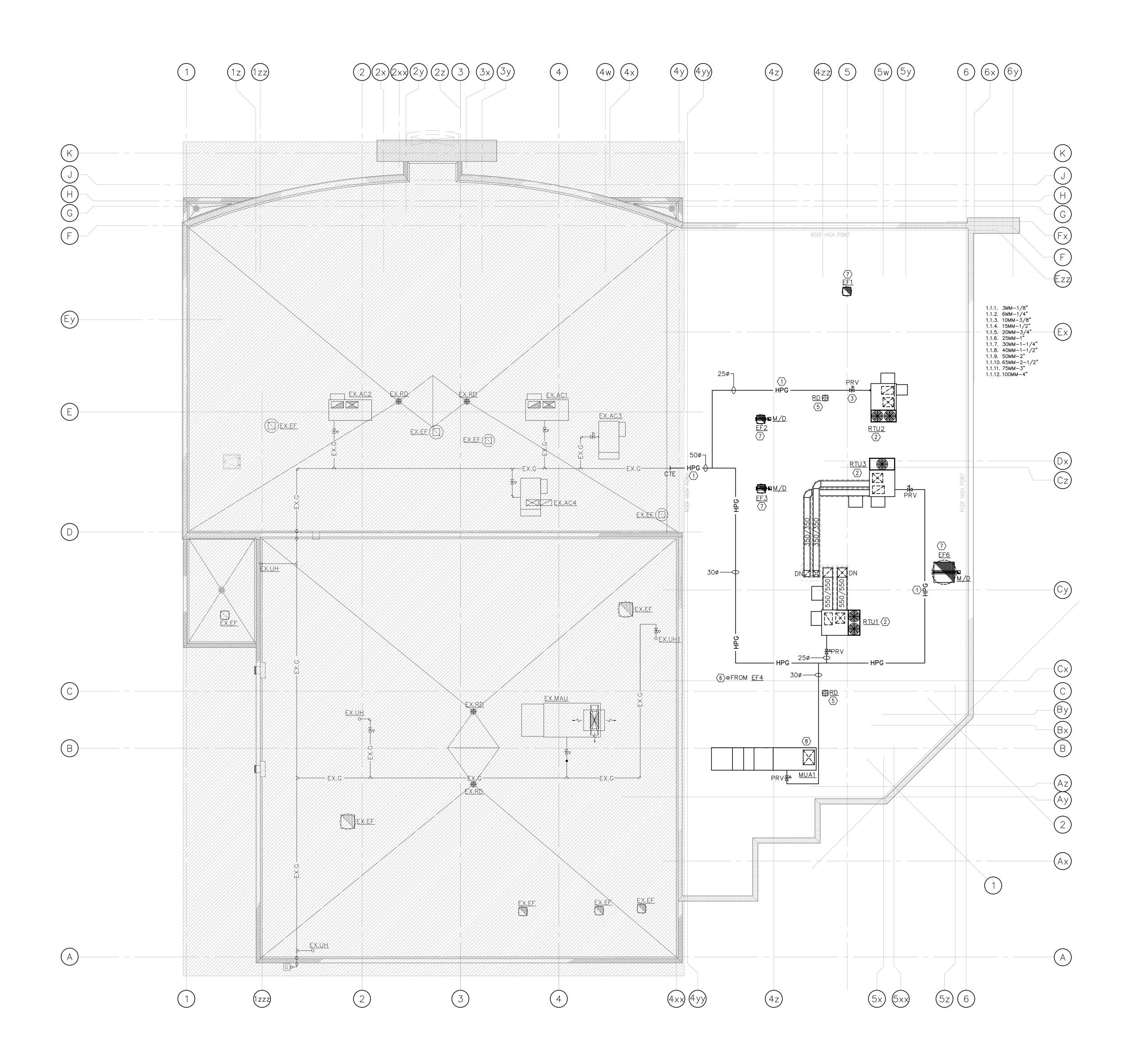
CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE SECOND FLOOR DEMOLITION HVAC PLAN

1:100 DRAWN BY: PROJECT NO.

23217 CHECKED BY:



GENERAL MECHANICAL NOTES

- DO NOT SCALE DRAWINGS. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. REVIEW ALL REVISIONS WITH THE CONSULTANT.
- 2. FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS. INFORMATION SHOWN ON FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE—VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- OPERATIONAL SYSTEM.

 3. ROOF CUTTING, PATCHING, FLASHING ETC. REQUIRED FOR INSTALLATION MECHANICAL EQUIPMENT BY GENERAL CONTRACTOR.
- PROVIDE GAS PRESSURE REGULATOR TO SUIT REQUIREMENTS. VENT REGULATOR AS REQUIRED. TYPICAL.

NEW MECHANICAL DRAWING NOTES

- PROVIDE NEW HIGH PRESSURE GAS LINE ON ROOF OF SIZE INDICATED. EXACT ROUTING TO BE VERIFIED ON SITE. RUN PIPE ON ROOF C/W GAS PIPING SUPPORT. CONTRACTOR TO DO THE EXACT MEASUREMENT FOR THE NEW PIPE LENGTH ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER. TYPICAL.
- PROVIDE NEW ROOF TOP UNIT AS SPECIFIED. INSTALL AS PER MANUFACTURER'S RECOMMENDATION C/W MANUFACTURER SUPPLIED CURB. ENSURE THAT ALL REQUIRED CLEARANCES ARE MAINTAINED. EXACT LOCATION TO BE COORDINATED ON SITE WITH STRUCTURAL ENGINEER AND OTHER TRADES. LOCATE UNIT SO AS TO MAINTAIN ALL RECOMMENDED CLEARANCES AND ENSURE UNIT FRESH AIR INTAKE AS PER SCHEDULE. MIN. 10'-0" AWAY FROM ANY INTAKE/EXHAUST. TYPICAL OF 3.
- (3) CONNECT NEW HIGH PRESSURE GAS LINE OF SIZE INDICATED TO NEW ROOF TOP UNIT C/W PRV AND CGA APPROVED VALVE. PAINT NEW GAS PIPE YELLOW. REFER TO DETAILS FOR PIPING SUPPORT REQUIREMENT. TYPICAL.
- PROVIDE NEW ROOF TOP UNIT AS SPECIFIED. INSTALL AS PER MANUFACTURER'S RECOMMENDATION C/W MANUFACTURER SUPPLIED CURB. ENSURE THAT ALL REQUIRED CLEARANCES ARE MAINTAINED. EXACT LOCATION TO BE COORDINATED ON SITE WITH STRUCTURAL ENGINEER AND OTHER TRADES. LOCATE UNIT SO AS TO MAINTAIN ALL RECOMMENDED CLEARANCES AND ENSURE UNIT FRESH AIR INTAKE AS PER SCHEDULE. MIN. 10'-0" AWAY FROM ANY INTAKE/EXHAUST. TYPICAL OF 3.
- FROVIDE NEW ROOF DRAIN AS SPECIFIED. RUN PIPE U/S
 THE CEILING OF FLOOR BLOW AND DOWN TO GROUND FLOOR.
 EXACT LOCATION OF ROOF DRAIN TO BE COORDINATED WITH
 THE ARCHITECT. TYPICAL.
- 6 PROVIDE GOOSENECK AND BIRD SCREEN FOR EXHAUST DUCT AS PER DETAIL. TYPICAL.
- PROVIDE NEW ROOF EXHAUST FAN C/W MANUFACTURER'S SUPPLID CURB. ENSURE THAT ALL REQUIRED CLEARANCES ARE MAINTAINED. EXACT LOCATION TO BE COORDINATED ON SITE WITH STRUCTURAL ENGINEER AND OTHER TRADES. FAN TO BE CONTROLLED BY 24/7 TIMER. PROVIDE NEW MOTORIZED DAMPER (IF SPECIFIED). POWER BY ELECTRICAL DIVISION. TYPICAL FOR 4.
- PROVIDE NEW MAKE-UP AIR UNIT AS SPECIFIED. INSTALL AS PER MANUFACTURER'S RECOMMENDATION C/W MANUFACTURER SUPPLIED CURB AND ENSURE THAT ALL REQUIRED CLEARANCES ARE MAINTAINED. EXACT LOCATION TO BE COORDINATED ON SITE WITH STRUCTURAL ENGINEER AND OTHER TRADES. LOCATE UNIT SO AS TO MAINTAIN ALL RECOMMENDED CLEARANCES AND ENSURE UNIT FRESH AIR INTAKE AS PER SCHEDULE. MIN. 10'-0" AWAY FROM ANY INTAKE/EXHAUST. UNIT SHALL BE CONTROLLED WITH HAND/OFF/AUTO CONTROL PANEL.

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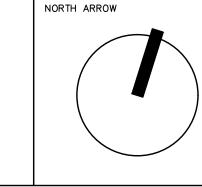


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PROJECT

CLARINGTON TOYOTA

BOWMNVILLE, ON

DRAWING TITLE

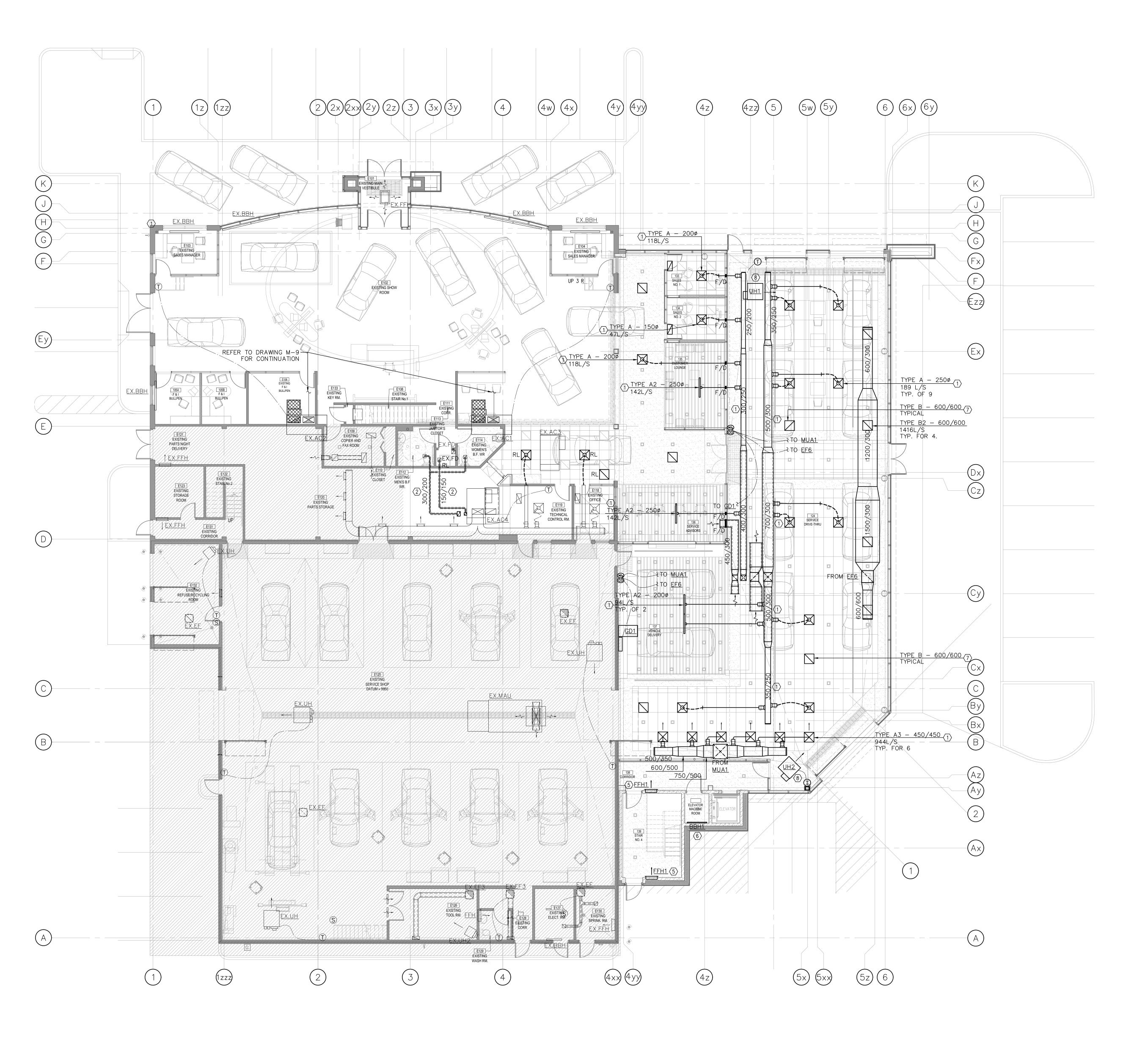
NEW MECHANICAL ROOF PLAN

10 SPICER SQUARE

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DRAWING No.

SCALE: 1:100 DRAWN BY:
PROJECT NO. 23217 CHECKED BY:



GENERAL HVAC NOTES

- 1. DO NOT SCALE DRAWINGS. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. REVIEW ALL REVISIONS WITH THE CONSULTANT.
- 2. FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS. INFORMATION SHOWN ON FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE—VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- OPERATIONAL SYSTEM.

 3. ALL TRANSFER AIR DUCTS SHALL BE ACOUSTICALLY LINED ELBOW DUCTS AS SHOWN OR UNLESS INDICATED OTHERWISE. TRANSFER AIR DUCTS SHALL NOT BE USED IN LIEU OF
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF GRILLES AND DIFFUSERS.
- 5. COORDINATE FINAL LOCATION WITH THE ARCHITECT WITHIN 1000MM (40 IN) OF LOCATION SHOWN. ALL RELOCATIONS OUTSIDE OF THIS RANGE SHALL BE REVIEWED WITH THE CONSULTANT.

SILENCERS.

- 6. TEMPERATURE SENSORS SHALL MATCH ELEVATION OF LIGHT SWITCHES ABOVE THE FINISHED FLOOR UNLESS INDICATED OTHERWISE.
- 7. DIFFUSER DUCT RUN-OUTS SHALL BE THE SAME SIZE AS THE DIFFUSER INLETS UNLESS INDICATED OTHERWISE.
- 8. ALL DUCT BRANCHES TO EACH DIFFUSER SHALL BE EQUIPPED WITH A BALANCING DAMPER EXCEPT WHERE THE DIFFUSER INCLUDES THE DAMPER.

NEW HVAC DRAWING NOTES

- PROVIDE NEW S/A SQUARE/LINEAR DIFFUSER OF SIZE AND TYPE INDICATED. PROVIDE NEW FLEXIBLE/RIGID DUCT (DUCT SIZE TO MATCH DIFFUSER NECK SIZE). BALANCE TO AIR QUANTITY SHOWN. TYPICAL.
- RUN NEW E/A DUCTWORK IN CEILING SPACE FROM FLOOR ABOVE AS SHOWN. CONNECT TO EXISTING EXHAUST GRILLE C/W EXISTING FIRE DAMPERS (IF ANY). EXACT ROUTING TO BE VERIFIED ON SITE WITH OTHER TRADES/SERVICES. TYPICAL.
- (3) PROVIDE NEW RETURN AIR DUCTWORK OF SIZE INDICATED C/W ACOUSTIC INSULATION AS SHOWN. TYPICAL FOR 2.
- PROVIDE NEW S/A DUCTWORK C/W ACOUSTIC INSULATION AS SHOWN IN CEILING SPACE OF SIZE INDICATED. COORDINATE ROUTING ON SITE WITH OTHER TRADES/SERVICES. TYPICAL.
- 5 PROVIDE NEW FORCE FLOW HEATER AS SPECIFIED. POWER BY ELECTRICAL DIVISION. TYPICAL.
- (6) PROVIDE NEW BASEBOARD HEATER AS SPECIFIED.
- POWER BY ELECTRICAL DIVISION.

 (7) PROVIDE NEW R/A GRILLE OF SIZE AND TYPE INDICATED.
- (7) PROVIDE NEW R/A GRILLE OF SIZE AND TYPE INDICATED.

 TYPICAL.
- (8) PROVIDE NEW ELECTRIC UNIT HEATER AS SPECIFIED C/W HANGERS, SUPPORT, WIRING AND REMOTE THERMOSTAT. POWER BY ELECTRICAL DIVISION. TYPICAL FOR 2.

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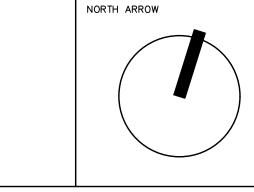
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ARCHITECT:



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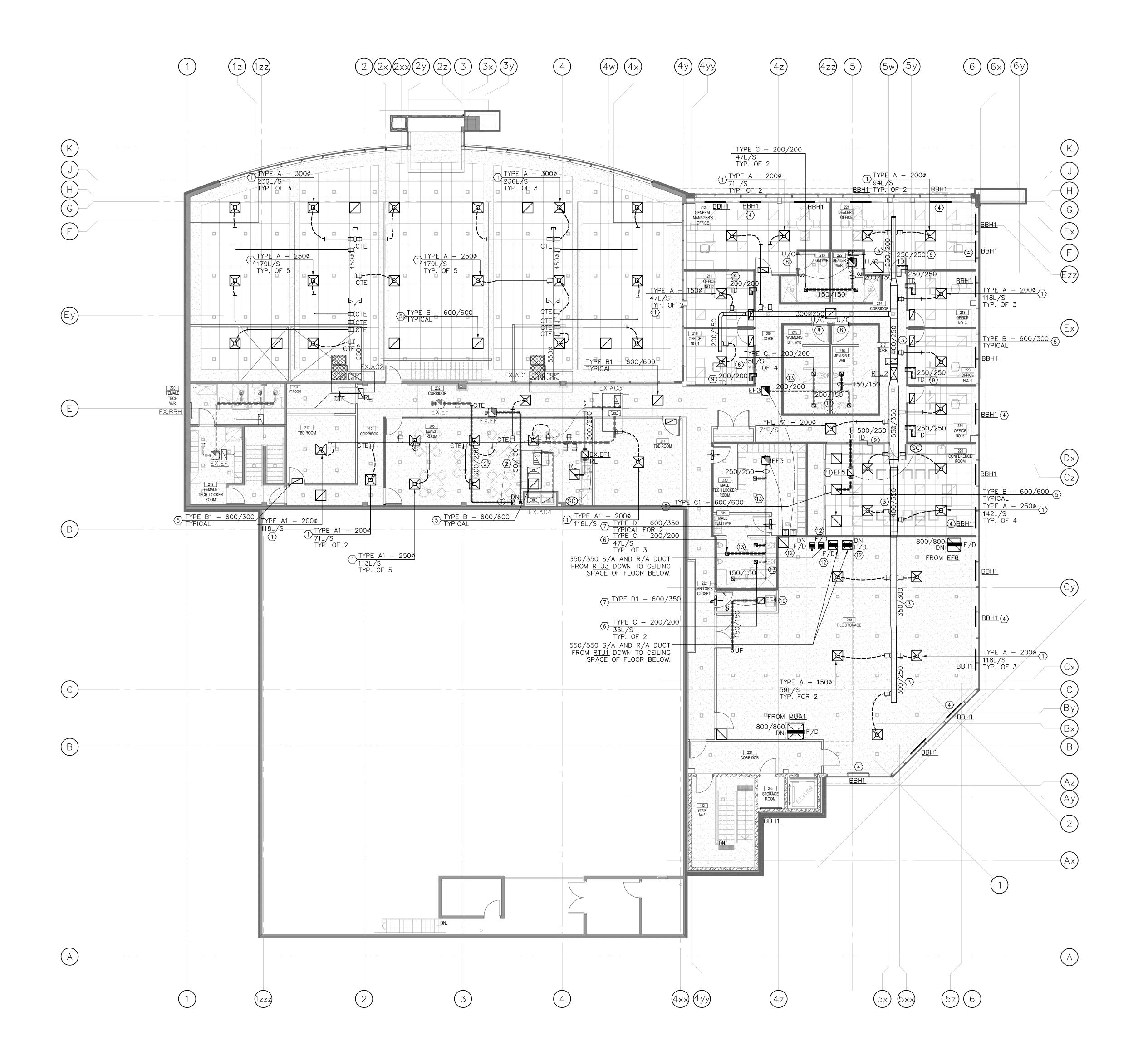
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CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE
GROUND FLOOR
NEW HVAC PLAN

SCALE: 1:100 DRAWN BY:
PROJECT NO. 23217 CHECKED BY:



GENERAL HVAC NOTES

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- 2. FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS. INFORMATION SHOWN ON FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE—VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- OPERATIONAL SYSTEM.

 ALL TRANSFER AIR DUCTS SHALL BE ACOUSTICALLY LINED ELBOW DUCTS AS SHOWN OR UNLESS INDICATED OTHERWISE. TRANSFER AIR DUCTS SHALL NOT BE USED IN LIEU OF
- SILENCERS.

 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF GRILLES AND DIFFUSERS.
- 5. COORDINATE FINAL LOCATION WITH THE ARCHITECT WITHIN 1000MM (40 IN) OF LOCATION SHOWN. ALL RELOCATIONS OUTSIDE OF THIS RANGE SHALL BE REVIEWED WITH THE CONSULTANT.
- TEMPERATURE SENSORS SHALL MATCH ELEVATION OF LIGHT SWITCHES ABOVE THE FINISHED FLOOR UNLESS INDICATED OTHERWISE.
- OTHERWISE.

 7. DIFFUSER DUCT RUN—OUTS SHALL BE THE SAME SIZE AS THE DIFFUSER INLETS UNLESS INDICATED OTHERWISE.
- 8. ALL DUCT BRANCHES TO EACH DIFFUSER SHALL BE EQUIPPED WITH A BALANCING DAMPER EXCEPT WHERE THE DIFFUSER INCLUDES THE DAMPER.

NEW HVAC DRAWING NOTES

- PROVIDE NEW S/A SQUARE DIFFUSER OF SIZE AND TYPE INDICATED. PROVIDE NEW FLEXIBLE/RIGID DUCT (DUCT SIZE TO MATCH DIFFUSER NECK SIZE). BALANCE TO AIR QUANTITY SHOWN. TYPICAL.
- RUN NEW E/A DUCTWORK IN CEILING SPACE TO CEILING SPACE OF FLOOR BELOW AS SHOWN. EXACT ROUTING TO BE VERIFIED ON SITE WITH OTHER TRADES/SERVICES. TYPICAL.
- PROVIDE NEW S/A DUCTWORK C/W ACOUSTIC INSULATION AS SHOWN IN CEILING SPACE OF SIZE INDICATED. COORDINATE ROUTING ON SITE WITH OTHER TRADES/SERVICES. TYPICAL.
- PROVIDE NEW BASEBOARD HEATER AS SPECIFIED. POWER BY ELECTRICAL DIVISION. TYPICAL.
- 5 PROVIDE NEW R/A GRILLE OF SIZE AND TYPE INDICATED. TYPICAL.
- 6 PROVIDE NEW DUCT MOUNTED E/A GRILLES OF SIZE AND TYPE INDICATED C/W BALANCING DAMPER. BALANCE TO AIR QUANTITY SHOWN. TYPICAL.

 7 PROVIDE NEW DOOR GRILLE OF SIZE AND TYPE
- INDICATED. TYPICAL FOR 3.

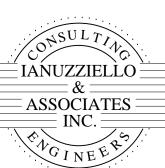
 8 PROVIDE NEW DOOR 20MM DOOR UNDERCUT. TYPICAL.
- 9 PROVIDE NEW TRANSFER AIR DUCTWORK OF SIZE AND TYPE INDICATED. TYPICAL.
 10 PROVIDE NEW JANITOR EXHAUST FAN. RUN DISCHARGE
- DUCT UP TO ROOF C/W GOOSENECK. INSULATE ENTIRE RUN. FAN TO BE CONTROLLED BY STARTER. FOR INSTALLATION REQUIREMENTS REFER TO DETAILS ON DRAWINGS. POWER BY ELECTRICAL DIVISION.
- PROVIDE NEW TRANSFER FAN. RUN DISCHARGE DUCT IN CEILING PLENUM. INSULATE ENTIRE RUN. FAN TO BE CONTROLLED BY STARTER. FOR INSTALLATION REQUIREMENTS REFER TO DETAILS ON DRAWINGS.
- PROVIDE FIRE DAMPER ON DUCT DROP THROUGH GROUND FLOOR. REFER TO ARCHITECTURAL PLANS FOR FIRE RATING REQUIREMENTS. ARCHITECT TO ENCLOSE VERTICAL DUCTWORK WITH DRYWALL. TYPICAL FOR 4.
- PROVIDE NEW E/A DUCTWORK TO FAN ON ROOF.
 ACOUSTICALLY INSULATE ENTIRE RUN. COORDINATE
 ROUTING WITH OTHER/TRADES AND SERVICES. TYPICAL.

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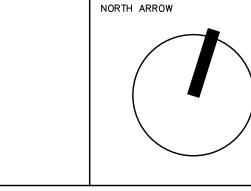
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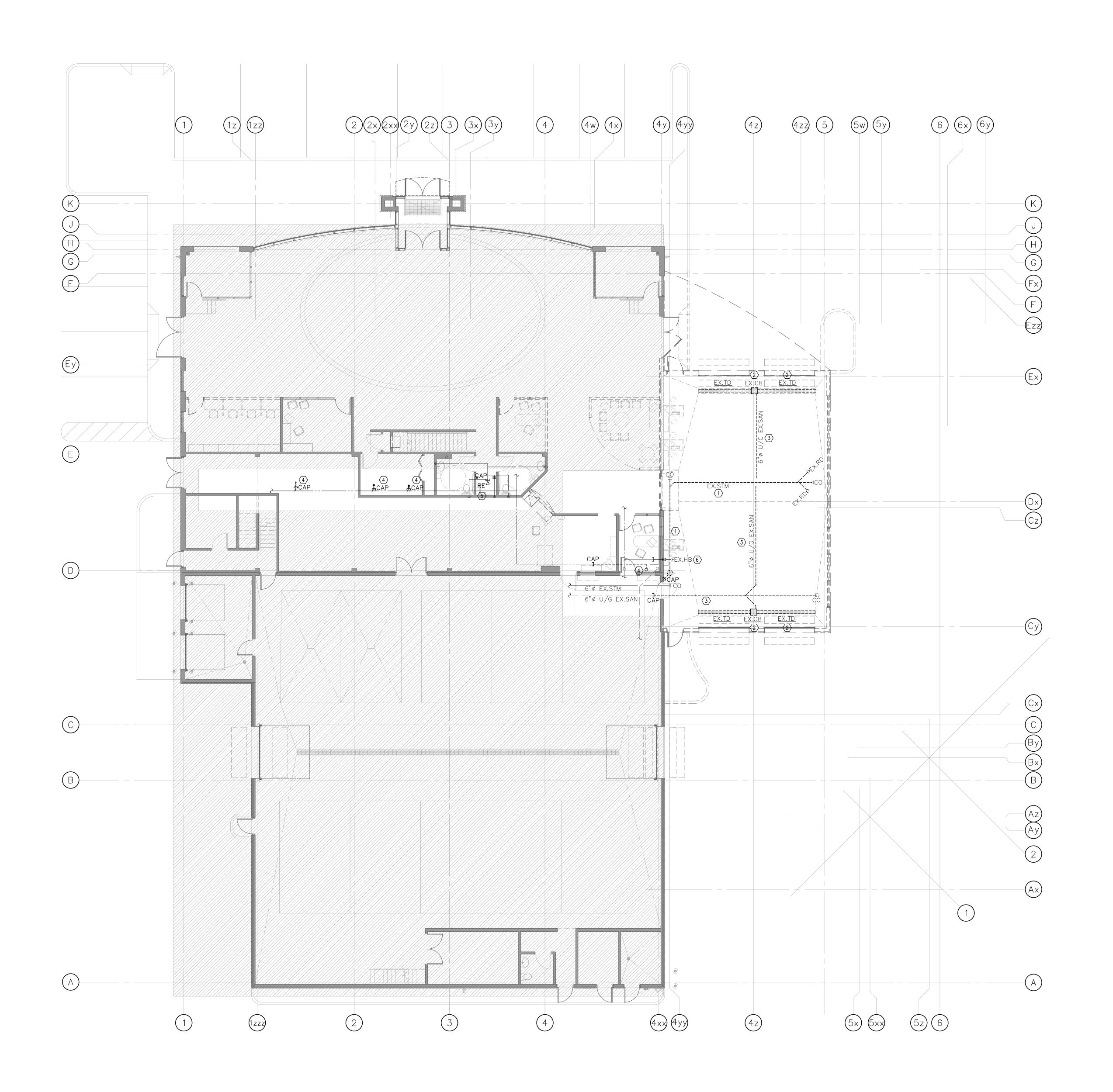
ROJECT

CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE
SECOND FLOOR
NEW HVAC PLAN

SCALE: 1:100 DRAWN BY:
PROJECT NO. 23217 CHECKED BY:



GENERAL DEMOLITION PLUMBING & DRAINAGE

· SLAB CUTTING/CORE AND FLOOR REPAIR RELATED TO PLUMBING WORK SHALL BE BY GENERAL CONTRACTOR. PLUMBING DEMOLITION WORK INCLUDING SHUT DOWN OF PLUMBING SERVICES SHALL BE COORDINATED WITH THE

NOT GOING TO BE REUSED.

TENDER PRICE INCLUDING AFTER HOURS WORK. REMOVE ALL ABANDONED PLUMBING SERVICES WHICH ARE

BUILDING MANAGEMENT. INCLUDE FOR ALL RELATED COST IN

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NEW DEMOLITION PLUMBING & DRAINAGE DRAWING NOTES

(1) EXISTING STORM DRAINAGE TO BE CUT AND CAP BACK AS SHOWN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE.

- 2 EXISTING CATCH BASIN/TRENCH DRAIN TO BE REMOVED.
- (3) EXISTING BURIED SANITARY TO BE CUT AND CAP BACK AS SHOWN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE. TYPICAL. INCLUDE COST FOR ALL FLOOR SCANNING, CORING, TRENCHING, FILLING AND PATCHING. TYPICAL.
- (4) EXISTING DHW CONNECTION TO EXISTING SINK ABOVE FLOOR TO CUT AND CAP AS SHOWN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE. TYPICAL.
- (5) EXISTING DCW STACK TO BE RELOCATED. CAP TEMPORARILY READY FOR RECONNECTION. REFER TO P-3 FOR NEW PIPING. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE.
- (6) EXISTING HOSE BIB TO BE REMOVED. CUT AND CAP DCW CONNECTION BACK TO MAIN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE.

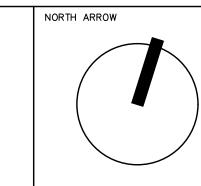


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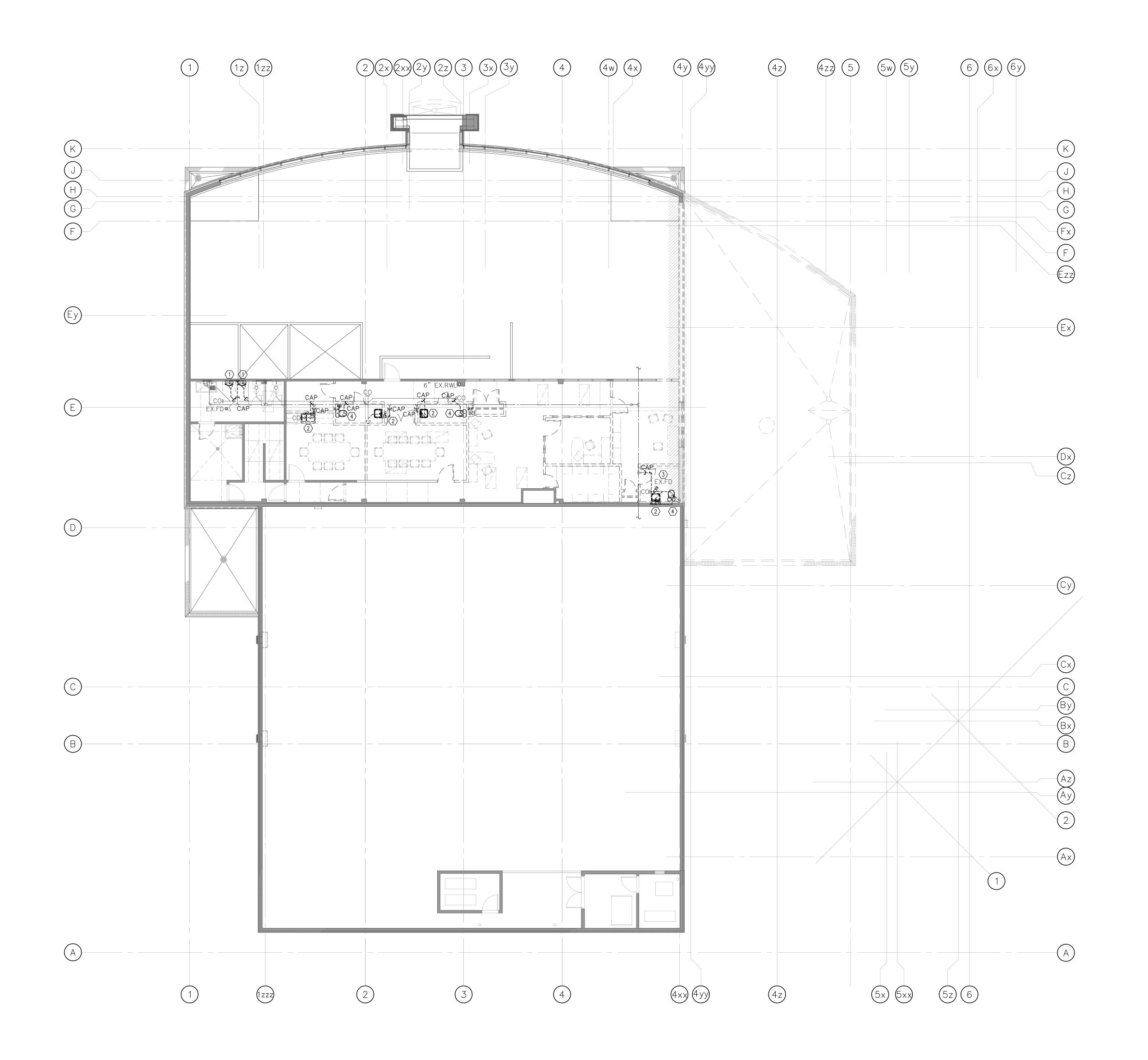
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CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

GROUND FLOOR DEMOLITION PLUMBING AND DRAINAGE PLAN

1:100 DRAWN BY: 23217 CHECKED BY: PROJECT NO.



GENERAL DEMOLITION PLUMBING & DRAINAGE

- 1. SLAB CUTTING/CORE AND FLOOR REPAIR RELATED TO PLUMBING WORK SHALL BE BY GENERAL CONTRACTOR. PLUMBING DEMOLITION WORK INCLUDING SHUT DOWN OF PLUMBING SERVICES SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT. INCLUDE FOR ALL RELATED COST IN
- TENDER PRICE INCLUDING AFTER HOURS WORK. REMOVE ALL ABANDONED PLUMBING SERVICES WHICH ARE NOT GOING TO BE REUSED.

DISCLAIMER:

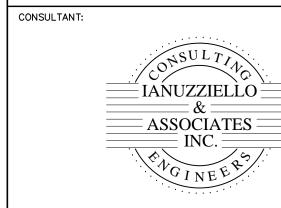
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The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify IANUZZIELLO & ASSOCIATES INC. of any variations from the drawings.

NEW DEMOLITION PLUMBING & DRAINAGE DRAWING NOTES (1) EXISTING URINAL TO BE REMOVED. CUT AND CAP PLUMBING,

DRAIN AND VENT BACK TO MAIN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE. TYPICAL FOR 2.

- (2) EXISTING SINK/LAVATORY TO BE REMOVED. CUT AND CAP PLUMBING, DRAIN AND VENT BACK TO MAIN. EXACT ROUTING
- OF PIPING TO BE VERIFIED ON SITE. TYPICAL. (3) EXISTING FLOOR DRAIN TO BE REMOVED. CUT AND CAP SANITARY PIPING BACK TO MAIN RISER. EXACT ROUTING TO
- BE VERIFIED ON SITE. (4) EXISTING WATER CLOSET TO BE REMOVED. CUT AND CAP
- PLUMBING, DRAIN AND VENT BACK TO MAIN. EXACT ROUTING OF PIPING TO BE VERIFIED ON SITE. TYPICAL.

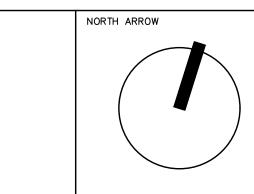


IANUZZIELLO & ASSOCIATES INC. 305 MILNER AVENUE, SUITE 215 SCARBOROUGH, ONTARIO, M1B 3V4
TEL: (416) 609-8570
FAX: (416) 609-0702

E-mail: info@ianuzziello.com

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DATE REV. DESCRIPTION REVISION RECORD





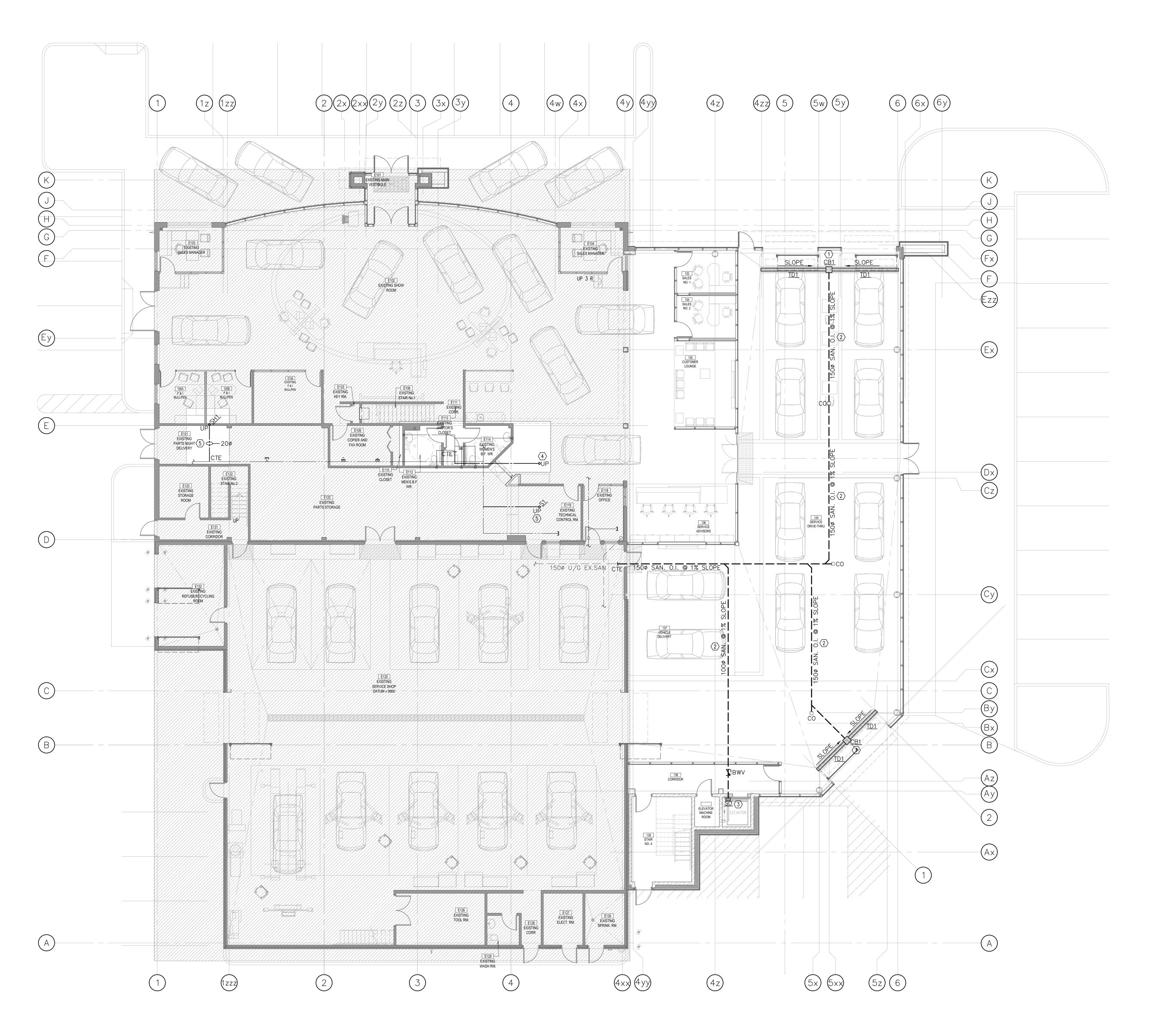
RAI Architect Inc. Suite 104, 92 Church St. S. Ajax, Ontario L1S 6B4 tel: 905.239.0600 e-mail: rai@raiarchitect.com

CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

SECOND FLOOR DEMOLITION PLUMBING AND DRAINAGE PLAN

1:100 DRAWN BY: 23217 CHECKED BY: PROJECT NO.



GENERAL NEW PLUMBING & DRAINAGE NOTES

- 1. DO NOT SCALE DRAWINGS. THE LOCATION OF ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED THAT ARE NOT DEFINETELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS, REVIEW ALL REVISIONS WITH THE CONSULTANT.
- 2. FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS. INFORMATION SHOWN ON FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE—VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- COORDINATE ALL MECHANICAL SITE SERVICES, PIPING, AND EQUIPMENT WITH ALL OTHER DIVISIONS.
- ALL BRANCH PIPING SHALL BE EQUIPPED WITH SHUT-OFF VALVES. PROVIDE ISOLATION VALVES AT ALL FIXTURES.

 ALL CLEANOUTS AND ISOLATION VALVES AND EQUIPMENT

INSTALLED IN CEILING SPACE NOT ACCESSIBLE, THE CEILING

- SHALL BE ACCESSIBLE VIA AN ACCESS HATCH.

 6. LAYOUT INDICATED ON THIS DRAWINGS IS DIAGRAMMATIC
- AND IDENTIFIES THE DESIGN INTENT ONLY.

 7. THE MECHANICAL CONTRACTOR SHALL EXAM THE SITE PRIOR TO BID SUBMISSION.
- 8. REMOVE. CAP AND SEAL ALL PLUMBING CONNECTIONS THAT ARE NOT TO BE REUSED IN THIS CONTRACT.
- 9. PROVIDE PIPE SLEEVES FOR ALL PENETRATIONS THROUGH WALLS AND FLOORS. PACK AND SEAL OPENINGS WITH APPROVED FIRE PROOFING MATERIAL AS DIRECTED BY
- 10. PROVIDE SHUT OFF VALVE AT EACH WATER CONNECTION TO FIXTURES.
- 11. CONTRACTOR TO FIELD LOCATE ALL EXISTING SERVICES THAT ARE REQUIRE FOR THIS PROJECT.
- PROVIDE INSULATION FOR ALL DCW/DHW PIPING. PROVIDE PVC RECOVERY JACKET FOR ALL PIPING IN EXPOSE AREA'S.
 ALL FLOOR DRAINS/HUB DRAINS SHALL BE COMPLETE WITH

TRAPS AND TRAP PRIMERS IN COMPLIANCE WITH OBC.

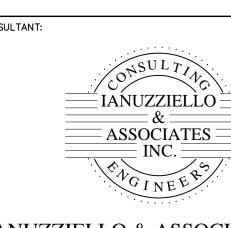
NEW PLUMBING AND DRAINAGE DRAWING NOTES

- PROVIDE TRENCH DRAIN AND CATCH BASIN ASSEMBLY AS SPECIFIED. EXACT LENGTH TO BE VERIFIED ON SITE. TYPICAL.
- PROVIDE NEW BURIED SANITARY DRAIN OF SIZE INDICATED
 ON PLAN. EXACT ROUTING TO BE VERIFIED ON SITE. TIE—IN
 TO EXISTING OIL INTERCEPTOR SANITARY LINE. INCLUDE
 COST FOR ALL FLOOR SCANNING, CORING, TRENCHING,
 FILLING AND PATCHING. TYPICAL.
- 3 PROVIDE NEW SCUPPER DRAIN AS SPECIFIED C/W BACK WATER VALVE.
- RUN NEW DCW CONNECTION FROM ABOVE FLOOR. TIE—IN TO EXISTING. SIZE TO MATCH EXISTING PIPE. EXACT ROUTING TO BE COORDINATED WITH OTHER TRADES SERVICES. TYPICAL.
- (5) RUN NEW DHW TO NEW SHOWER/SINK ABOVE FLOOR. EXACT ROUTING AND TIE—IN POINT TO BE VERIFIED ON SITE. TYPICAL FOR 2.

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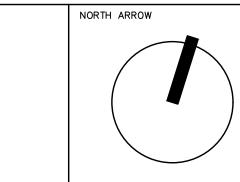
IANUZZIELLO & ASSOCIATES INC.

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TEL: (416) 609-8570
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E-mail: info@ianuzziello.com

2025-04-01 2 ISSUED FOR PRELIMINARY PRICING J.I.
2025-01-31 1 ISSUED FOR PERMIT J.I.

DATE REV. DESCRIPTION

REVISION RECORD



DRAWING No.

P-3

ARCHITECT:



RAI Architect Inc.

Suite 104, 92 Church St. S.
Ajax, Ontario
L1S 6B4
tel: 905.239.0600
e-mail: rai@raiarchitect.com

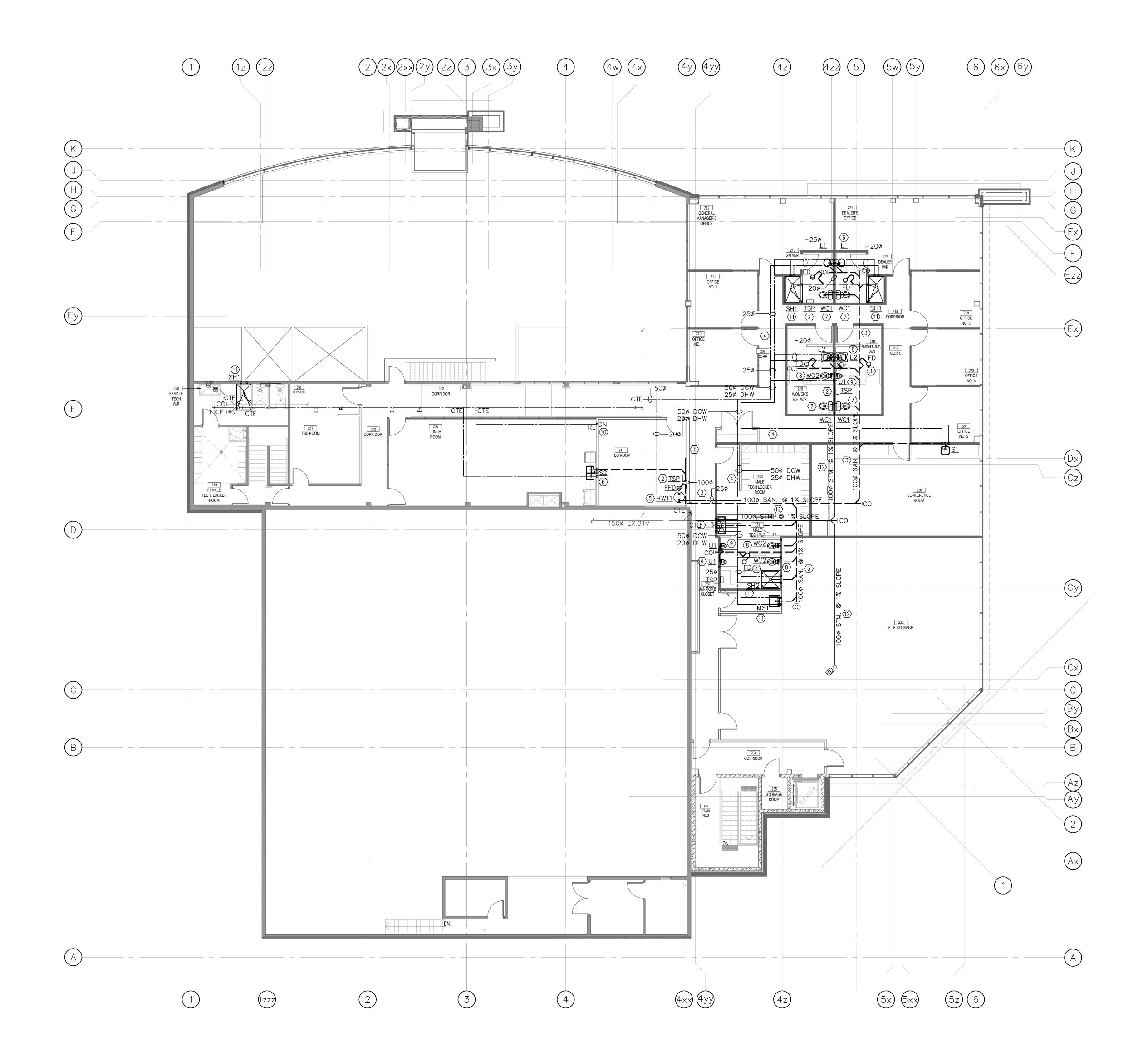
PROJECT

CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE
GROUND FLOOR
NEW PLUMBING AND DRAINAGE

SCALE: 1:100 DRAWN BY:
PROJECT NO. 23217 CHECKED BY:



GENERAL NEW PLUMBING & DRAINAGE NOTES

- DO NOT SCALE DRAWINGS. THE LOCATION OF ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED THAT ARE NOT DEFINETELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS, REVIEW ALL REVISIONS WITH THE
- INSTALLED IN CEILING SPACE NOT ACCESSIBLE, THE CEILING SHALL BE ACCESSIBLE VIA AN ACCESS HATCH.
- TO BID SUBMISSION. REMOVE. CAP AND SEAL ALL PLUMBING CONNECTIONS THAT

- 13. ALL FLOOR DRAINS/HUB DRAINS SHALL BE COMPLETE WITH

- 1 PROVIDE 75¢ SANITARY DRAIN AND 40¢ SANITARY VENT FROM FUNNEL/FLOOR DRAIN. ALL FLOOR DRAIN SHALL BE PRIMED BY TRAP SEAL PRIMER. TYPICAL.
- COORDINATED ON SITE. 4 PROVIDE NEW DCW/DHW IN CEILING SPACE OF SIZE INDICATED ON PLAN. EXACT ROUTING TO BE COORDINATED ON SITE WITH OTHER TRADES/SERVICES.
- PROVIDE NEW ELECTRIC HOT WATER TANK AS SPECIFIED. INSTALL ON 18 GA. GALVANIZED SHEET METAL DRAIN PAN ON FLOOR TERMINATE RELIEF AND DRAIN PAN DRAIN AT FUNNEL FLOOR DRAIN. REFER TO DETAILS FOR INSTALLATION REQUIREMENTS. ELECTRICAL DIVISION
- LAVATORY/KITCHEN SINK, 400 SANITARY DRAIN AND 30¢ SANITARY VENT FROM LAVATORY/KITCHEN SINK. RUN ALL VERTICAL PIPING IN WALL CAVITY. TYPICAL.
- WATER CLOSET, 750 SANITARY DRAIN AND 400 SANITARY VENT FROM WATER CLOSET. RUN ALL VERTICAL PIPING IN WALL CAVITY. TYPICAL.
- TYPE WATER CLOSET, 75¢ SANITARY DRAIN AND 40¢ SANITARY VENT FROM WATER CLOSET. RUN ALL VERTICAL PIPING IN WALL CAVITY. TYPICAL.
- CLOSET. RUN ALL VERTICAL PIPING IN WALL CAVITY.
- FLOOR. EXACT ROUTING TO BE VERIFIED ON SITE. 11) PROVIDE 200 DCW/DHW DOWN TO SERVE NEW MOP
- 12 PROVIDE NEW STORM DRAIN AT H/L OF SIZE INDICATED. COORDINATE ROUTING ON SITE. TIE-IN POINT TO EXISTING STORM DRAINAGE AS SHOWN. TO BE VERIFIED ON SITE. TYPICAL.

- CONSULTANT.
- FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS. INFORMATION SHOWN ON FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE-VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- COORDINATE ALL MECHANICAL SITE SERVICES, PIPING, AND EQUIPMENT WITH ALL OTHER DIVISIONS.
- ALL BRANCH PIPING SHALL BE EQUIPPED WITH SHUT-OFF VALVES. PROVIDE ISOLATION VALVES AT ALL FIXTURES. ALL CLEANOUTS AND ISOLATION VALVES AND EQUIPMENT
- LAYOUT INDICATED ON THIS DRAWINGS IS DIAGRAMMATIC
- AND IDENTIFIES THE DESIGN INTENT ONLY. THE MECHANICAL CONTRACTOR SHALL EXAM THE SITE PRIOR
- ARE NOT TO BE REUSED IN THIS CONTRACT.
- 9. PROVIDE PIPE SLEEVES FOR ALL PENETRATIONS THROUGH WALLS AND FLOORS. PACK AND SEAL OPENINGS WITH APPROVED FIRE PROOFING MATERIAL AS DIRECTED BY
- 10. PROVIDE SHUT OFF VALVE AT EACH WATER CONNECTION TO
- 11. CONTRACTOR TO FIELD LOCATE ALL EXISTING SERVICES THAT ARE REQUIRE FOR THIS PROJECT.
- 12. PROVIDE INSULATION FOR ALL DCW/DHW PIPING. PROVIDE PVC RECOVERY JACKET FOR ALL PIPING IN EXPOSE AREA'S.
- TRAPS AND TRAP PRIMERS IN COMPLIANCE WITH OBC.

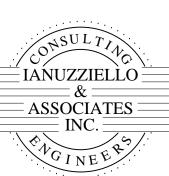
NEW PLUMBING AND DRAINAGE DRAWING NOTES

- (2) PROVIDE NEW ELECTRONIC TRAP SEAL PRIMER. POWER BY
- ELECTRICAL DIVISION. TYPICAL FOR 4. (3) RUN NEW SANITARY DRAIN LINE IN CEILING SPACE OF FLOOR BELOW. EXACT ROUTING AND TIE-IN POINT TO EXISTING SANITARY RISER TO BE VERIFIED AND
- 6 PROVIDE 150 DCW/DHW DOWN TO SERVE NEW
- (7) PROVIDE 15¢ DCW DOWN TO SERVE NEW TANK TYPE
- (8) PROVIDE 250 DCW DOWN TO SERVE NEW FLUSH VALVE
- 9 PROVIDE 200 DCW DOWN TO SERVE NEW URINAL, 500 SANITARY DRAIN AND 400 SANITARY VENT FROM WATER
- (10) RUN NEW 250 DCW DOWN TO SERVE WASHROOM BELOW
- SINK/SHOWER. 75¢ SANITARY DRAIN AND 40¢ SANITARY VENT FROM MOP SINK/SHOWER. RUN ALL VERTICAL PIPING IN WALL CAVITY. TYPICAL.

DISCLAIMER:

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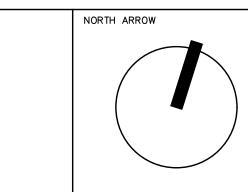


IANUZZIELLO & ASSOCIATES INC. 305 MILNER AVENUE, SUITE 215 SCARBOROUGH, ONTARIO, M1B 3V4 TEL: (416) 609-8570 FAX: (416) 609-0702

E-mail: info@ianuzziello.com

ISSUED FOR PRELIMINARY PRICING ISSUED FOR PERMIT 2025-01-31 DATE REV. DESCRIPTION

REVISION RECORD



ARCHITECT:



RAI Architect Inc. Suite 104, 92 Church St. S. Ajax, Ontario L1S 6B4 tel: 905.239.0600

e-mail: rai@raiarchitect.com

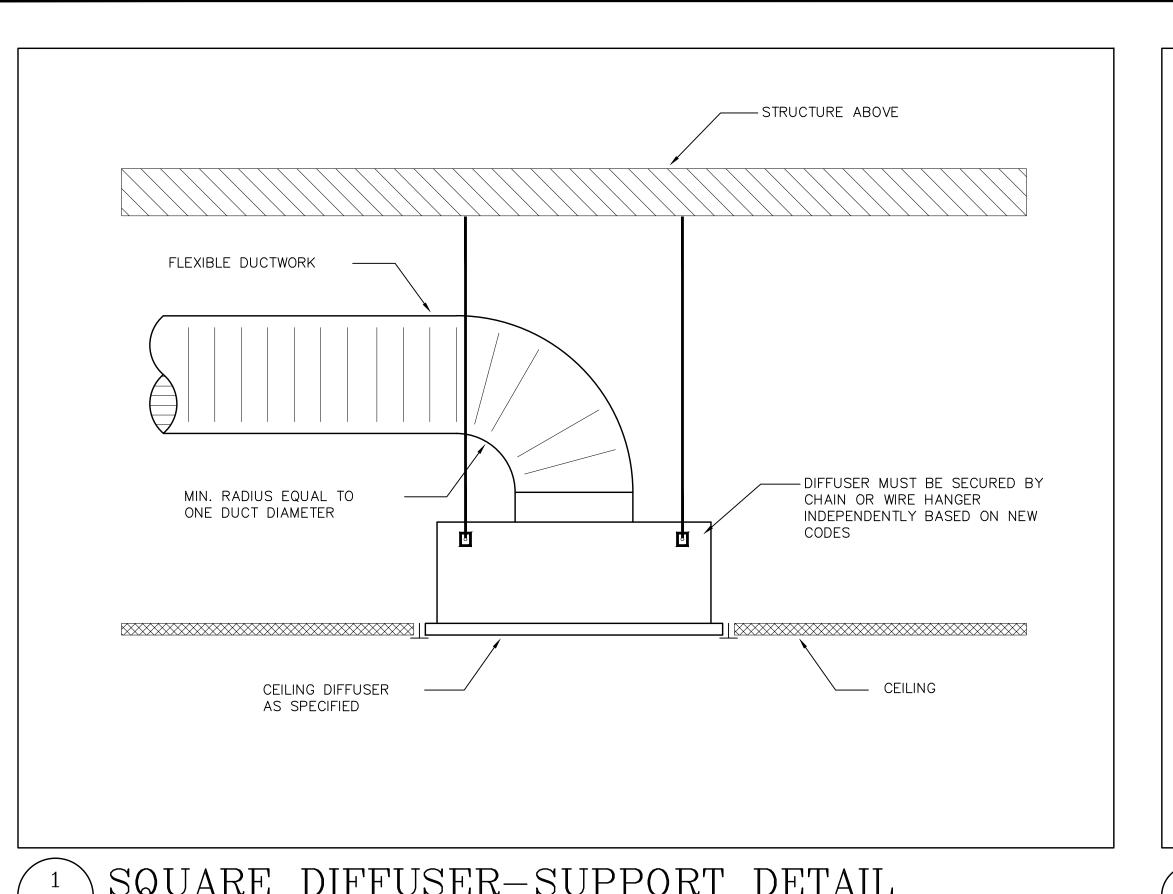
PROJECT

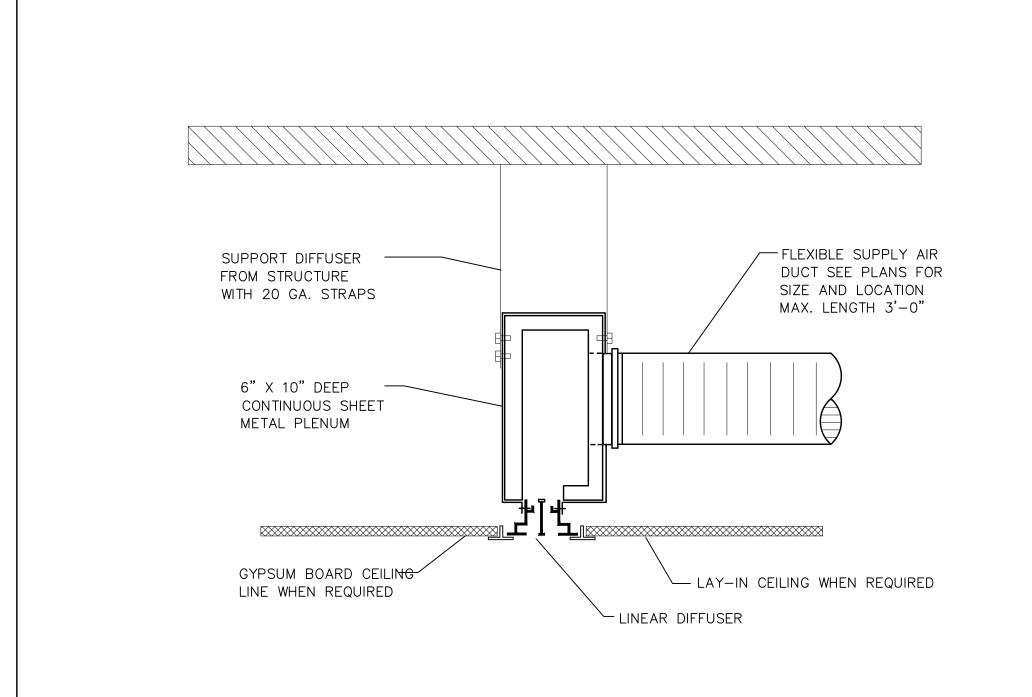
CLARINGTON TOYOTA

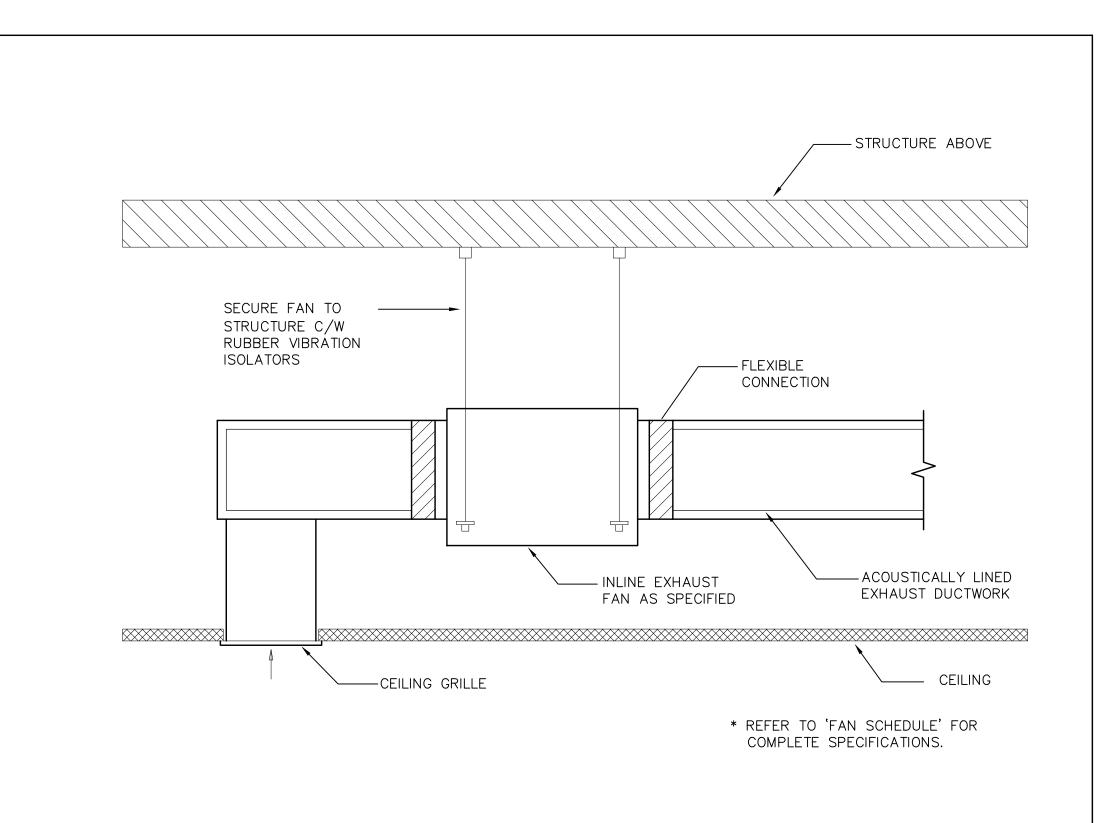
10 SPICER SQUARE BOWMNVILLE, ON SECOND FLOOR

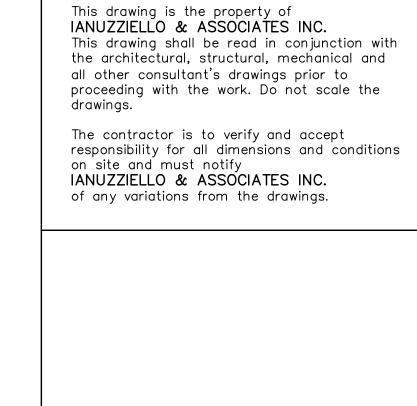
NEW PLUMBING AND DRAINAGE 1:100 DRAWN BY:

PROJECT NO. 23217 CHECKED BY:



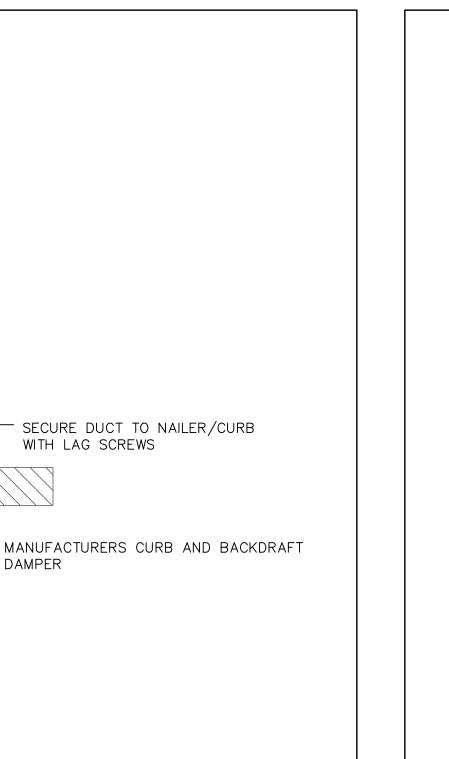




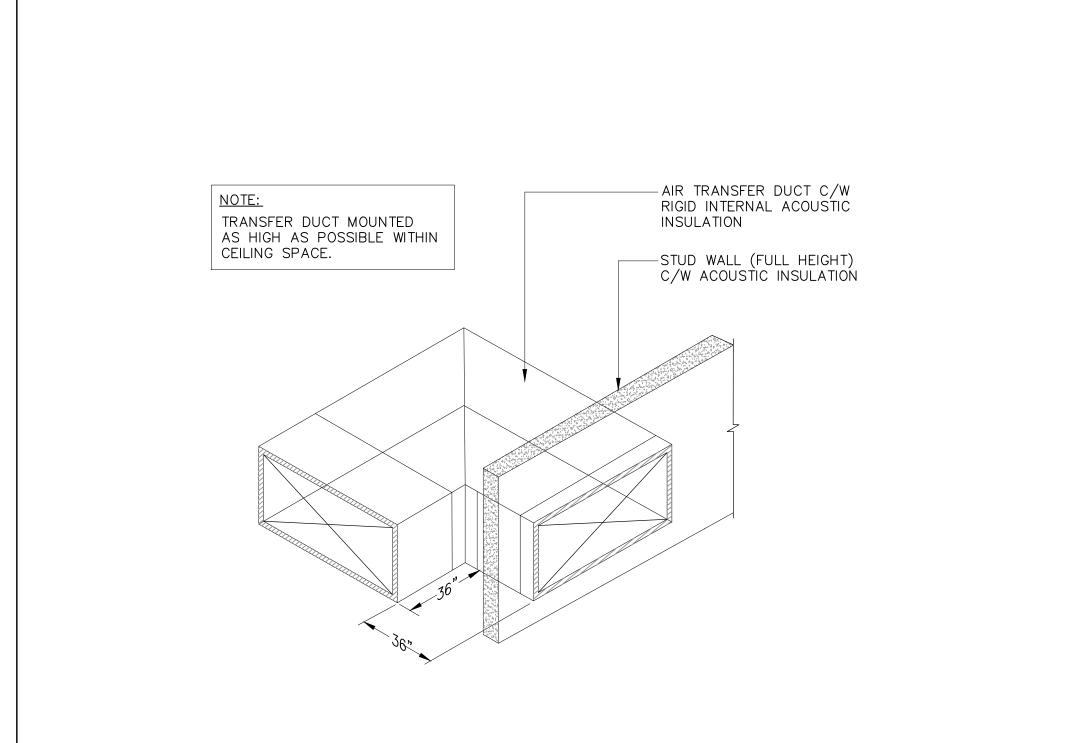


DISCLAIMER:

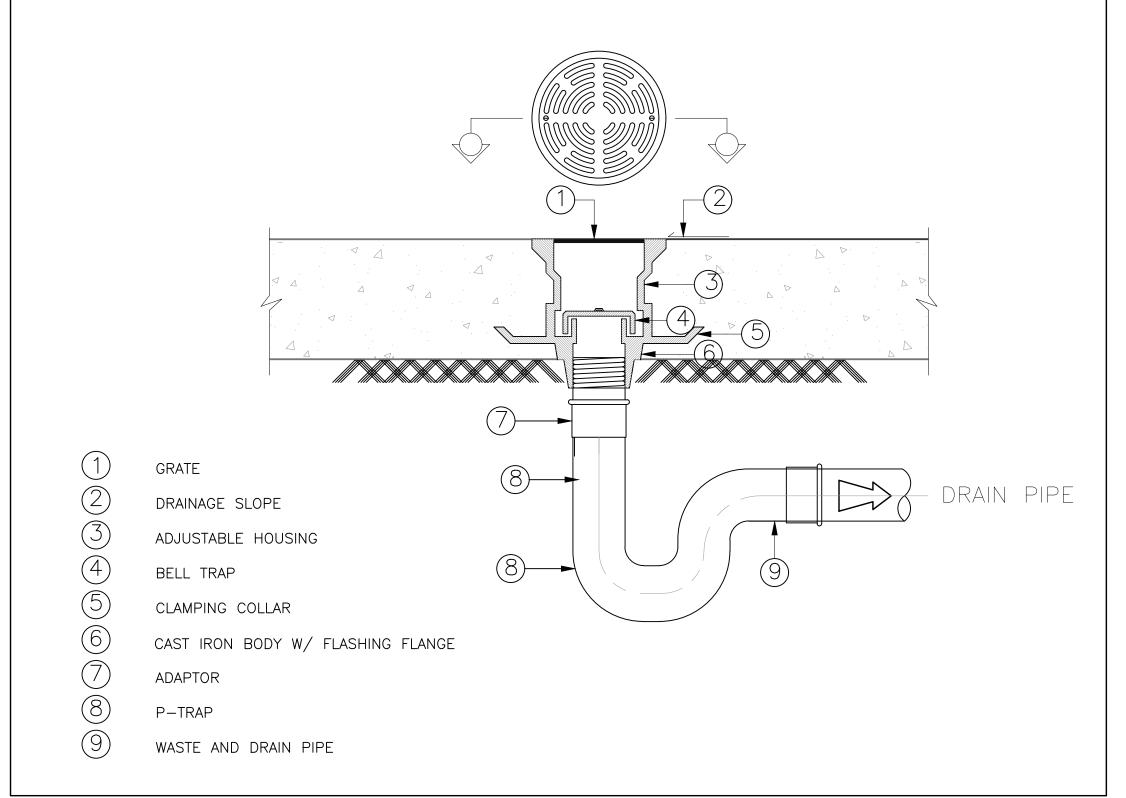




LINEAR DIFFUSER AND PLENUM DETAIL



INLINE EXHAUST FAN DETAIL SCALE: N.T.S.



= ASSOCIATES : IANUZZIELLO & ASSOCIATES INC. 305 MILNER AVENUE, SUITE 215 SCARBOROUGH, ONTARIO, M1B 3V4
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REVISION RECORD

NORTH ARROW

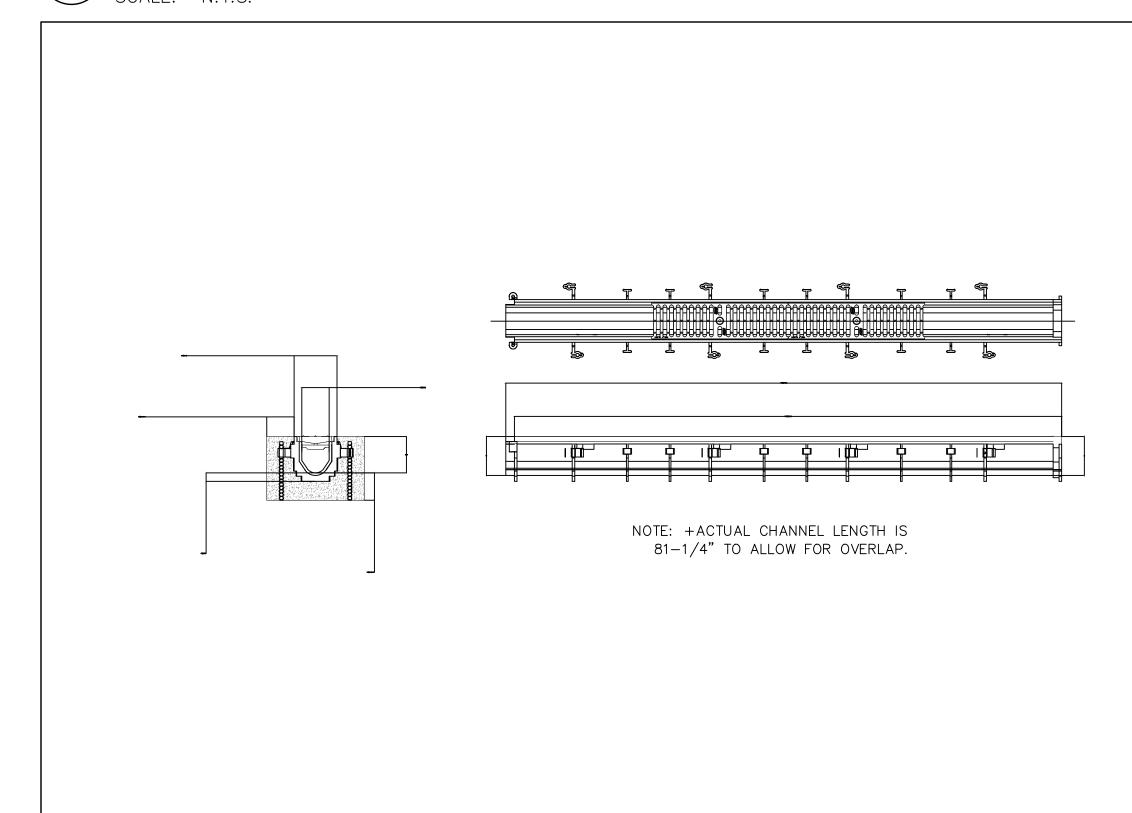
DATE REV. DESCRIPTION

 $\frac{4}{M-10}$ ROOF EXHAUST FAN DETAIL SCALE: N.T.S.

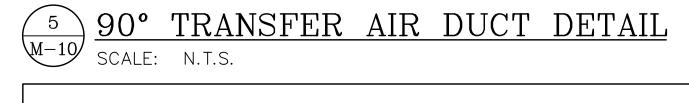
EXHAUST DUCT REF. PLANS FOR SIZE AND__

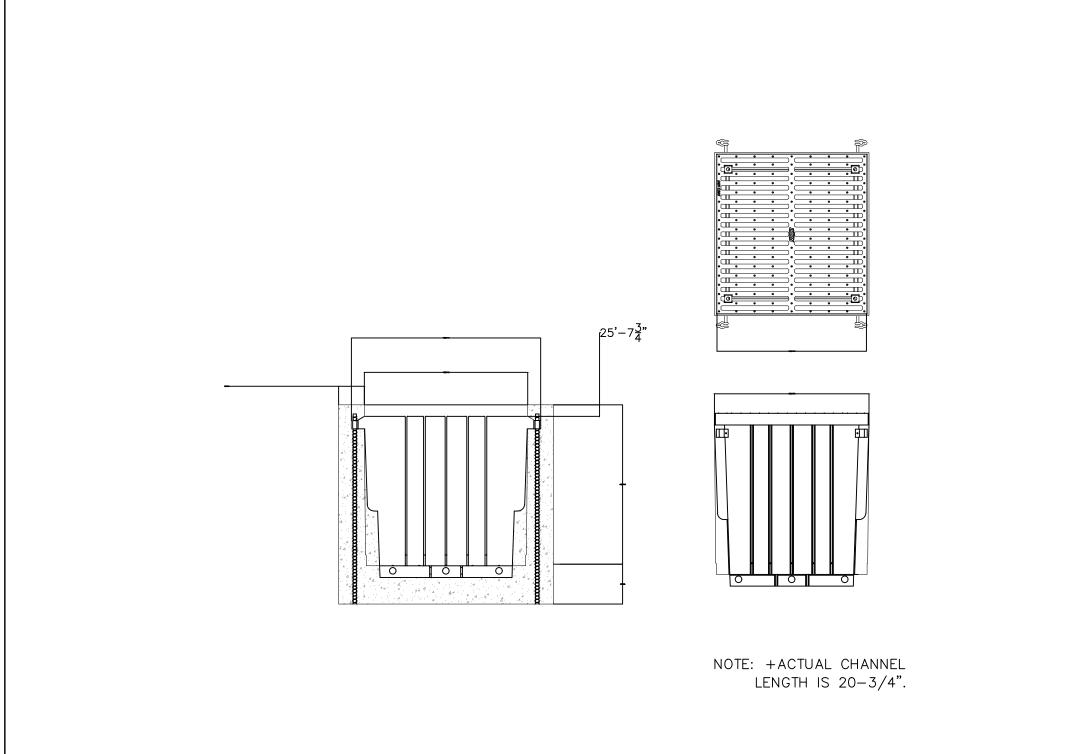
LOCATION

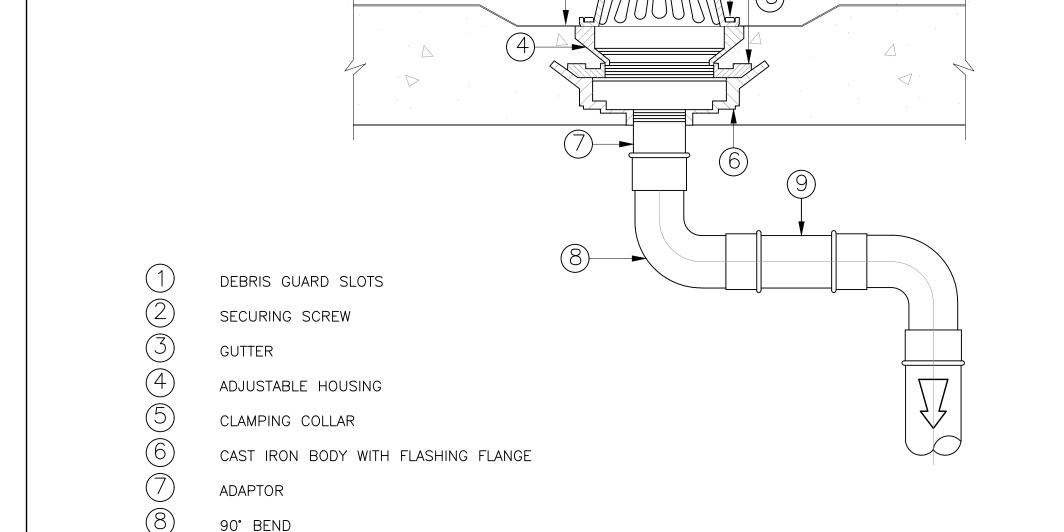
FIRESTAT WHERE REQUIRED



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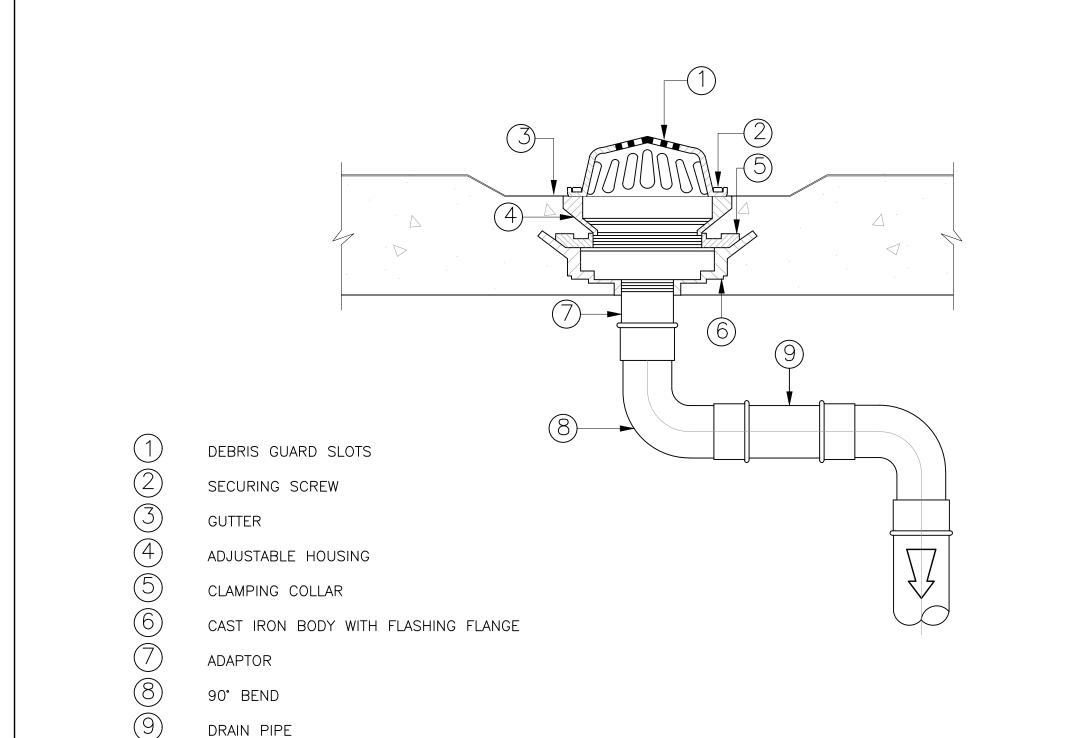


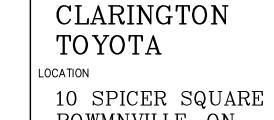




FLOOR DRAIN DETAIL

M-10 SCALE: N.T.S.





2025-01-31

BOWMNVILLE, ON DRAWING TITLE DETAILS SHEET NO. 1 M-10

RAI Architect Inc.

Suite 104, 92 Church St. S. Ajax, Ontario L1S 6B4

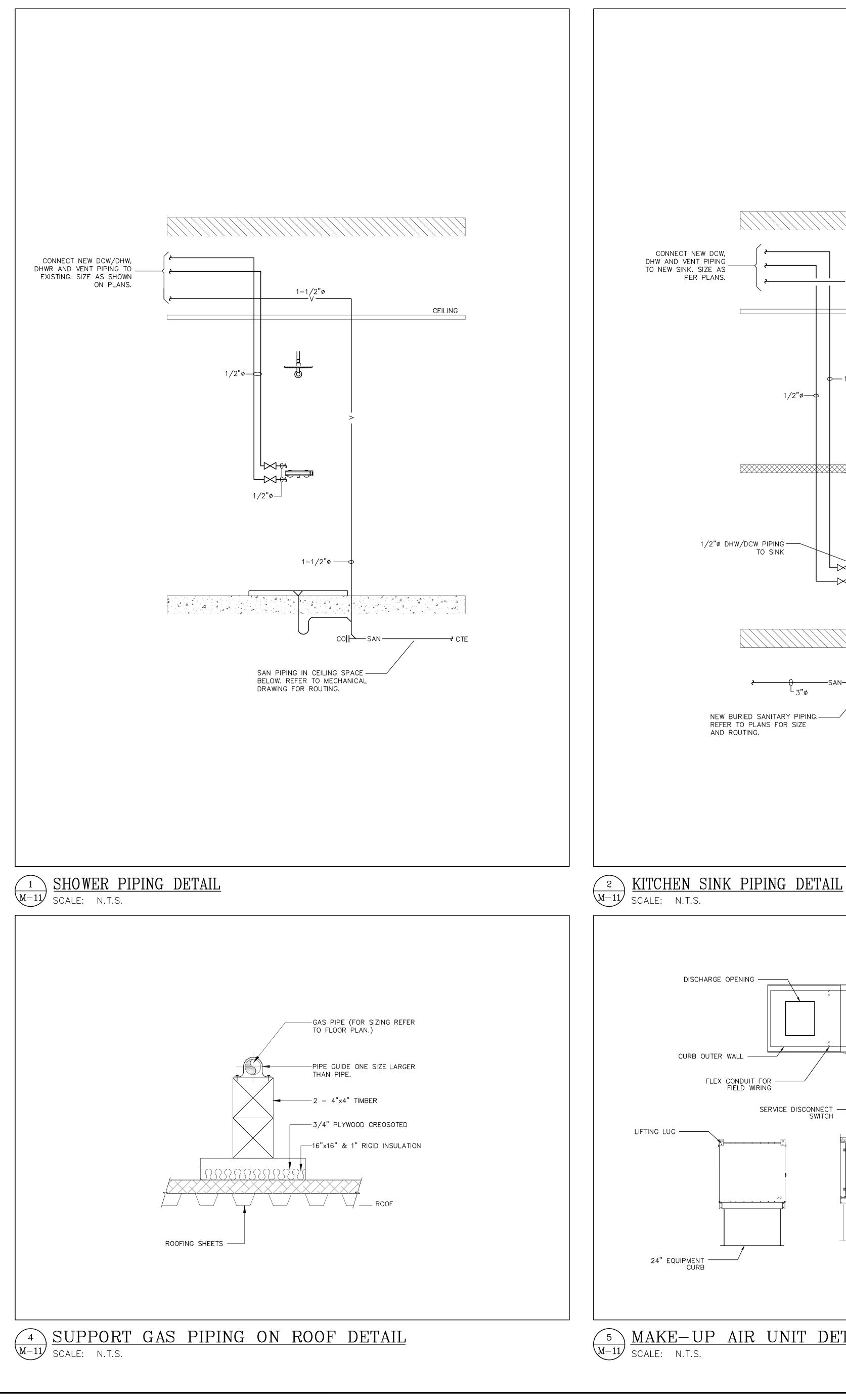
tel: 905.239.0600 e-mail: rai@raiarchitect.com

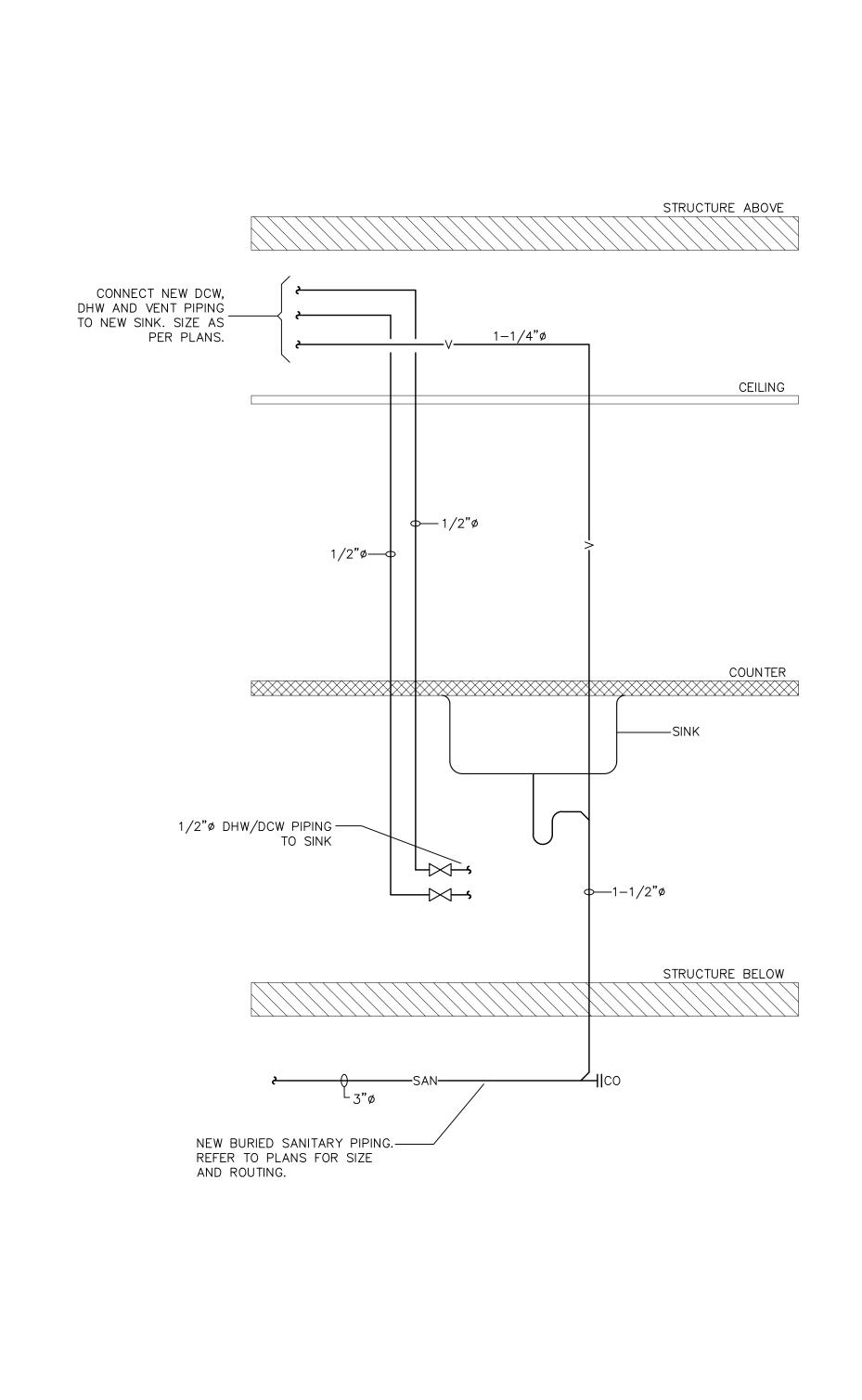
PROJECT NO.

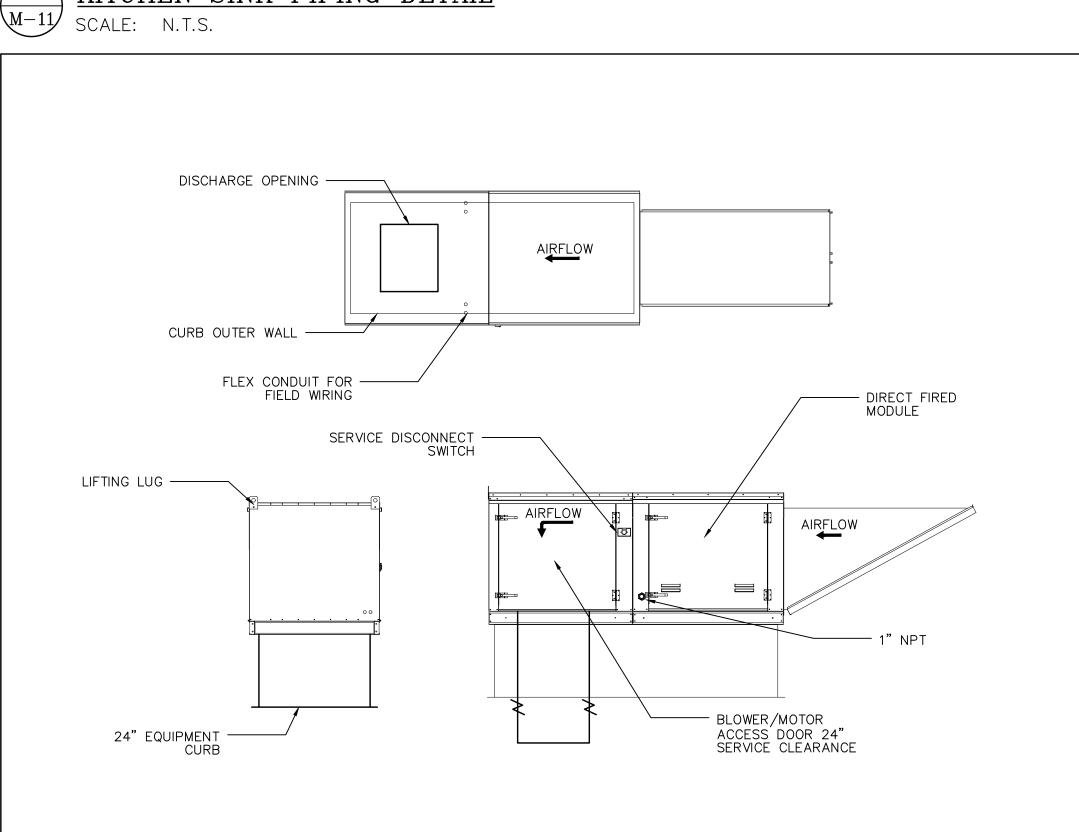
 $\frac{7}{M-10} \frac{TRENCH}{SCALE: N.T.S.} \frac{DRAIN DETAIL}{DRAIN DETAIL}$

CATCH BASIN DETAIL

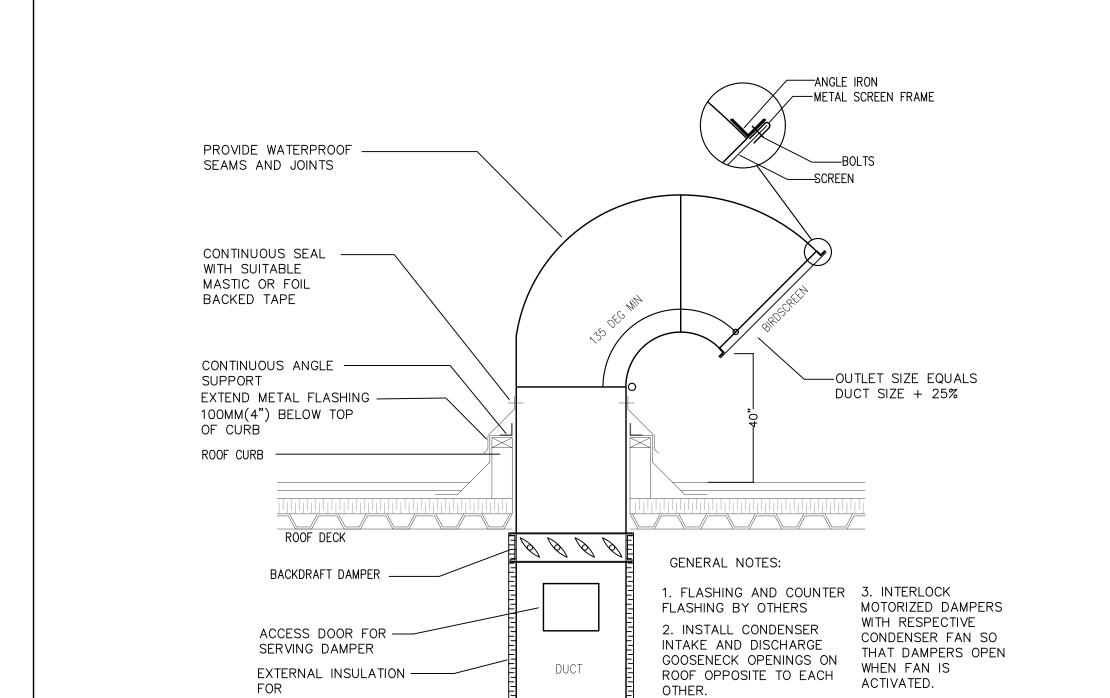
N.T.S. DRAWN BY: 23217 CHECKED BY:











FLOOR MOUNTED ELECTRIC HOT WATER TANK DETAIL SCALE: N.T.S.

L DHW TO FIXTURES

\ 140℉

HWT1

ELEVATION

— PROVIDE AND INSTALL HEATER ON A 6" HIGH, PAINTED METAL STAND

 $\underbrace{ \begin{array}{c} 6 \\ M-11 \end{array}}_{\text{SCALE: N.T.S.}} \underbrace{ \begin{array}{c} GOOSENECK & DETAIL \\ \\ \text{SCALE: N.T.S.} \end{array} }$

3000MM(120")

EXTERNAL INSULATION ——

EXPANSION TANK. — SEE SCHEDULE FOR DETAILS

CONTRACTOR IS TO EXTEND DRAINAGE
PIPING FROM THE T&P VALVE AND
TERMINATE AT A DISTANCE FROM FLOOR
FLOOR BETWEEN 6" TO 12" AS PER
OBC. TERMINATE RELIEF VALVE TO
EXISTING MOP SINK.

THE CONTINUATION OF —
DRAINAGE FOR THE ELECTRIC
WATER HEATERS IS TO BE
PROVIDED BY THE OWNER AT
HIS DISCRETION AS PER
OBC/AHJ/EQUIPMENT
MANUFACTURER UNDER A
SEPARATE CONTRACT

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CONSULTANT:

DATE REV. DESCRIPTION REVISION RECORD

HANUZZIELLO

= ASSOCIATES =

NORTH ARROW

ARCHITECT:

RAI Architect Inc.

Suite 104, 92 Church St. S. Ajax, Ontario L1S 6B4 tel: 905.239.0600 e-mail: rai@raiarchitect.com

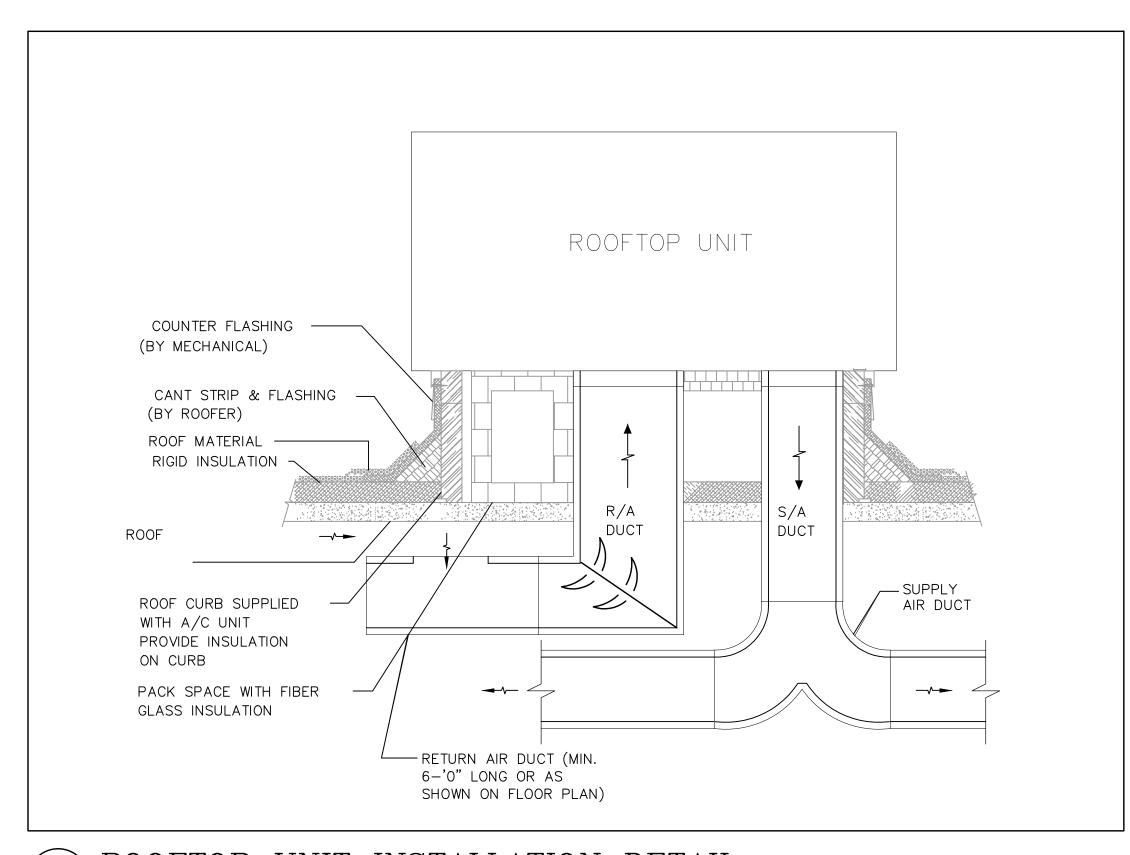
PROJECT CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

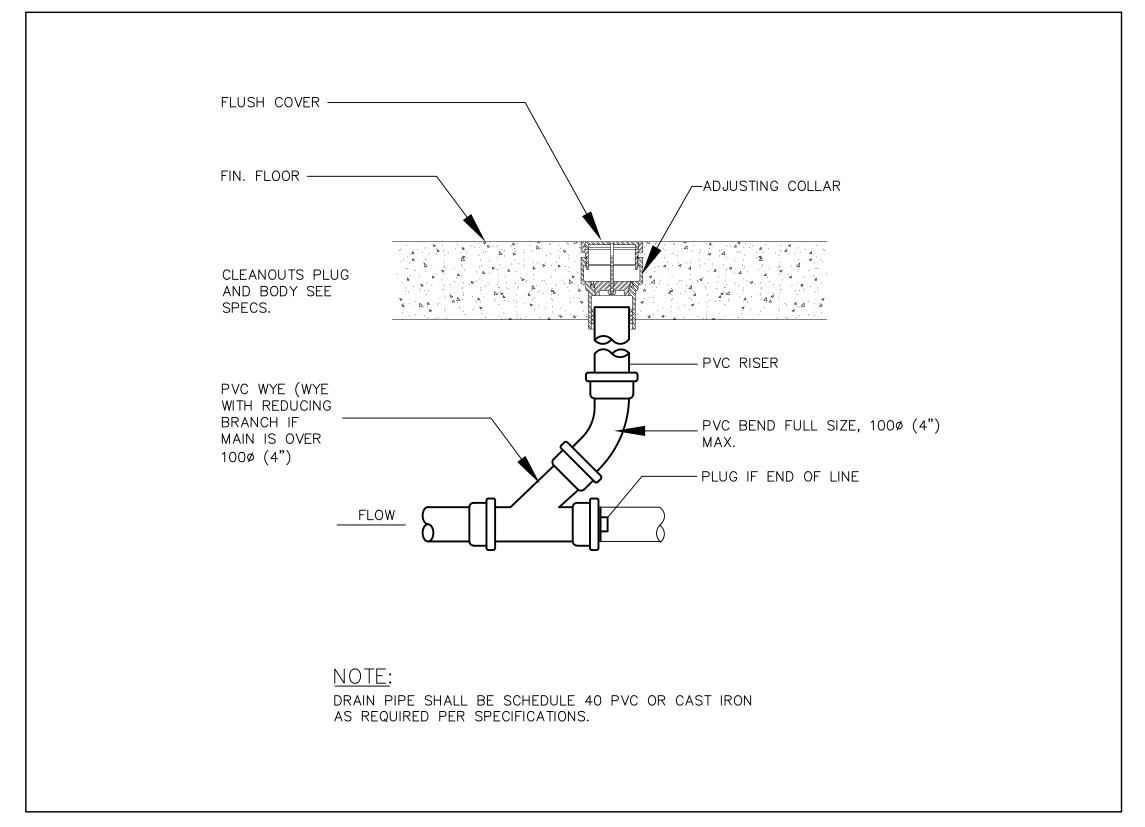
DRAWING No. DRAWING TITLE DETAILS SHEET NO. 2 M-11

23217 CHECKED BY: PROJECT NO.

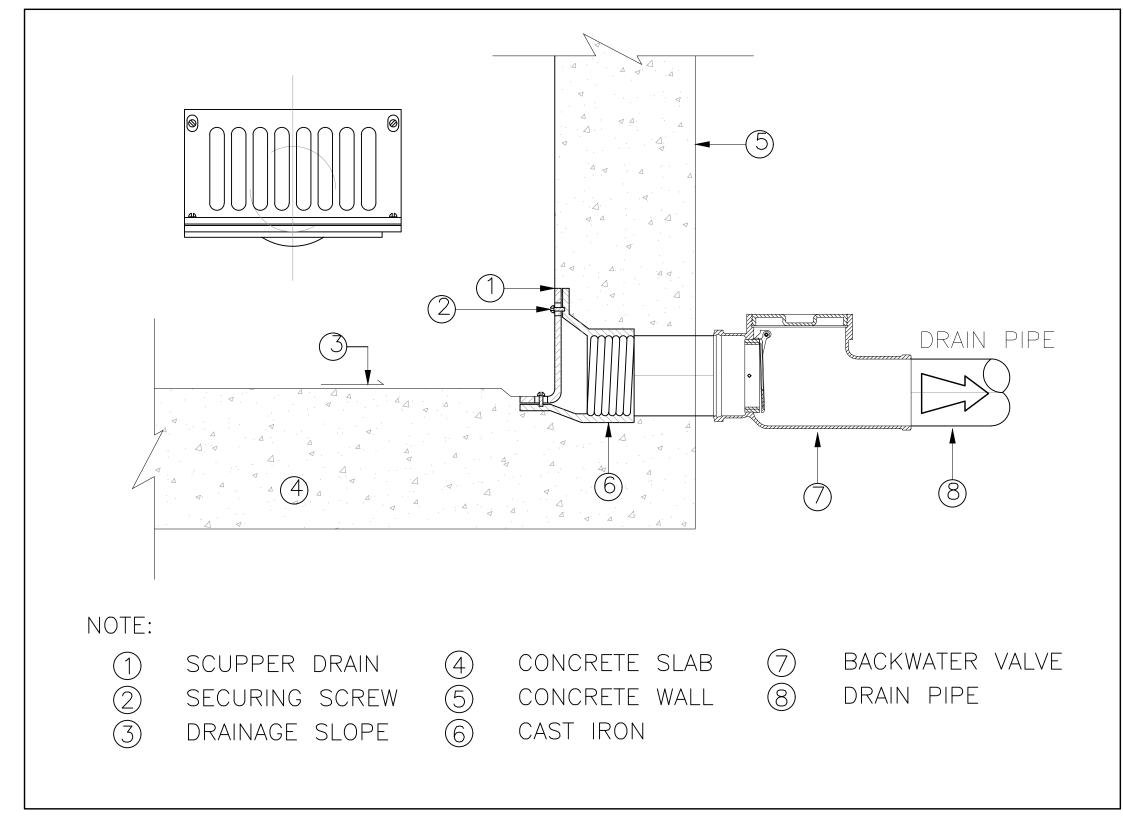
N.T.S. DRAWN BY:







 $\underbrace{\frac{2}{M-12}}_{SCALE: N.T.S.} \underbrace{\frac{FLOOR}{CLEANOUT}}_{DETAIL}$



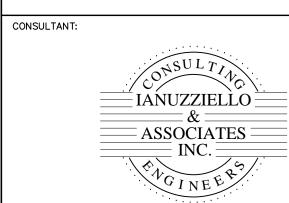
 $\underbrace{\frac{3}{\text{M-12}}}_{\text{SCALE: N.T.S.}} \underbrace{\frac{\text{ELEVATOR PIT DRAIN DETAIL}}{\text{SCALE: N.T.S.}}}$



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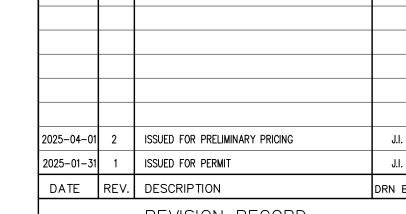
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DISCLAIMER:



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REVISION RECORD

NORTH ARROW

SEAL: NORTH ARROW

ARCHITECT:



RAI Architect Inc.

Suite 104, 92 Church St. S.
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e-mail: rai@raiarchitect.com

PROJECT C.T. A. D. F. J. C. T. C. J.

CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE
DETAILS SHEET NO. 3

M-12

SCALE: N.T.S. DRAWN BY:
PROJECT NO. 23217 CHECKED BY:

	DIFFUSER SCHEDULE											
TAG	MAKE/MODEL	REMARKS										
А	EH PRICE MODEL SPD 24"X24" SQUARE PLAQUE DIFFUSER (S/A)	STEEL CONSTRUCTION, FOR T-BAR LAY-IN. NECK SIZE AND AIR BALANCE AS PER DRAWINGS.										
A1	EH PRICE MODEL SPD 24"X24" SQUARE PLAQUE DIFFUSER (S/A)	STEEL CONSTRUCTION, DRYWALL SURFACE STANDARD MOUNTING. NECK SIZE AND AIR BALANCE AS PER DRAWINGS.										
A2	EH PRICE SDS LINEAR DIFFUSER (S/A)	STEEL CONSTRUCTION. 2 SLOT, 1" WIDTH, 4' LONG. NECK SIZE AND AIR BALANCE AS PER DRAWINGS.										
A3	EH PRICE PDL PERFORATED FACE SUPPLY DIFFUSER (S/A)	STEEL CONSTRUCTION. CURVED BLADE, 1-WAY, 450/450 INLET. NECK SIZE AND AIR BALANCE AS PER DRAWINGS.										
В	EH PRICE MODEL 80 EGG CRATE RETURN	CORE ONLY, 1/2"X1/2"X1/2" ALUMINUM GRID CORE, FOR T-BAR LAY-IN										
B1	EH PRICE MODEL 80 EGG CRATE RETURN	CORE ONLY, 1/2"X1/2"X1/2" ALUMINUM GRID CORE, FOR DRY-WALL APPLICATION.										
B2	EH PRICE MODEL 80 EGG CRATE RETURN	CORE ONLY, 1/2"X1/2"X1/2" ALUMINUM GRID CORE, C/W PLENUM, FOR DUCT MOUNTING APPLICATION.										
С	EH PRICE MODEL 535 LOUVERED FACE EXHAUST GRILLE	STEEL CONSTRUCTION, 45° DEFLECTION, FOR DUCT CONNECTION AND DRYWALL SURFACE STANDARD MOUNTING.										
D	EH PRICE MODEL ATG1 TRANSFER DOOR GRILLE	ALUMINIUM CONSTRUCTION, SIGHT-PROOF. SIZE AS PER DRAWING.										
D1	NAILOR MODEL 61DGD-FR FIRE-RATED DOOR GRILLE	COLD ROLLED STEEL GA. FRAME AND 16 GA. BLADES, 74°C FUSIBLE LINK WITH STAINLESS STEEL OPERATING SPRING AND ACTION BAR. SIZE AS PER DRAWING. FIRE—RATING TO BE COORDINATED WITH ARCHITECT.										

. PROVIDE 18" ROOF CURB WHERE REQUIRED.

NOTES:
1. TITUS AND NAILOR WILL BE CONSIDERED EQUAL GIVEN THAT THE PERFORMANCE DATA IS EQUIVALENT. 2. SIZE ALL GRILLES, DIFFUSERS, ETC. AS PER MECHANICAL DRAWINGS.

3. CONFIRM ALL FINISHES WITH ARCHITECT/INTERIOR DESIGNER.

	HOT WATER TANK SCHEDULE													
REF.	MAKE	MODEL	CAPACITY (GAL)	TYPE	INPUT (KW)	RECOVERY RATE (USGAL/HR)	V/PH/HZ	APPROX OPERATING WEIGHT (LBS)	REMARKS					
HWT1	AOSMITH	DEN-80	80.0	ELECTRIC	10.0	45 @ ΔT=90°F	208/3/60	879.0	COMMERCIAL GRADE ELECTRIC HOT WATER TANK. INSTALL SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO DETAILS FOR PIPING SCHEMATIC.					

	BASEBOARD/FORCE FLOW HEATER SCHEDULE													
TAG	MANUFACTURER	MODEL	STYLE	KW	V/PH/Hz	COLOUR	REMARKS							
FFH1	STELPRO	WF4008T	FORCE FLOW	4.0	208/1/60	WHITE	ELECTRIC FORCE FLOW HEATER C/W BUILT-IN TAMPERPROOF THERMOSTAT.							
BBH1	STELPRO	B1008W	CEILING FORCE FLOW	1.0	208/1/60	WHITE	C/W BUILT-IN THERMOSTAT.							

1. ALL ELECTRICAL HEATERS SHALL BE SUPPLIED BY DIV.15 AND INSTALLED BY DIV.16.

2. ALL COLOURS ARE TO BE CONFIRMED WITH ARCHITECT/INTERIOR DESIGNER. 3. OUELLET, DIMPLEX AND QMARK WILL BE CONSIDERED ÉQUAL GIVEN THAT THE PERFORMANCE DATA IS EQUIVALENT.

	ELECTRIC UNIT HEATER SCHEDULE													
TAG	MANUFACTURER	MODEL	STYLE	KW	V/PH/Hz	COLOUR	REMARKS							
UH1	STELPRO	SHU3063C24CHAR	UNIT HEATER	30.0	600/3/60	CHARCOAL	C/W CEILING MOUNTED WITH UNIVERSAL MOUNTING BRACKET AND REMOTE TAMPERPROOF THERMOSTAT.							
UH2	STELPRO	SHU3063C24CHAR	UNIT HEATER	30.0	600/3/60	CHARCOAL	C/W CEILING MOUNTED WITH UNIVERSAL MOUNTING BRACKET AND REMOTE TAMPERPROOF THERMOSTAT.							

NOTES:

1. ALL ELECTRICAL HEATERS SHALL BE SUPPLIED BY DIV.15 AND INSTALLED BY DIV.16.

2. ALL COLOURS ARE TO BE CONFIRMED WITH ARCHITECT/INTERIOR DESIGNER. 3. OUELLET, DIMPLEX AND QMARK WILL BE CONSIDERED EQUAL GIVEN THAT THE PERFORMANCE DATA IS EQUIVALENT.

								SUPPLY/E	EXHAUST FA	N SCHEDULE						
ŀ	TAG	SERVICE	EQUIPMENT LOCATION	MANUFACTURER	MODEL NO.	CAPACITY	E.S.P.	+	OR SIZE	TYPE	POWER	WEIGHT	FLA	MCA	MOCP	REMARKS
	ma			MINIOT NOT ORDIV	MODEL NO.	CFM	IN. WC.	RPM	W / HP	111111	V/PH/CYCLE	(LBS)	(A)	(A)	(A)	
	EF1	EXHAUST	ROOF	GREENHECK	6-080-9	200	0.50	1725	1/20 HP	ROOF EXHAUST FAN	115/1/60	30				C/W ROOF CURB. FAN TO BE CONTROLLED BY ON/OFF SWITCH.
	EF2	EXHAUST	ROOF	GREENHECK	6-008-A	300	0.75	1725	1/4 HP	ROOF EXHAUST FAN	115/1/60	50				C/W ROOF CURB. FAN TO BE CONTROLLED BY ON/OFF TIMER.
	EF3	EXHAUST	ROOF	GREENHECK	G-090-VG	450	0.50	1526	1/10 HP	ROOF EXHAUST FAN	115/1/60	41	1.5	1.9		C/W ROOF CURB. FAN TO BE CONTROLLED BY ON/OFF TIMER.
	EF4	EXHAUST	JANITOR'S CLOSET - 232	GREENHECK	SP-LP0810W	100	0.25	894	8 W	CEILING FAN	115/1/60	16	0.29	0.4	15	FAN TO BE CONTROLLED BY ON/OFF SPEED CONTROL.
	EF5	EXHAUST	CONFERENCE ROOM - 226	GREENHECK	CSP-A700-VG	500	0.25	910	62 W	INLINE FAN	115/1/60	39	4.10	5.10		FAN TO BE CONTROLLED BY ON/OFF SWITCH.
	EF6	EXHAUST	ROOF	GREENHECK	GB-330-50	12000	1	1725	5 HP	ROOF EXHAUST FAN	575/60/3	335	6.10	7.63		NEMA PREMIUM EFFICIENT MOTOR — MWWTA NWM TABLE 12—12, STANDARD CURB CAP SIZE — 46 SQUARE, UL/CUL 705 LISTED — "POWER VENTILATOR", SWITCH, NEMA—1, HEAVY DUTY W/AUXILIARY CONTACT (MEETS AUTOMOTIVE DUTY REQUIREMENTS), SHIPPED WITH UNIT FOAM CURB SEAL (FACTORY APPLIED), BIRDSCREEN: GALVANIZED, NOM 84% FREE AREA, BEARINGS WITH GREASE FITTINGS, L10 LIFE OF 100,000 HRS (L50 AVG. LIFE 500,000 HRS), CONDUIT CHASE QTY 1.

					GAS	-FIRED MAK	E-UP AIR	UNIT SCHEDU	JLE				
EQUIPMENT NO.	MANUFACTURER	MODEL	INPUT / OUTPUT HEATING CAPACITY (MBH)	AIRFLOW (CFM)	ESP (IN. WC.)	RPM	НР	V/PH/HZ	FLA	MCA	MOCP	APPROX. OPERATING WEIGHT (LBS)	REMARKS
MUA1	GREENHECK	IGX-P127-H32-MF3-S	1050.0 / 850.5	12000	0.5	1305	9.76	575/3/60		23.0	35.0	3000	C/W UNIT CONSTRUCTION — DOUBLE WALL, WALL INSULATION, ACCESS AND CONNECTIONS — RIGHT SIDE WHEN FACING INTAKE, SERVICE ACCESS — HINGED ACCESS DOORS, UNIT FINISH — G90 GALVANIZED, DIRECT—DRIVE, MIXED FLOW PLENUM, NEOPRENE VIBRATION INSULATION, WITH REMOTE PANEL — INDUSTRIAL NEMA—1, TERMINAL STRIP WITH REMOTE PANEL, REMOTE PANEL — INDUSTRIAL (NEMA—1), TEMPERATURE CONTROL — DISCHARGE CONTROL, VFD BY FACTORY, SUPPLY FAN CONTROL — CONSTANT VOLUME, HEATING INLET AIR SENSOR, FREEZE PROTECTION, WEATHERHOOD — ALUMINIUM MESH FILTERED, SUPPLY AIR FILTERS — 2" MERV8, 20X25X2 — (10), OUTDOOR AIR INLET DAMPER — LOW LEAKAGE, ROOF CURB — GPI, FURNACE VENTING — OUTDOOR, FURNANCE VENTING METHOD — STANDARD, STAINLESS STEEL HEAT EXCHANGER, DDC ASSISTED FURNACE COMMISSIONING. UNIT TO BE INTERLOCKED WITH EXHAUST FAN 'EF6'.

	ROOFTOP UNIT SCHEDULE													
TAG	MANUFACTURER	MODEL	TON	GROSS / SENSIBLE COOLING CAPACITY (MBH)	AIR FLOW (CFM)	ESP (IN. WC)	HEATING CAPACITY INPUT/ OUTPUT (MBH)	POWER REQUIREMENT	FAN POWER (BHP)	MCA (A)	MOCP (A)	DISCHARGE	APPROX. OPERATING WEIGHT (LBS)	REMARKS
RTU1	YORK	KJ120N24R5AAAAA1A1	10.0	120.7 / 89.5	4000	1.0	240.0 / 194.0	600/3/60	2.82	21.7	25.0	HORIZONTAL /SIDEFLOW	1600	C/W REFRIGERANT DETECTION SYSTEM, 3 HP HIGH STATIC BELT DRIVE BLOWER, STANDARD 2" THROWAWAY FILTERS, INTELLISPEED CONTROL OF THE VFD BASED ON STAGES COOLING, SMART EQUIPMENT CONTROLLER, MICRO-CHANNEL ALUMINUM CONDENSER COIL, COPPER TUBE/ALUMINUM FIN EVAPORATOR COIL, COMPOSITE DRAIN PAN, HINGED DOORS FOR ALL ACCESS PANELS, SLIDE-OUT BLOWER AND BLOWER MOTOR TRAY, ECONOMIZER FOR DEDICATED HORIZONTAL/SIDEFLOW APPLICATIONS. INCLUDES FA HOOD, 1EH0408 BAROMETRIC RELIEF KIT FOR POWER EXHAUST, HORIZONTAL APPLICATION, 18" ROOF CURB.
RTU2	YORK	KJ120N24R5AAAA1A1	10.0	120.7 / 89.5	4000	1.0	240.0 / 194.0	600/3/60	2.82	21.7	25.0	DOWNFLOW	1600	C/W REFRIGERANT DETECTION SYSTEM, 3 HP HIGH STATIC BELT DRIVE BLOWER, STANDARD 2" THROWAWAY FILTERS, INTELLISPEED CONTROL OF THE VFD BASED ON STAGES COOLING, SMART EQUIPMENT CONTROLLER, MICRO—CHANNEL ALUMINUM CONDENSER COIL, COPPER TUBE/ALUMINUM FIN EVAPORATOR COIL, COMPOSITE DRAIN PAN, HINGED DOORS FOR ALL ACCESS PANELS, SLIDE—OUT BLOWER AND BLOWER MOTOR TRAY, 18" ROOF CURB.
RTU3	YORK	KJ037N08D2AAAAA1A1	3.0	38.0 / 27.5	1200	1.0	80.0 / 65.0	230/3/60	1.50	22.7	30.0	HORIZONTAL /SIDEFLOW	1000	C/W REFRIGERANT DETECTION SYSTEM, 3 HP HIGH STATIC BELT DRIVE BLOWER, STANDARD 2" THROWAWAY FILTERS, INTELLISPEED CONTROL OF THE VFD BASED ON STAGES COOLING, SMART EQUIPMENT CONTROLLER, MICRO—CHANNEL ALUMINUM CONDENSER COIL, COPPER TUBE/ALUMINUM FIN EVAPORATOR COIL, COMPOSITE DRAIN PAN, HINGED DOORS FOR ALL ACCESS PANELS, SLIDE—OUT BLOWER AND BLOWER MOTOR TRAY, ECONOMIZER FOR DEDICATED HORIZONTAL/SIDEFLOW APPLICATIONS. INCLUDES FA HOOD, 1EHO408 BAROMETRIC RELIEF KIT FOR POWER EXHAUST, HORIZONTAL APPLICATION, R18" ROOF CURB.

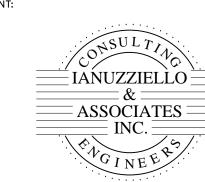
	GAS-FIRED UNIT HEATER SCHEDULE													
TAG	MANUFACTURER	MODEL	INPUT / OUTPUT HEATING CAPACITY (MBH)	AIRFLOW (CFM)	GAS CONNECTION (IN. DIA.)	COMBUSTION AIR INTAKE (IN. DIA.)	VENT (IN. DIA.)	FLA (A)	MOCP	POWER CONSUMPTION (W)	MOTOR HP	V/PH/Hz	APPROX NET WEIGHT (LBS)	REMARKS
UH1 UH2	REZNOR	UDXC-150	150.0 / 124.5		1/2"ø	5"ø	5 " ø	3.8	15		1/4	120/1/60	200	UNIT HEATER C/W HORIZONTAL CONCENTRIC INTAKE/VENT DUCT, REMOTE LOW VOLTAGE THERMOSTAT AND CEILING MOUNTING KIT.

DISCLAIMER:

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The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify IANUZZIELLO & ASSOCIATES INC. of any variations from the drawings.

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PROJECT

CLARINGTON TOYOTA

10 SPICER SQUARE BOWMNVILLE, ON

DRAWING TITLE EQUIPMENT SCHEDULES SHEET NO. 1

23217 CHECKED BY: PROJECT NO.

N.T.S. DRAWN BY:

STAND-ALONE CO AND NO2 GAS DETECION SYSTEM SPECIFICATIONS

1. GAS DETECTORS: HONEYWELL ANALYTIC E3SM-E3SCO AND E3SM-E3NO2

- 1.1 PROVIDING CONTINUOUS MONITORING IN AMBIENT AIR OF TWO FACTORY—SET ALARM LEVELS AND OUTPUTS.
- 1.2 THE TRANSMITTER WILL BE CAPABLE OF OPERATING ON A FULLY-ADDRESSABLE MODBUS RS-485 DIGITAL NETWORK IN A DAISY-CHAIN CONFIGURATION. COMMUNICATION 3000FT MAX PER CHANNEL AND POWER 24VAC 1000FT MAX PER
- 1.3 TRANSMITTER WILL HAVE AN ONBOARD DPDT RELAY (RATED AT 5A, 30 VDC OR 250 VAC (RESISTIVE LOAD)) AND CAN BE TRIGGERED THROUGH THE PROGRAMMING ON THE CONTROL PANEL TO ACTIVATE REMOTELY LOCATED FAN STARTERS WITHOUT THE NEED FOR A SEPARATE RELAY PACK.
- 1.4 SENSOR CELL SHALL HAVE A CONTINUOUS SELF—TEST TO ENSURE OPERATION AND TO PROVIDE EOL NOTIFICATION.
- 1.5 THE TRANSMITTER SHALL HAVE A PLUG-IN CAPABILITY FOR A FIELD REPLACEABLE GAS CARTRIDGE. THE REPLACEABLE GAS CARTRIDGE SHALL BE FACTORY CALIBRATED AND CERTIFIED TO THE TARGET GAS READY FOR OPERATION WITHOUT THE REQUIREMENT FOR SITE CALIBRATION.
- 1.6 TRANSMITTER WILL BE CAPABLE OF OPERATING WITHIN RELATIVE HUMIDITY RANGES OF 5-95% NON-CONDENSING AND TEMPERATURE RANGES OF -4° F TO 104° F $(-20^{\circ} \text{ C TO } 40^{\circ} \text{ C}).$
- 1.7 LCD DISPLAY FOR LOCAL GAS CONCENTRATION READING AS WELL AS "ONE MAN" CALIBRATION.

2. CONTROL PANEL: HONEYWELL ANALYTICS 301C-DLC

- 2.1 THE CONTROL PANEL MUST BE CAPABLE OF COMMUNICATING DIGITALLY WITH THE NETWORKED GAS DETECTION MONITORS ON THREE SEPARATE RS-485 MODBUS COMMUNICATION CHANNELS.
- 2.2 THE CONTROLLER WILL HOUSE FOUR INTERNAL DPDT RELAYS AT FULLY PROGRAMMABLE ALARM LEVELS (AND WITHIN PROGRAMMABLE TIME DELAYS). THE RELAY RATING WILL BE NO LOWER THAN 5 A, 30 VDC OR 250 VAC (RESISTIVE LOAD).
- 2.3 THE CONTROLLER MUST INCLUDE A SELF-TEST FUNCTION THAT ALLOWS FOR THE ACTIVATION/DEACTIVATION OF ALL THE PROGRAMMED OUTPUTS BY SIMULATING A CONTINUOUS 5% INCREASE/DECREASE VALUE UNTIL THE MAXIMUM/MINIMUM VALUE IS REACHED.
- 2.4 THE CONTROLLER MUST INCLUDE A REAL-TIME CLOCK THAT ENABLES OPERATION OF THE OUTPUTS FOR A SPECIFIC TIME-FRAME.
- 2.5 THE CONTROLLER MUST ALSO INCLUDE AN ENERGY SAVING FEATURE THAT ALLOWS FOR OUTPUT OPERATION ON ALARMS SET AT THE MAX, MIN OR AVERAGE VALUE OF A SPECIFIC GROUP OF TRANSMITTERS. THIS FEATURE MUST ALSO ALLOW FOR THE ACTIVATION OF OUTPUTS UPON A CERTAIN NUMBER OF A SPECIFIC GROUP (34 1/2, AND 1/4) OF TRANSMITTERS REACHING THEIR ALARM LEVELS.
- 2.7 THE CONTROLLER WILL INDICATE THE EXACT CONCENTRATION OF GAS, THE GAS DETECTED. AND THE LOCATION OF THE SENSOR BY SWEEPING THROUGH THE NETWORK AND DISPLAYING THE DETECTED LEVELS AT EACH POINT ON A GRAPHIC LCD DISPLAY.
- 2.8 RATINGS AND CERTIFICATIONS · CONFORMS TO INTERNATIONAL MECHANICAL AND ELECTRICAL CODES

· EMI/RFI COMPLIES WITH EMC DIRECTIVE 89/336/EEC · CSA CERTIFICATION

3. SEQUENCE OF OPERATION

	FIRST ALARM (TWA)	SECOND ALARM (STEL)	SENSOR LOCATION	RADIUS OF COVERAGE
CARBON MONOXIDE (CO)	25 PPM	100 PPM	1200MM A.F.F. AS PER OBC	FO'
NITROGEN DIOXIDE (NO ₂)	0.72 PPM	2.0 PPM	1' BELOW CEILING	50'

NOTE:

1. FOR MORE WIRING AND SEQUENCE OF OPERATION INFORMATION, CONTACT HONEYWELL LOCAL REPRESENTATIVE, PETER BOGDANIS AT EMAIL: PETER.BOGDAN@HONEYWELL.COM, PHONE: 416-569-2796.

- 3.1 WHEN FIRST ALARM LEVEL IS ACHIEVED RELAYS ARE ENERGIZED TO ACTIVATE THE EXHAUST FAN. PROGRAM A 2-MINUTE RELAY DELAY-OFF.
- 3.2 WHEN SECOND ALARM LEVEL IS ACHIEVED BUZZER ON CONTROL PANEL WILL SOUND. PROGRAM A 2-MINUTE BUZZER DELAY-ON.
- 4. <u>INSTALLATION AND VERIFICATION</u>
- 4.1 INSTALL CONDUIT AND WIRING FROM SENSORS TO CONTROL PANEL AND TO THE FAN STARTERS. COMMUNICATION WIRING 24 GAUGE SHIELDED TWISTED PAIR BELDEN 9841 OR EQUIVALENT; 2000FT MAX PER CHANNEL FROM CONTROLLER. POWER IS 24VAC, 14 GAUGE; 1000FT MAX FROM THE CONTROLLER.
- 4.2 TEST TO DEMONSTRATE OPERATION OF FUNCTIONS DESCRIBED ABOVE UNDER SEQUENCE OF OPERATION TO BE PERFORMED BY MANUFACTURER'S CERTIFIED TECHNICIAN. CERTIFICATE OF COMMISSIONING TO BE PRESENTED TO FACILITY OPERATORS.

	PLUMBING FIXTURE SCHEDULE					
TAG	FIXTURES SPECIFICATION	TRAP	PIP: COLD WATER	E CONNECT HOT WATER	TION DRAIN	VENT
U1	URINAL — FLUSHOMETER COMBO AMERICAN STANDARD 6002001.020 URINAL — PINTBROOK® WALL—HUNG, TOP SPUD, VITREOUS CHINA, FLUSH VALVE URINAL, WHITE FINISH, URINAL OPERATES IN THE RANGE OF 0.5 TO 1.9 LPF (0.125 — 0.5 GPF), 19 MM (3/4") SPUD CONNECTION, POWERFUL WASHDOWN FLUSH ACTION. SLOAN ROYAL 186 ESS—0.125—DBP—OR—HW FLUSH VALVE — ROYAL® AUTOMATIC NO—TOUCH EXPOSED URINAL FLUSHOMETER, HARDWIRED, CONSTRUCTED FROM SEMI—RED BRASS, POLISHED CHROME FINISH, HIGH EFFICIENCY 0.5 LPF (0.125 GPF). SLOAN SL—EL—154 FAUCET AND FLUSH VALVE POWER KIT — FOR FLUSH VALVE. WATTS CA—321 CARRIER — EPOXY COATED, URINAL CARRIER, WALL PLATE.	50ø	25ø	НА1 ЕК ——	50ø	40ø
WC1	WATTS CO-380-RD CLEANOUT - NON-ADJUSTABLE WALL CLEANOUT, CAST IRON, ROUND STAINLESS STEEL ACCESS COVER NO-HUB OUTLET. BARRIER FREE - FLOOR MOUNTED TOILET - VITREOUS CHINA - TANK TYPE AMERICAN STANDARD CADET PRO RIGHT HEIGHT ELONGATED #215AA.174.020 TOILET, 3517A.101, 4188A.174, 419 MM HIGH, VITREOUS CHINA WITH EVERCLEAN ANTIMICROBIAL SURFACE WHICH INHIBITS THE GROWTH OF STAIN AND ODOR CAUSING BACTERIA MOLD AND MILDEW, ELONGATED BOWL, WHITE FINISH, FLOOR MOUNTED, CADET FLUSHING SYSTEM WITH POWERWASH RIM SIPHON FLUSHING SYSTEM WHICH SCRUBS BOWL WITH EVERY FLUSH, 4.8 L (1.28 US GAL) PER FLUSH, RAISED SANITARY BAR AND FOUR (4) POINTS TANK STABILIZATION, 229 MM X 203 MM (9" X 8") WATER SURFACE, TWO (2) PIECE, 'SPEED CONNECT' TANK ASSEMBLY, CADET FLUSHING SYSTEM WITH POWERWASH RIM SIPHON FLUSHING SYSTEM WHICH SCRUBS BOWL WITH EVERY FLUSH, RAISED SANITARY BAR AND FOUR (4) POINTS TANK STABILIZATION, LINED TANK, LEFT HAND TRIPLEVER, BOLTED TANK COVER, OVERSIZED 76 MM (3") FLUSH VALVE WITH FLAPPER, METAL SHANK FILL VALVE, 305 MM (12") ROUGH—IN, ELONGATED BOWL, 54 MM (2-1/8") FULLY GLAZED INTERNAL TRAPWAY, FLOOR OUTLET, BOLT CAPS, TOILET SEAT, EXTRA HEAVY DUTY, FOR ELONGATED BOWL, OPEN FRONT, SOLID PLASTIC, WITH COVER, STAINLESS STEEL CHECK HINGES, METAL FLAT WASHERS STAINLESS STEEL POSTS AND NUTS. MCGUIRE #LFH172BV TOILET SUPPLY, CHROME PLATED FINISH POLISHED BRASS, COMMERCIAL DUTY 1/4 TURN BALL VALVE ANGLE STOPS, 13 MM (1/2") I.D. INLET X 127 MM (5") LONG RIGID HORIZONTAL INTEGRAL COPPER SWEAT TUBE NIPPLES, COMBINATION V.P. LOOSE KEY HANDLES, ESCUTCHEON AND FLEXIBLE COPPER RISERS. PROVIDE FLOOR FLANGE, (SAME MATERIAL AS THE CONNECTING PIPE DRAIN), WITH ALL BRASS BOLTS AND WITH RUBBER GASKET.	75ø	15ø		75ø	40ø
WC2	VITREOUS CHINA TOILET ELONGATED BOWL — FLUSH VALVE AMERICAN STANDARD BARRIER FREE MADERA FLOWISE ELONGATED TOILET, MODEL #3451.001, TOILET, FLOOR MOUNTED WITH FLOOR OUTLET, TOILET OPERATES IN THE RANGE OF 4.2 TO 6.0 LPF (1.1 — 1.6 GPF), WHITE FINISH VITREOUS CHINA, EVERCLEAN ANTIMICROBIAL SURFACE, ELONGATED BOWL, 381 MM (15") RIM HEIGHT, 254 MM (10") TO 305 MM (12") ROUGH—IN FROM WALL TO THE CENTER OF WASTE OUTLET, DIRECT—FED SIPHON JET FLUSH ACTION, 38 MM (1—1/2") TOP SPUD, FLUSH VALVE BY OTHERS, FULLY—GLAZED 54 MM (2—1/8") TRAPWAY SLOAN REGAL 111 ESS—1.28—OR—HW—YG REGAL AUTOMATIC NO—TOUCH EXPOSED WATER CLOSET FLUSHOMETER, 38 MM (1—1/2") SPUD COUPLING FOR TOP SPUD TOILET, HARDWIRED, CONSTRUCTED FROM SEMI—RED BRASS, POLISHED CHROME FINISH, HIGH EFFICIENCY 4.8 LPF (1.28 GPF), SLOAN SL—EL—154 TRANSFORMER	75ø	25ø		75ø	40ø
L1	CENTOCO SOLID SEATS ELONGATED MODEL #1500STSCC - EXTRA HEAVY-DUTY, OPEN FROM LESS COVER FOR ELONGATED BOWL. STAINLESS STEEL HINGE. WHITE COLOUR BARRIER FREE DROP-IN SINK AMERICAN STANDARD, AQUALYN DROP-IN SINK VITREOUS CHINA - MODEL #0475.020 FAUCET HOLES ON 8", 20-3/8" X 17-3/8" NOMINAL DIMENSIONS, 16 WIDE, 10" FRONT TO BACK, 5-5/8" DEEP. COLOUR WHITE. SLOAN FAUCET & SOAP COMBO - MODEL #ESD-501-CP, CODE NUMBER: 3346086, POLISHED CHROME FINISH, #EFX-250 FAUCET. FAUCET CODE: 3324004 C/W AC ADAPTOR PART #0346090, SOAP DISPENSER CODE: 3346087, FINISH: POLISHED CHROME. FAUCET - COMMERCIAL, ADA COMPLIANT, ELECTRONIC, SENSOR-ACTIVATED, DIECASTMATETAL HAND WASHING FAUCET. SOAP DISPENSER - SENSOR ACTIVATED, ELECTRONIC, CHROME PLATED DIE CAST BODY, HAND WASHING FOAM DISPENSER.	40ø	15ø	15ø	40ø	30ø
L2	BARRIER FREE WALL—HUNG SINK AMERICAN STANDARD MURRO UNIVERSAL DESIGN WALL—HUNG SINK VITREOUS CHINA — MODEL #0954 004EC, SHROUD/KNEE CONTRACT GUARD, MODEL #0059 020EC. COLOUR WHITE. SLOAN FAUCET & SOAP COMBO — MODEL #ESD—501—CP, CODE NUMBER: 3346086, POLISHED CHROME FINISH, #EFX—250 FAUCET. FAUCET CODE: 3324004 C/W AC ADAPTOR PART #0346090, SOAP DISPENSER CODE: 3346087, FINISH: POLISHED CHROME. FAUCET — COMMERCIAL, ADA COMPLIANT, ELECTRONIC, SENSOR—ACTIVATED, DIECASTMATETAL HAND WASHING FAUCET. SOAP DISPENSER — SENSOR ACTIVATED, ELECTRONIC, CHROME PLATED DIE CAST BODY, HAND WASHING FOAM DISPENSER.	40ø	15ø	15ø	40ø	30ø
S1	SINGLE BOWL TOP MOUNT SINK KINDRED, TOP MOUNT SINK MODEL #QSL2020-8-1, STAINLESS STEEL, 20-1/2" (W) X 20" (L) OVERALL, 8" DEEP, CABINET SIZE 24", 1 BOWL, 1 FAUCET HOLE, 20 GAUGE STAINLESS STEEL, CHROME FINISH. MOEN, ALIGN MOTIONSENSE WAVE, SINGLE HANDLE HIGH ARC, PULLDOWN KITCHEN FAUCET, MODEL #7565EW SERIES, LEVER STYLE HANDLE, 1-HOLE, 1.5 GPM AT 60 PSI, 1255 DURALAST CARTRIDGE C/W THERMOSTATIC MIXING VALVE AND AC POWER ADAPTOR. FINISH: CHROME STAINLESS STEEL. DOUBLE BOWL TOP MOUNT SINK	40ø	15ø	15ø	40ø	30ø
S2	KINDRED, DOUBLE BOWL TOP-COUNTER MOUNT SINK, REGINOX, MODEL #RDL2031-1, 18 GAUGE STAINLESS STEEL, 20-1/2" (W) X 31-1/4" (L) OVERALL, 7" DEEP, 33" CABINET SIZE, NUMBER OF BOWLS 2, 1 FAUCET HOLE. MOEN, ALIGN MOTIONSENSE WAVE, SINGLE HANDLE HIGH ARC, PULLDOWN KITCHEN FAUCET, MODEL #7565EW SERIES, LEVER STYLE HANDLE, 1-HOLE, 1.5 GPM AT 60 PSI, 1255 DURALAST CARTRIDGE C/W THERMOSTATIC MIXING VALVE AND AC POWER ADAPTOR. FINISH: CHROME STAINLESS STEEL. MOP SINK	40ø	15ø	15ø	40ø	30ø
MS1	FIAT, TERRAZZO MOP SERVICE BASIN 12" DEPTH WITH 6" DROP FRONT, MODEL #TSB3003, WITH STAINLESS STEEL CAPS ON ALL CURBS ONE PIECE, PRECAST TERRAZZO MADE OF BLACK AND WHITE MARBLE CHIPS IN GRAY PORTLAND CEMENT TO PRODUCE A COMPRESSIVE STRENGTH NOT LESS THAN 3000 PSI SEVEN DAYS AFTER CASTING. TERRAZZO SURFACE SHALL BE GROUND AND POLISHED WITH ALL AIR HOLES OR PITS GROUTED AND EXCESS REMOVED. SHOULDERS SHALL BE NOT LESS THAN 12" HIGH OUTSIDE AND 10" INSIDE AT LOWEST WALL. SHOULDER WIDTH NOT LESS THAN 2" ON ALL SIDES WITH 1/4" PITCH TOWARDS THE INSIDE. STANDARD DRAIN BODY IS STAINLESS STEEL CAST INTEGRALLY AND PROVIDES FOR A CAULKED LEAD CONNECTION NOT LESS THAN 1" DEEP TO A 3" PIPE. STAINLESS STEEL STRAINER #1453BB C/W QUICK DRAIN CONNECTORS, #830AA MOP SERVICE BASIN FITTING, #1239BB ALUMINUM BUMBER GUARD WITH VINYL INSERT, #833AA SILICONE SEALANT. ROOF DRAIN	75ø	20ø	20ø	75ø	40ø
RD	ZURN CONTROL-FLO ROOF DRAIN WITH PARABOLIC WEIR, MODEL #ZA105-N1, CONTROL-FLO ROOF DRAIN FOR DEAD-LEVEL ROOF CONSTRUCTION, DURA-COATED CAST IRON BODY, CONTROL-FLO WEIR SHALL BE INTEGRAL MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND POLY-DOME, 1 NOTCH.				100ø	
FFD	FUNNEL FLOOR DRAIN — FINISHED AREA WATTS #FD-103-C-6-8-13 — FUNNEL FLOOR DRAIN PIPE SIZING TO BE 3", 5" DIAMETER CAST IRON STRAINER, VANDAL PROOF, BACKWATER VALVE, ALL GALVANIZED.	75ø				40ø
FD	FLOOR DRAIN — FLOOR DRAIN WITH STAINLESS STEEL STRAINER WATTS #FD-1104-C-5-3-6-7-8 FLOOR DRAIN — EPOXY COATED CAST IRON BODY, REVERSIBLE FLASHING CLAMP WITH PRIMARY AND SECONDARY WEEPHOLES, VANDAL PROOF, 3"Ø (102 MM) NO HUB OUTLET WATTS -5-3 5" (127 MM) DIAMETER, STAINLESS STEEL, ADJUSTABLE ROUND STRAINER.	75ø				40ø
TSP	TRAP SEAL PRIMER P.P.P. #SMP-500-115V/DU-4 HARD WIRED TRAP SEAL PRIMER - LEAD-FREE BRASS BODY SMART-PRIME ELECTRONIC TRAP PRIMING MANIFOLD, 1/2" (13 MM) DIAMETER CONNECTION EQUIPPED WITH VACUUM BREAKER PORTS AND INTERNAL BACKFLOW PROTECTION. TRENCH DRAIN ZURN, MODEL #Z886-HDF-HDFFEC, PRE-SLOPPED HIGH DENSITY POLYETHYLENE TRENCH DRAIN WATER PROOF AND HIGHLY RESISTANT TO A VARIETY OF CHEMICAL PRODUCTS,		15ø			
TD1	INTERLOCKING SECTION OF 80" IN LENGTH BY 6-1/4" IN WIDTH, EXTRA HEAVY DUTY BLACK ENAMEL STEEL 80" FRAME FOR TRENCH DRAIN, INTEGRAL REBAR CLIPS, 5-3/8" GRATES AS PER APPLICATION. ZURN, MODEL #DGC (Z883 / Z886) HEAVY DUTY DUCTILE IRON, BLACK ENAMEL FINISH CLASS DIN C GRATE, 5-3/8" X 20" IN LENGTH (4 GRATES REQUIRED PER TRENCH). ZURN, MODEL #E1 (Z886) TRENCH DRAIN CLOSED END CAP. ZURN, MODEL #Z887-IA6 TRANSITION FLANGE BETWEEN TRENCH DRAIN AND CATCH BASIN (CB1). ZURN, MODEL #JC (Z886) JOINT CONNECTION FOR NOSE TO NOSE INSTALLATION.	100ø			100ø	
CB1	ZURN, MODEL #Z887—HD (24X24) HIGH DENSITY POLYETHYLENE CATCH BASIN, 24"X24, WATER PROOF AND HIGHLY RESISTANT TO A VARIETY OF CHEMICAL PRODUCTS, EXTRA HEAVY DUTY BLACK ENAMEL STEEL FRAME AND GRATE AS PER APPLICATION, MAY BE INTERGRATED TO Z886 AND Z882 TRENCH SYSTEM. ZURN, MODEL #DGC (Z887—24X24) HEAVY DUTY DUCTILE IRON GRATE, BLACK ENAMEL FINISH GRATE 22—1/2" X 24" IN LENGTH, CLASS DIN C. ZURN, MODEL #Z887—IA6 TRANSISTION FLANGED BETWEEN TRENCH DRAIN AND CATCH BASIN. ZURN, MODEL #YS24 SEDIMENT BUCKET FOR CATCH BASIN, STAINLESS STEEL WITH PERFORATIONS, HANDLES.	100ø			100ø	40ø
SH1	ZURN, MODEL #E4 (Z887), 4" CATCH BASIN OUTLET CONNECTION. SHOWER ASSEMBLY CUSTOM BASE— RECTANGULAR 6'—3"X 3'—4", CENTER DRAIN, BARRIER—FREE. AMERICAN STANDARD — COMPLETE SHOWER TRIM, MODEL #TU075507.002, POLISHED CHROME AMERICAN STANDARD — SHOWER VALVE, MODEL #RU101, FLASH,	50ø	20ø	20ø	50ø	40ø
SH2	SHOWER ASSEMBLY STERN WILLIAMS — SHOWER FLOOR AND STALLS, MODEL #WDA—3405, PRECAST TERRAZO MATERIAL, RECTANGULAR, PENTELIC ROLL—IN TYPE SHOWER FLOOR, BLACK AND WHITE MARBLE CHIPS IN WHITE PORTLAND CEMENT, 40"X38", 2" THRESHOLD HEIGHT, CENTER DRAIN, BARRIER FREE. AMERICAN STANDARD — COMPLETE SHOWER TRIM, MODEL #TU075507.002, POLISHED CHROME AMERICAN STANDARD — SHOWER VALVE, MODEL #RU101, FLASH,	50ø	20ø	20ø	50ø	40ø
SD **NOTE** F	SCUPPER DRAIN C/W BWV ZURN, MODEL Z629, VERTICAL WALL DRAIN WITH BACK WATER VALVE. REFER TO INTERIOR DESIGNER'S DRAWINGS FOR SPECIFICATIONS OF PLUMBING FIXTURES NOT LISTED ON MECHANICAL DRAWINGS.					40ø

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drawings.

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