

GENERAL NOTES:

1. GENERAL SCOPE OF WORK
- 1.A. FURNISH ALL LABOUR, MATERIALS, EQUIPMENT, TOOLS AND SUPPORTS AS WELL AS SUPERVISION TO PROVIDE A COMPLETE INSTALLATION, TESTED AND IN WORKING ORDER, AS SHOWN ON THE DRAWINGS.
- 1.B. THE CONTRACTOR SHALL PERFORM THE WORK STIPULATED IN THE CONTRACT AND ANY OR ALL CONTRACT CHANGES AND CHANGE DIRECTIVES, AND SHALL FURNISH, UNLESS OTHERWISE PROVIDED IN THE CONTRACT, EVERYTHING NECESSARY FOR THE PROPER PERFORMANCE AND COMPLETION OF THE WORK.
- 1.C. ALL WORK SHALL BE FULLY TESTED, COMMISSIONED AND IN GOOD WORKING ORDER AT TIME OF HAND-OVER TO OWNER.
- 1.D. MAKE GOOD ANY DAMAGES TO EXISTING EQUIPMENT AND/OR SYSTEMS), COORDINATE WORK AND WORKING HOURS WITH THE OWNER AND OTHER TRADES TO MINIMIZE DISRUPTION.
2. CODES AND STANDARDS
- 2.A. ALL WORK SHALL CONFORM TO THE MOST RECENT ISSUES OF:
- 2.A.1. THE ONTARIO BUILDING CODE
- 2.A.2. THE ONTARIO ELECTRICAL SAFETY CODE
- 2.A.3. THE MINISTRY OF THE ENVIRONMENT
- 2.A.4. THE NATIONAL ELECTRICAL CODE
- 2.A.5. BYLAWS AND REGULATIONS ISSUED BY THE BUILDING AUTHORITY HAVING JURISDICTION
- 2.A.6. ASHRAE
- 2.A.7. ASME
- 2.A.8. SMACNA
- 2.A.9. NFPA
- 2.A.10. TSSA
- 2.A.11. CSA
- 2.A.12. CGA
3. SPECIFICATIONS
- 3.1. COMPLY WITH THE GENERAL SECTIONS AND APPLICABLE SECTIONS OF THE GENERAL CONTRACT SPECIFICATIONS.
4. WARRANTY
- 4.1. WARRANT ALL LABOUR AND MATERIALS INCLUDED IN THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. ASSUME FULL RESPONSIBILITY FOR LAYOUT OF ALL WORK AND FOR ANY DAMAGE CAUSED TO OWNER OR OTHERS BY IMPROPER CARRYING OUT OF THE WORK.
5. DRAWINGS
- 5.1. DRAWINGS SHOW GENERAL INTENT OF THE WORK AND PROPOSED ROUTING ONLY.
- 5.2. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL CONFORM ALL DIMENSIONS BY FIELD MEASURE BEFORE PROCEEDING WITH THE WORK.
- 5.3. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING POSSIBLE INTERFERENCES AND INFORMING THE ENGINEER PRIOR TO STARTING ANY WORK.
- 6.
7. SITE CONDITIONS
- 7.1. EXAMINE SITE CONDITIONS TO ENSURE THAT WORK CAN BE SATISFACTORILY CARRIED OUT AS SHOWN. IF SITE EXAMINATION REVEALS ANY DIFFICULTIES THAT WILL PREVENT THE WORK FROM BEING CARRIED OUT AS DESIGNED THESE MUST BE INDICATED IN THE TENDER PRICE, AND BROUGHT TO THE ATTENTION OF THE ENGINEER.
- 7.2. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY ADDITIONAL DIFFICULTIES, INTERFERENCES AND SITE CONSTRAINTS THAT MAY BE IDENTIFIED DURING THE CONSTRUCTION PERIOD.
- 7.3. COORDINATE SITE ACCESS AND DELIVERIES WITH LANDLORD AND/OR GENERAL CONTRACTOR.
8. OPEN FLAMES AND WELDING
- 8.1. WELDING SHALL BE UNDERTAKEN BY A COMPANY CERTIFIED BY CANADIAN WELDING BUREAU UNDER REQUIREMENTS OF DIVISION 1 OR DIVISION 2.1 OR W47.1.
- 8.2. NO OPEN FLAMES OR WELDING IS PERMITTED WITHIN THE BUILDING WITHOUT WRITTEN PERMISSION BY THE OWNER AND THE ENGINEER.
- 8.3. HOT WORK PERMIT MUST BE VISIBLE AT ALL TIMES.
- 8.4. ADEQUATE NUMBER OF FIRE EXTINGUISHERS MUST BE PROVIDED DURING THE OPEN FLAME PROCESS.
9. MATERIALS
- 9.1. USE ONLY NEW CSA AND ULC CERTIFIED EQUIPMENT AND MATERIALS UNLESS OTHERWISE INDICATED.
- 9.2. ONLY FIRST CLASS WORKMANSHIP WILL BE ACCEPTED WITH RESPECT TO STANDARD PRACTICES, SAFETY, ACCESSIBILITY, DURABILITY AND NEATNESS OF INSTALLATION WORK.
10. SHOP DRAWINGS
- 10.1. SUBMIT 4 COPIES OF SHOP DRAWINGS, UNLESS OTHERWISE INDICATED, FOR ENGINEERS REVIEW.
- 10.2. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR ENGINEERS REVIEW COVERING ALL RELEVANT DETAILS, DIMENSIONS AND PERFORMANCE.
- 10.3. SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE CONTRACTOR AND THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO CONSULTANT / ENGINEER FOR REVIEW.
11. PENETRATIONS THROUGH FLOORS AND WALLS
- 11.1. UNLESS OTHERWISE SPECIFIED ON DRAWINGS, GLASS FIBRE FIRE RETARDANT INSULATION AND FIRESTOP CAULKING SHALL BE PACKED AROUND PIPE OPENINGS IN FLOORS AND WALLS AT TIME OF PIPE INSTALLATION. FIRESTOP CAULKING SHALL BE 3M FIRE BARRIER FIRETEMP CAULK OR EQUIVALENT.
- 11.2. APPLY FIRESTOP SYSTEMS IN ACCORDANCE WITH 3MS INSTRUCTIONS. ALL SYSTEMS SHALL MEET CSA F-SYSTEM RATINGS FOR THE PARTICULAR FIRE RATING OF THE PENETRATED SURFACE.
- 11.3. FIRESTOPPING CONTRACTOR MUST BE A LICENSED 3M CERTIFIED INSTALLER.
- 11.4. MATERIALS SHALL BE ASBESTOS-FREE ELASTOMERIC MATERIALS, TESTED, LISTED AND LABELED BY ULC IN ACCORDANCE WITH CAN 4-5115-M85, AND CAN/ULC-5101-M FOR INSTALLATION IN ULC DESIGNATED FIRE STOPPING AND SMOKE SEAL SYSTEMS, TO PROVIDE A POSITIVE FIRE, WATER AND SMOKE SEAL AND A FIRE RESISTANCE RATING (FLAME, HOSE STREAM AND TEMPERATURE) NOT LESS THAN THE FIRE RATING FOR SURROUNDING CONSTRUCTION. MATERIALS SHALL BE COMPATIBLE WITH ABUTTING DISSIMILAR MATERIALS AND FINISHES.
12. DIELECTRIC ISOLATION
- 12.1. PROVIDE ISOLATION WHEN USING DISSIMILAR MATERIALS, TO PREVENT GALVANIC ACTION.
13. VIBRATION ISOLATION
- 13.1. PROVIDE AND INSTALL MINIMUM 3/4" THICK MSN ELASTOMERIC PADS W/ MOUNTS UNDER FLOOR MOUNTED HVAC EQUIPMENT AS PER MANUFACTURER RECOMMENDATIONS.
14. ELECTRICAL
- 14.1. ALL LOW VOLTAGE CONTROL WIRING (<50V) SHALL BE BY THIS DIVISION, TO ELECTRICAL DIVISION STANDARDS.
15. PRESSURE TESTING
- 15.1. ALL PIPING SYSTEMS SHALL BE PRESSURE TESTED TO 860 kPa OR 1.5 TIMES SYSTEM OPERATING PRESSURE FOR A DURATION OF 24 HRS UNLESS OTHERWISE INDICATE.
16. AS BUILT DRAWINGS
- 16.1. MAINTAIN A RECORD OF ALL REVISIONS. PREPARE RECORD DRAWINGS IN A NEAT MANNER SHOWING ALL DEVIATIONS IN WORK. ON COMPLETION OF WORK, SUBMIT TO THE ENGINEER ONE HARD COPY OF AS BUILT DRAWINGS AND ELECTRONIC FORMAT DRAWINGS (IN AUTOCAD).
17. OPERATION AND MAINTENANCE MANUALS
- 17.1. SUBMIT 5 COPIES OF O&M MANUALS TO ENGINEER FOR REVIEW. ALSO INCLUDE 1 COPY IN PDF FORMAT CONTRACTOR RED LINES AND O&M MANUAL. MANUALS SHALL INCLUDE SHOP DRAWINGS OF ALL NEW EQUIPMENT, TEST AND BALANCING REPORTS, COMMISSIONING REPORTS, WARRANTIES, AND OPERATION, MAINTENANCE PROCEDURES AND AS BUILT DRAWINGS.
18. TESTING, ADJUSTING AND BALANCING (T.A.B.)
- 18.1. INCLUDE ALL TESTING, ADJUSTING AND BALANCING FOR AIR SYSTEMS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: ALL NEW RTU AND EF UNITS
- 18.2. REPORT TO INCLUDE FLOWS, PRESSURES, VELOCITIES AND OTHER PERTINENT PERFORMANCE DATA FOR AIR AND HYDRONICS. REPORT SHALL ALSO INCLUDE POWER, AMPS, VOLTAGES, PERFORMANCE CURVES, SETTINGS OF ALL SETPOINTS AND SAFETIES, AND ALL OTHER INFORMATION THAT MAY BE REQUESTED BY THE O&M START-UP FORMS, THE ENGINEER OR THE COMMISSIONING AGENT.
- 18.3. INCLUDE REPORT IN THE OPERATION AND MAINTENANCE MANUALS
- 18.4. NOTIFY ENGINEER OF ANY DISCREPANCIES GREATER THAN +5% OF DESIGN VALUES PRIOR OF SUBMISSION OF REPORT.
- 18.5. BALANCING SHALL BE PERFORMED BY AN AABC OR NEBB CERTIFIED BALANCER
19. DUCT FLEXIBLE CONNECTIONS MUST BE INSTALLED AT INLETS AND OUTLETS OF SUPPLY AND EXHAUST AIR UNITS.
20. MATERIALS AND WORK WHICH FAILS TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED BY THE ENGINEER WHENEVER FOUND AT ANY TIME PRIOR TO FINAL ACCEPTANCE AND REGARDLESS OF PREVIOUS INSPECTIONS. WHEN REJECTED, DEFECTIVE MATERIALS OR WORK SHALL BE PROMPTLY REMOVED, REPLACED OR REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO EXPENSE TO THE OWNER.

HVAC:

1. DUCTWORK
- 1.1. DUCTWORK SHALL BE CONSTRUCTED TO ASHRAE/SMACNA STANDARDS.
- 1.2. DUCT SIZES ARE LISTED ON DRAWINGS. ALL DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
- 1.3. ALL FLEXIBLE DUCTWORK TO DIFFUSERS SHALL BE ALUMINUM SPIRAL, MAXIMUM LENGTH 10FT.
- 1.4. SEAL ALL NEW LOW PRESSURE DUCTS (<2IN.WC.) AND LOW PRESSURE DUCT MODIFICATIONS TO SMACNA SEAL CLASS 'C' USING SEALANT OR ALUMINUM TAPE; OR A COMBINATION THEREOF.
- 1.5. HIGH PRESSURE DUCTS (>2IN.WC.) SHALL BE CONSTRUCTED OF FACTORY FABRICATED, SPIRAL WOUND, GALVANIZED STEEL WITH MATCHING FITTINGS AND SPECIALS TO SMACNA. USE SPLIT TYPE JOINTS WITH SEALANT FOR DUCTS UP TO 36IN.
- 1.6. SEAL ALL NEW HIGH PRESSURE DUCTS (>2IN.WC.) AND HIGH PRESSURE DUCT MODIFICATIONS TO SMACNA SEAL CLASS 'A' USING SEALANT.
2. ELBOWS
- 2.1. FOR LOW PRESSURE SYSTEM: ELBOWS SHALL HAVE RADIUS OF NOT LESS THAN DUCT WIDTH. BARBER-COLEMAN "AIRTURNS", HART & COOLEY "DUCTURNS" TURNING VANES OR DUCTMATE TURNING VANES SHALL BE PROVIDED IN ELBOWS OF LESSER RADIUS IN ALL DUCTWORK.
- 2.2. FOR HIGH PRESSURE SYSTEM: SMOOTH RADIUS AND/OR S-PIECE (FOR 90°), 3-PIECE (FOR 45°) WITH CENTRELINE RADIUS AT 1.5 X DIAMETER. USE 45° CONICAL TRANSITIONS FOR BRANCH CONNECTIONS.
3. BALANCING
- 3.1. SHEET METAL CONTRACTOR SHALL EMPLOY THE SERVICES OF A LICENSED INDEPENDENT BALANCING COMPANY TO BALANCE THE AIR SYSTEMS TO ACHIEVE THE AIRFLOW SHOWN. THE BALANCING COMPANY SHALL SUBMIT A COMPLETE REPORT. ACCEPTANCE OF BALANCING AND REPORT WILL BE SUBJECT TO ON SITE MEASUREMENT AND/OR VERIFICATION OF THE REPORT BY THE MECHANICAL ENGINEER.
4. VIBRATION ISOLATION
- 4.1. PROVIDE AND INSTALL MINIMUM 3/4" THICK MSN ELASTOMERIC PADS W/ MOUNTS UNDER FLOOR MOUNTED HVAC EQUIPMENT AS PER MANUFACTURER RECOMMENDATIONS.
- 4.2. PROVIDE AND INSTALL SPRING W/ ELASTOMERIC ELEMENT HANGERS FOR CEILING SUSPENDED EQUIPMENT, DUCTWORK AND ACCESSORIES.
5. BALANCING DAMPERS
- 5.1. BALANCING DAMPERS SHALL BE MANUALLY OPERATED OPPOSED BLADE OR SPLITTER TYPE. SPLITTER DAMPERS SHALL BE COMPLETE WITH CONTROL ROD, PIVOT BRACKET AND BALL JOINT FITTING WITH LOCKING SETSCREW.
- 5.2. SPLITTER DAMPERS SHALL BE INSTALLED ON ALL BRANCH DUCT CONNECTIONS (OR TAKE-OFFS) FROM DUCTS.
- 5.3. OPPOSED BLADE DAMPERS SHALL BE USED FOR ALL DIFFUSER/GRILLE BALANCING DAMPERS (WHERE INDICATED).
6. FIRE RATED DAMPERS (FRD)
- 6.1. FIRE DAMPER (FRD) SHALL BE CURTAIN TYPE WITH 135' F FUSIBLE LINK SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATION, ULC RATED (AS PER ENCLOSURE FIRE RESISTANCE RATING).
- 6.2. FRD SHALL BE RUSKIN MODEL DIBD2 STYLE B (OR EQUAL FOR DUCT HEIGHTS NOT EXCEEDING 12", AND DIBD2 STYLE A (OR EQUAL) FOR DUCT HEIGHTS EXCEEDING 12".
- 6.3. PROVIDE ACCESS DOORS AT EACH FRD UNLESS FRONTAL ACCESS TO FRD IS AVAILABLE.
7. DIFFUSER/GRILLES/REGISTERS
- 7.2. TYPE A - EH PRICE, MODEL ROUND RCD DIFFUSER, 8"Ø COLLAR.
- 7.3. TYPE B - EH PRICE, MODEL SCD, 24"x24" DOUBLE DEFLECTION SUPPLY GRILL, CONNECTED TO SUPPLY DUCT.
- 7.4. TYPE C - EH PRICE, MODEL SDS/SPIR - LINEAR SLOT DIFFUSERS WITH MOUNTING BRACKET (AND ALL CORRESPONDING ACCESSORIES).
- 7.5. TYPE D - EH PRICE - 24"x24", 1/2" BLADE SPACING, RETURN GRILL.
- 7.6. THE BLADES SHALL RUN PARALLEL TO THE LONG DIMENSION OF THE GRILLE.
- 7.7. ALL DIFFUSER/GRILLE/REGISTER COLOURS SHALL BE CONFIRMED AT THE SHOP DRAWING STAGE BY THE INTERIOR DESIGNER.
8. THERMAL INSULATION FOR DUCTS
- 8.1. BLANKET OR RIGID THERMAL INSULATION ON INDOOR DUCTS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS UNLESS OTHERWISE INDICATED:
- 8.1.1. INSULATE FULL LENGTH OF FRESH AIR SUPPLY DUCTS.
- 8.1.2. INSULATE FIRST 10FT OF EXHAUST DUCTS FROM EXTERIOR WALL OR ROOF.
- 8.1.3. INSULATE FULL LENGTH OF SUPPLY AND RETURN DUCTS THAT ARE ROUTED THROUGH A NON-CONDITIONED SPACE.

HVAC (CONT'D):

- 8.1.4. THERMAL INSULATION IS NOT REQUIRED ON SUPPLY AND RETURN DUCTS CONFINED WITHIN A CONDITIONED SPACE (INCLUDING RETURN PLENUM CEILINGS).
- 8.1.5. ACOUSTICALLY LINED INTERIOR DUCTS NEED NOT TO BE THERMALLY INSULATED.
- 8.1.6. USE RIGID INSULATION AND DRYWALL TYPE CORNER BEADS IN AREAS WHERE INSULATION IS EASILY SUSCEPTIBLE TO DAMAGE.
- 8.2. INSULATION SHALL BE FOIL FACED HAVING FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPMENT CLASSIFICATION OF 50 OR LESS.
- 8.3. THERMAL INSULATION SHALL BE 1-1/2" THICK BLANKET MINERAL FIBER OR 1" THICK RIGID MINERAL FIBERBOARD FOR WARM AIR DUCTS AND DUCTS BETWEEN OUTSIDE WALLS AND MIXING PLENUMS.
- 8.4. THERMAL INSULATION FOR COLD AIR DUCTS SHALL BE 1-1/2" THICK RIGID INSULATION, OR 2" THICK BLANKET MINERAL FIBRE.
- 8.5. VAPOUR-RETARDER MEMBRANE SHALL BE INSTALLED WITH INSULATION ON COLD, DUAL-TEMP AND FRESH AIR AIR SUPPLY DUCTS.
- 8.6. ACCEPTABLE BLANKET MINERAL FIBER SHALL BE JOHNS MANVILLE MICROLITE DUCT WRAP TYPE 100 OR EQUIVALENT.
- 8.7. ACCEPTABLE RIGID MINERAL FIBERBOARD SHALL BE JOHNS MANVILLE 800 SERIES SPIN-GLASS TYPE OR EQUIVALENT.
- 8.8. SEAL ALL JOINTS WITH ULC LISTED SELF-ADHESIVE INSULATION TAPE FOR INDOOR DUCTS AND INSULATION.
- 8.9. USE RIGID INSULATION AND DRYWALL TYPE CORNER BEADS IN AREAS WHERE INSULATION IS EASILY SUSCEPTIBLE TO DAMAGE.
- 8.10. EXTERIOR DUCTWORK INSULATION SHALL BE COVERED BY A .04" THICK ALUMINUM JACKET (FORMING THE DOUBLE SKIN). ALL LONGITUDINAL SEAMS SHALL BE FORMED ALONG THE BOTTOM. ENSURE THAT ALUMINUM JACKET IS FASTENED WITH SECURE, WATERTIGHT MECHANICAL CONNECTIONS. APPLY EXTERIOR GRADE SEALANT AT ALL SEAMS.
9. ACOUSTIC INSULATION
- 9.1. ACOUSTIC INSULATION SHALL BE PROVIDED WHERE INDICATED ON DRAWINGS AND IN ALL RETURN AIR TRANSFER DUCTS.
- 9.2. ACOUSTIC INSULATION SHALL BE 1/2" THICK INTERNAL LINING, C/W FACTORY APPLIED BLACK ACRYLIC POLYMER COATING, HAVING FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPMENT CLASSIFICATION OF 50 OR LESS.
- 9.3. DUCT SIZES SHOWN ON DRAWINGS INDICATE CLEAR INSIDE DIMENSIONS.
- 9.4. ACCEPTABLE ACOUSTIC DUCT LINER SHALL BE JOHNS MANVILLE PERMACOTE LINACACUSTIC STANDARD/HP OR EQUIVALENT.
- 9.5. APPLY BLACK ACRYLIC POLYMER COATING TO ALL FIELD CUT EDGES AS PER SMACNA STANDARDS.
- 9.6. ACCEPTABLE COATING SHALL BE JOHNS MANVILLE SUPERSEAL OR EQUIVALENT.
10. CONTROLS
- 10.1. CONTROLS CONTRACTOR SCOPE OF WORK SHALL INCLUDE SUPPLY AND INSTALL OF: THERMOSTATS, DIFFERENTIAL PRESSURE CONTROLS, WIRING/TUBING, AND AUTOMATION SYSTEM TIE-INS (AS REQUIRED).
- 10.2. PROVIDE ASSISTANCE TO GENERAL/MECHANICAL CONTRACTOR AS INDICATED IN THE TENDER DOCUMENT.

DOMESTIC WATER PIPING AND ACCESSORIES:

1. GENERAL
- 1.1. MATERIAL AS INDICATED ON DRAWINGS. IF MATERIALS HAVE NOT BEEN INDICATED ON DRAWINGS, THEN INSTALLATION SHALL ADHERE TO THIS SECTION.
- 1.2. CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING EXACT LOCATIONS OF EXISTING PIPING, APPROXIMATE DISTANCES ARE INDICATED ON DRAWINGS AS REQUIRED.
- 1.3. PROVIDE MATERIALS IN ACCORDANCE WITH THIS SECTION UNLESS OTHERWISE SPECIFIED.
- 1.4. PROVIDE ALL MATERIALS AS REQUIRED INCLUDING PIPING, VALVES, FITTINGS, TRAPS, HANGERS, SUPPORTS AND THERMAL INSULATION FOR COMPLETE SYSTEM INSTALLATION AND OPERATION.
- 1.5. ALL PIPING SHALL BE PROPERLY LABELED.
- 1.6. PROVIDE MINIMUM PIPE INSULATION THICKNESSES IN ACCORDANCE WITH LATEST EDITION OF ASHRAE STANDARD 90.1 UNLESS OTHERWISE INDICATED.
- 1.7. PROVIDE ALL PLUMBING SYSTEMS, FIXTURES AND ACCESSORIES IN ACCORDANCE WITH OBC AND LOCAL AUTHORITIES HAVING JURISDICTION.
2. THERMAL INSULATION
- 2.1. MINIMUM PIPE INSULATION SHALL BE 1" FOR ALL DOMESTIC HOT AND COLD WATER PIPES AND RAIN WATER LEADERS UNLESS OTHERWISE INDICATED.
- 2.2. DOMESTIC HOT WATER PIPES SHALL BE GREATER THAN 2" SHALL HAVE 1-1/2" THICK INSULATION.
- 2.3. PROVIDE AND INSTALL PVC JACKET AND VAPOUR RETARDER FOR INDOOR INSULATED PIPE APPLICATIONS. JACKETING SHALL BE JOHNS MANVILLE ZESTON 300 SERIES OR EQUIVALENT.
- 2.4. INSTALL ALL INSULATION AND JACKETS AS PER MANUFACTURER RECOMMENDATIONS.
- 2.5. MAINTAIN UNINTERRUPTED CONTINUITY AND INTEGRITY OF VAPOUR RETARDER AND FINISHES. HANGERS AND SUPPORTS TO BE OUTSIDE VAPOUR OF RETARDER.
- 2.6. APPLY HIGH COMPRESSIVE STRENGTH INSULATION, SUITABLE FOR SERVICE, AT OVERSIZED SADDLES AND SHOES WHERE INSULATION SADDLES HAVE NOT BEEN PROVIDED.
- 2.7. INSULATION SHALL BE FOIL FACED.
- 2.8. INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPMENT CLASSIFICATION OF 50 OR LESS.
3. PIPE HANGERS AND SUPPORTS
- 3.1. PIPING HANGERS AND SUPPORTS SHALL BE SPACED IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
4. PRESSURE TESTING
- 4.1. ALL PIPING SYSTEMS SHALL BE HYDROSTATICALLY PRESSURE TESTED TO A MINIMUM OF 860 kPa OR 1-1/2 TIMES SYSTEM OPERATING PRESSURE (WHICHEVER IS GREATER) FOR A PERIOD OF 24 HOURS UNLESS OTHERWISE INDICATED.
5. DRAINAGE SANITARY AND VENT PIPING
- 5.1. BURIED SANITARY, STORM AND VENT SHALL BE MINIMUM 3" PVC OR ABS PIPE AND FITTINGS TO CSA CAN 3-B181.1-M85 (ABS), CAN 3-B181.2-M85 (PVC) B182.1-M1983, B182.2-M1983, (LARGE DIAMETER PSM PVC), B182.3-M1983 (LARGE DIAMETER IPS PVC).
- 5.2. PROVIDE TRAP PRIMERS WHERE REQUIRED.
- 5.3. ABOVE GROUND SANITARY AND VENT LINES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE FOR SOIL AND WASTE. PIPING SHALL NOT HAVE A FLAME-SPREAD RATING GREATER THAN 25, AND HAVE A SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50. ALL MATERIALS SHALL BE NON-COMBUSTIBLE.
6. DOMESTIC COLD AND HOT WATER PIPE
- 6.1. PROVIDE ISOLATION VALVES FOR EACH NEW FIXTURE. VALVES SHALL BE BY PASS BALL VALVES WITH THREADED/SOLDERED ENDS, RATED FOR 400 CWP.
- 6.2. TYPE K COPPER PIPE TO ASTM B88M SHALL BE USED FOR BURIED DCW PIPE.
7. FLOOR DRAINS
- 7.1. ABS, PVC OR CAST IRON SIZE AS INDICATED ON DRAWING.
- 7.2. ACCEPTABLE MATERIAL: J.R. SMITH OR EQUAL:
- 7.2.1. FINISHED AREAS MODEL 2005
- 7.2.2. UNFINISHED AREA MODEL 2320
- 7.2.3. FLOOR FUNNEL DRAINS SAME AS ABOVE C/W 3591 FUNNEL
- 7.3. PROVIDE PRIMING AT EACH FLOOR DRAIN FROM NEAREST LAVATORY OR WATER CLOSET.
8. TRENCH DRAIN
- 8" WIDE, 40" LONG, PRE-SLOPED (0.5%) OR NEUTRAL FILCOTEN TRENCH DRAIN SYSTEM. BODY TO BE MANUFACTURED FROM A FIBRE-REINFORCED CONCRETE BASED MATERIAL. BODIES MUST HAVE INTERLOCKING ENDS, A RADUSED BOTTOM FOR EFFICIENT LIQUID DRAINAGE AND MULTIPLE ANCHORING RIBS TO SECURELY HOLD THE BODY INTO THE CONCRETE FOUNDATION. EACH BODY TO BE MANUFACTURED WITH A INTEGRAL 4MM THICK, EXTRA HEAVY DUTY, GALVANIZED STEEL RAIL. END AND BOTTOM OUTLETS TO BE AVAILABLE IN 4" NO HUB OUTLET CONNECTIONS. THE GRATES TO BE EXTRA HEAVY DUTY DUCTILE IRON (LOAD CLASS E). GRATES MUST BE SECURED TO THE BODY WITH A FOUR POINT SELF-LOCKING SYSTEM. END CAPS AND CATCH BASINS TO BE INSTALLED.
9. CLEAN-OUTS AND VENTING
- 9.1. PROVIDE IN ACCORDANCE WITH OBC CHAPTER 7 AND AS INDICATED ON DRAWINGS.
- 9.2. ACCEPTABLE MATERIAL: J.R. SMITH OR EQUAL:
- 9.2.1. UNFINISHED FLOOR CLEANOUTS MODEL 4240
- 9.2.2. FINISHED FLOOR CLEANOUTS MODEL 4100
- 9.2.3. PIPE CLEANOUTS MODEL 4510

- 10.3. PROVIDE FIXTURES AS INDICATED BELOW:
- 10.1 WC-1
- 10.1.1 STANDARD WALL MOUNTED C/W FLUSH VALVE, ELONGATED BOWL AND SEAT. C/W CARRIER.
- 10.1.2 MAXIMUM 6.0 L/FLUSH
- 10.2 KITCHEN SINK (KS-1)
- 10.2.1 SINK AND FAUCET SHALL BE SPECIFIED BY CLIENT.
- 10.2.2 MAXIMUM 8.35 L/MIN.

- 10.2 LAVATORY L-1
- 10.2.2 NEW LAVATORY TO BE APPROVED BY THE CLIENT.
- 10.2.3 EFFICIENCY AND WATER FLOW STANDARD TO MEET N.B.C. PART 7.
- 10.3 DISHWASHER DW-1
- 10.3.2 NEW DISHWASHER TO BE APPROVED BY THE CLIENT.
- 10.3.3 EFFICIENCY AND WATER FLOW STANDARD TO MEET N.B.C. PART 7.

GAS PIPING AND ACCESSORIES:

1. PIPE
- 1.1. STEEL PIPE: TO ASTM A53, GRADE B, SCHEDULE 40, SEAMLESS AS FOLLOWS:
- 1.1.1. NPS 1/2 TO 2, SCREWED.
- 1.1.2. NPS 2 1/2 AND OVER, PLAIN END.
- 1.1.3. COPPER TUBE: TO ASTM B75M.
- 1.2. JOINING MATERIAL
- 1.2.1. SCREWED FITTINGS: PULVERIZED LEAD PASTE.
- 1.2.2. WELDED FITTINGS: TO CSA W47.1.
- 1.2.3. FLANGE GASKETS: NONMETALLIC FLAT.
- 1.2.4. SOLDERED: TO ASTM B32, TIN ANTIMONY 5/5.

9. FITTINGS
- 9.1. STEEL PIPE FITTINGS, SCREWED, FLANGED OR WELDED:
- 9.1.1. MALLEABLE IRON: SCREWED, BANNED, CLASS 150.
- 9.1.2. STEEL PIPE FLANGES AND FLANGED FITTINGS: TO ANSI/ASME B16.5.
- 9.1.3. WELDING: BUTT-WELDING FITTINGS.
- 9.1.4. UNIONS: MALLEABLE IRON, BRASS TO IRON, GROUND SEAT, TO ASTM A47M.
- 9.1.5. BOLTS AND NUTS: TO ANSI B18.2.1
- 9.1.6. NIPPLES: SCHEDULE 40, TO ASTM A53.
- 9.2. COPPER PIPE FITTINGS, SCREWED, FLANGED OR SOLDERED:
- 9.2.1. CAST COPPER FITTINGS: TO ANSI B16.18.
- 9.2.2. WROUGHT COPPER FITTINGS: TO ANSI/ASME B16.22.

10. VALVES
- 10.1. PROVINCIAL CODE APPROVED, LUBRICATED PLUG TYPE.

11. INSTALLATION
- 11.1. INSTALL IN ACCORDANCE WITH APPLICABLE PROVINCIAL CODES.
- 11.2. INSTALL IN ACCORDANCE WITH CAN/CGA B149.1.
- 11.3. ASSEMBLE PIPING USING FITTINGS MANUFACTURED TO ANSI STANDARDS.
- 11.4. CONNECT TO EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTION UNLESS OTHERWISE INDICATED.
- 11.5. SLOPE PIPING DOWN IN DIRECTION OF FLOW TO LOW POINTS.
- 11.6. INSTALL DRIP POINTS:
- 11.6.1. AT LOW POINTS IN PIPING SYSTEM.
- 11.6.2. AT EACH CONNECTION TO EQUIPMENT.
- 11.7. USE ECCENTRIC REDUCERS AT PIPE SIZE CHANGE INSTALLED TO PROVIDE POSITIVE DRAINAGE.
- 11.8. PROVIDE CLEARANCE FOR ACCESS AND FOR MAINTENANCE.

- 11.9. REAM PIPES, CLEAN SCALE AND DIRT, INSIDE AND OUT.
- 11.10. INSTALL PIPING TO MINIMIZE PIPE DISMANTLING FOR EQUIPMENT REMOVAL.
- 11.11. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL UNLESS OTHERWISE APPROVED BY ENGINEER.
- 11.12. INSTALL VALVES AT BRANCH TAKE-OFFS TO ISOLATE EACH PIECE OF EQUIPMENT, AND AS INDICATED.

12. TESTING
- 12.1. TEST SYSTEM IN ACCORDANCE WITH CAN/CGA B149.1 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- 12.2. PURGE AFTER PRESSURE TEST IN ACCORDANCE WITH CAN/CGA B149.1.

SPRINKLER SYSTEM:

1. REFERENCES

- 1.1. NFPA 13, INSTALLATION OF SPRINKLER SYSTEMS.

2. SHOP DRAWINGS AND PRODUCT DATA

- 2.1. SUBMIT SHOP DRAWINGS AND PRODUCT DATA IN ACCORDANCE WITH NFPA 13.
- 2.2. SUBMIT DETAILED DESIGN AND EQUIPMENT DATA COMPLETE WITH SPRINKLER HEADS, PIPING AND SIZING DATA.
- 2.3. SHOP DRAWING SHALL BE STAMPED BY AN ENGINEER (P.ENG) AND APPROVED BY THE AUTHORITIES HAVING JURISDICTION BEFORE COMMENCING AND INSTALLATION.

3. ENGINEERING DESIGN CRITERIA

- 3.1. DESIGN AND INSTALL FIRE PROTECTION (SPRINKLER) SYSTEM TO ONTARIO BUILDING CODE, NFPA 13 LIGHT HAZARD AND SPECIFICATIONS.
- 3.2. ALL COMPONENTS TO BE ULC LISTED AND FM APPROVED.
- 3.3. ACCOMPANYING CONTRACT DRAWINGS INDICATES AREAS PROTECTED BY SPRINKLER AND GENERALLY INSTALLED SYSTEM AND NOT LIMITED TO THE EXACT NUMBER OF HEADS REQUIRED TO GIVE NECESSARY PROTECTION TO APPROVAL OF AUTHORITIES HAVING JURISDICTION AND INSURANCE UNDERWRITER.
- 3.4. REFERENCED CODES AND STANDARDS REPRESENT MINIMUM REQUIREMENTS. DO NOT REDUCE REQUIREMENTS OF MATERIALS, EQUIPMENTS AND DESIGN CRITERIA STANDARDS ESTABLISHED BY CONTRACT DOCUMENTS.

4. PIPE SIZE AND LAYOUT:

- 4.1. ALL SPRINKLER PIPES SHALL BE HYDRAULICALLY CALCULATED AND SIZED BY THE SPRINKLE CONTRACTOR.
- 4.2. THE PIPING LAYOUT INDICATED ON THE DRAWING IS FOR THE REFERENCE ONLY. CONTRACTOR TO COORDINATE WITH OTHER TRADES AND ENSURE NO INTERFERENCE WITH OTHER EQUIPMENT.
- 4.3. SPRINKLER HEAD LAYOUT: TO NFPA 13 AND AS DIRECTED BY AUTHORITIES HAVING JURISDICTION.
- 4.4. WATER SUPPLY: TIE INTO EXISTING SPRINKLER WATER MAINS WHERE INDICATED.

5. ZONING

- 5.1. STANDARD WET PIPE.

6. PIPES, FITTINGS AND VALVES

- 6.1. PIPE FERROUS: TO NFPA 13, BLACK STEEL.
- 6.2. FITTING AND JOINTS TO NFPA 13 FERROUS: SCREWED, WELDED, FLANGED OR ROLL GROOVED TO BASE BUILDING STANDARD.

7. VALVES

- 7.1. ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICE.
- 7.2. UP TO NPS 2": BRONZE, SCREWED ENDS, OS&Y GATE.
- 7.3. NPS 2 ½" AND OVER: CAST IRON, FLANGE [OR ROLL GROOVED] ENDS, INDICATING BUTTERFLY VALVE

8. PIPE HANGERS:

- 8.1. ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICES.
- 8.2. GRINNELL ADJUSTABLE CLEVIS.

9. SPRINKLER HEADS

- 9.1. NEW HEADS TO BE 165°F. PENDENT OR CONCEALED AS INDICATED.
- 9.1.1. INSTALL CONCEALED HEADS IN ALL DWYALL/GYPSUM CEILINGS OR AS INDICATED ON DRAWING.
- 9.1.2. INSTALL PENDENT HEADS IN ALL OTHER T-BAR CEILING AREAS.
- 9.1.3. INSTALL UPRIGHT SPRINKLER HEADS IN ALL OPEN CEILING AREAS.
- 9.1.4. INSTALL SIDE WALL SPRINKLERS WHERE INDICATED.
- 9.2. CONCEALED HEAD PLATES COLOUR SHALL BE COORDINATED WITH THE ARCHITECT.

10. INSTALLATION

- 10.1. INSTALL, INSPECT, AND TEST FOR ACCEPTANCE IN ACCORDANCE WITH NFPA 13.
- 10.2. TESTING TO BE WITNESSED AND APPROVED BY AUTHORITY HAVING JURISDICTION.
- 10.3. INSTALLATION TO COMPLY WITH CAN/ULC S524-MP1 AND TO BE VERIFIED IN ACCORDANCE WITH CAN/ULC S537-97.

DRAWING LIST	
DWG NO.	DESCRIPTION
M-1.1	GENERAL NOTES & SPECIFICATIONS
M-1.2	DETAILS, LEGEND AND SCHEDULE
M-2.1	FLOOR PLAN - PLUMBING
M-3.1	FLOOR PLAN - HVAC
M-4.1	FLOOR PLAN - SPRINKLERS EXISTING
M-4.2	FLOOR PLAN - SPRINKLERS PROPOSED
E-1	ELECTRICAL SPECIFICATIONS
E-2	FLOOR PLAN - LIFE SAFETY SYSTEM

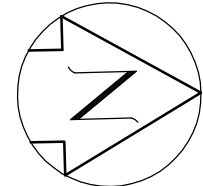
LEGEND	
SYMBOL	DESCRIPTION
	NEW WORK
	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED
	FLEX DUCT
	CONTROL WIRE
	CAP
	THERMOSTAT
	CARBON MONOXIDE SENSOR
	CARBON DIOXIDE SENSOR
	OCCUPANCY SENSOR
	AIR FLOW ARROW
	SUPPLY DUCT - UP
	SUPPLY DUCT - DOWN
	RETURN DUCT - UP
	RETURN DUCT - DOWN
	DUCT REDUCER
	BALANCING DAMPER
	BACK DRAFT DAMPER
	FIRE DAMPER
	AIR TERMINAL TAG X = TYPE: A, B, C, ETC. (REFER TO SPECIFICATIONS FOR MORE DETAIL) Y = AIR FLOW (CFM) Z = FLEX DUCT SIZE (in)

NOTE before commencing work:

The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1.	ISSUED FOR PERMIT	JUL 30, 2024
No.	Issued For:	Date

Orientation



NOTES:

All drawings and specifications is on instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.



Project
**DAY CARE
PHASE 2**

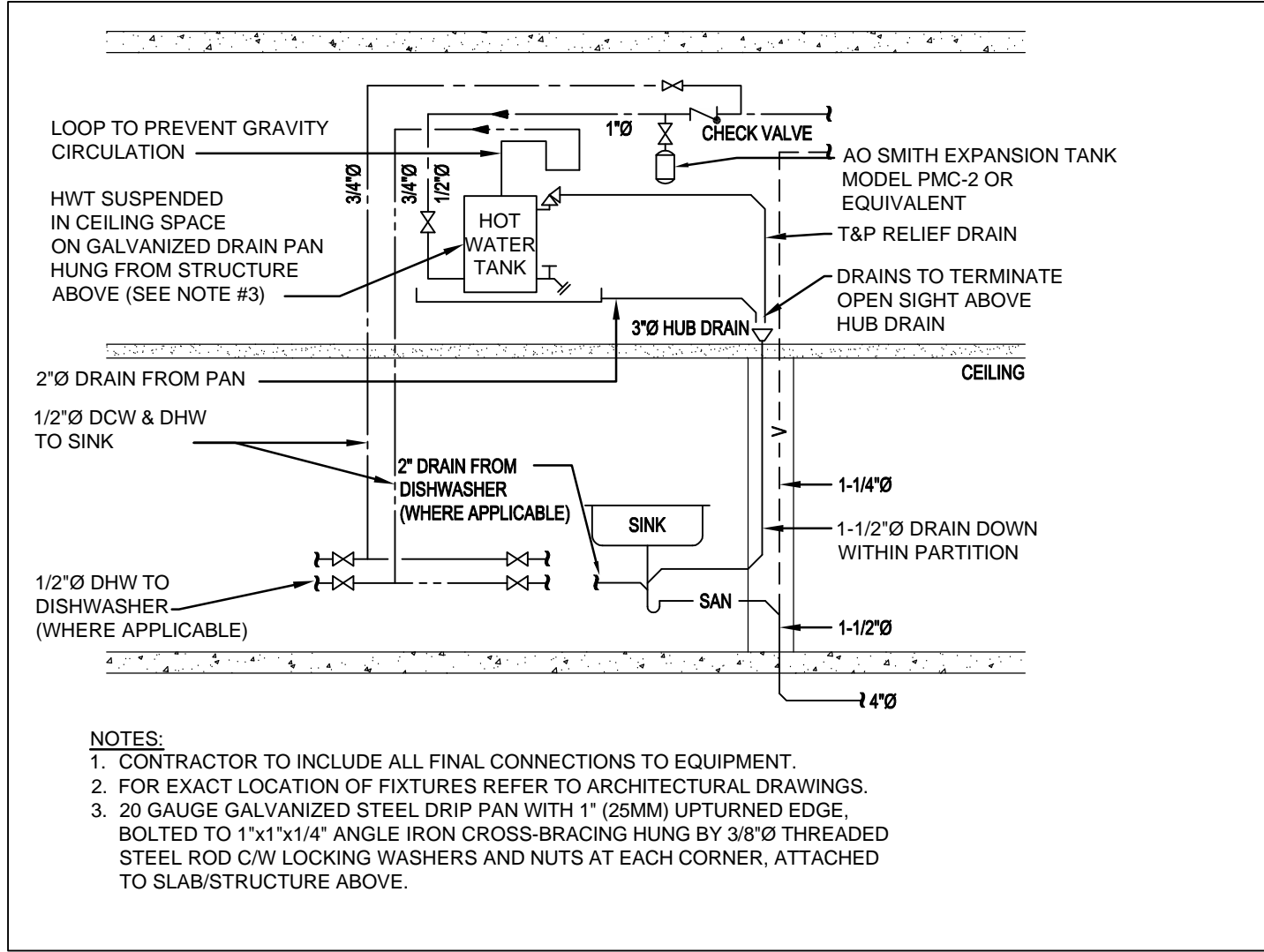
Location
230 THE ESPLANADE
TORONTO ON M5A 4J6

Project No: **24032A**

For

Drawing
**GENERAL NOTES &
SPECIFICATIONS**

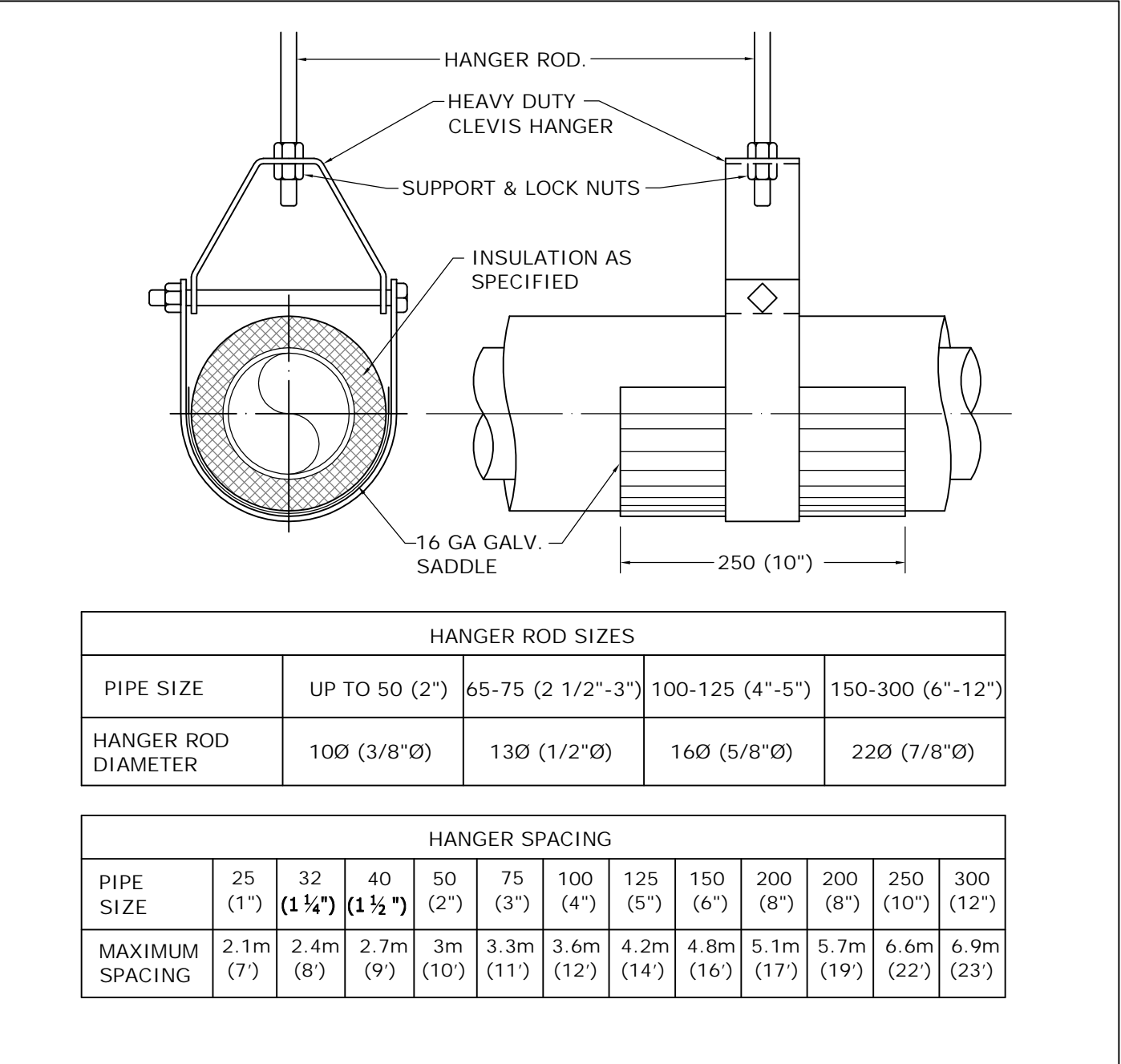
Scale	N.T.S	Date	JULY 2024
Drawn by	HK	Drawing No.	M-1.1
Checked by	SH		
Approved by	SH	OF	
CAD FILE NAME: 24032A-M.DWG			



1
M-1.2

HOT WATER HEATER IN CEILING SPACE

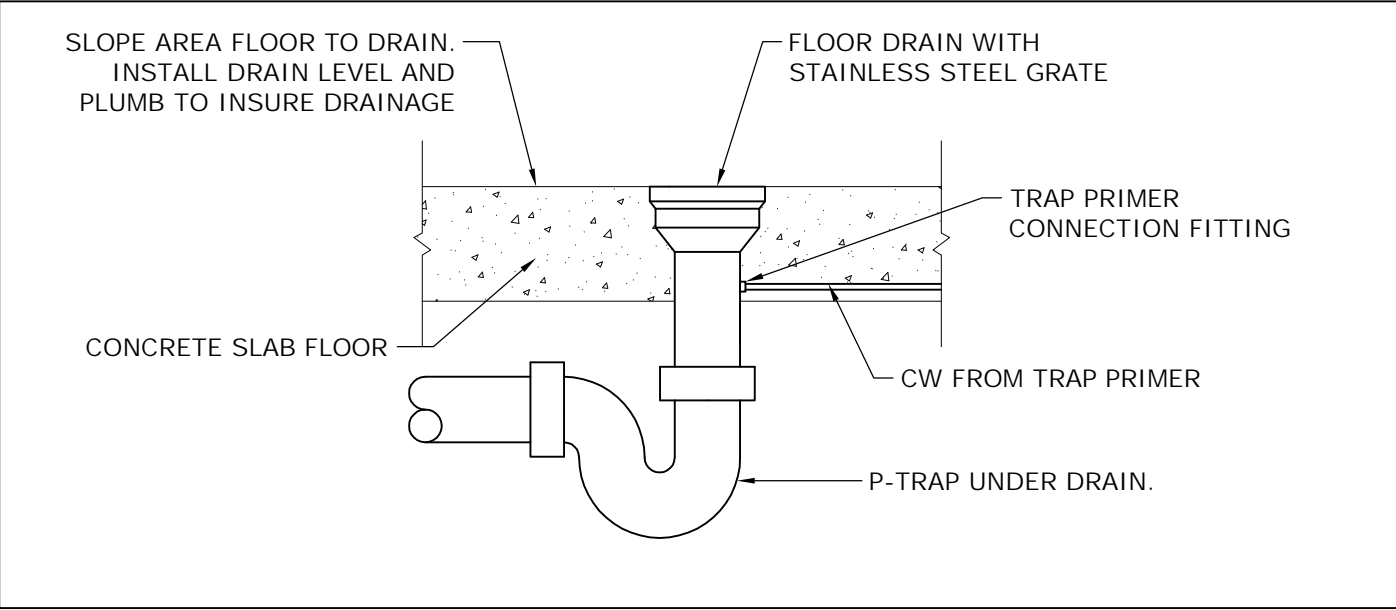
SCALE: N.T.S.



2
M-1.2

PIPE HANGER DETAIL

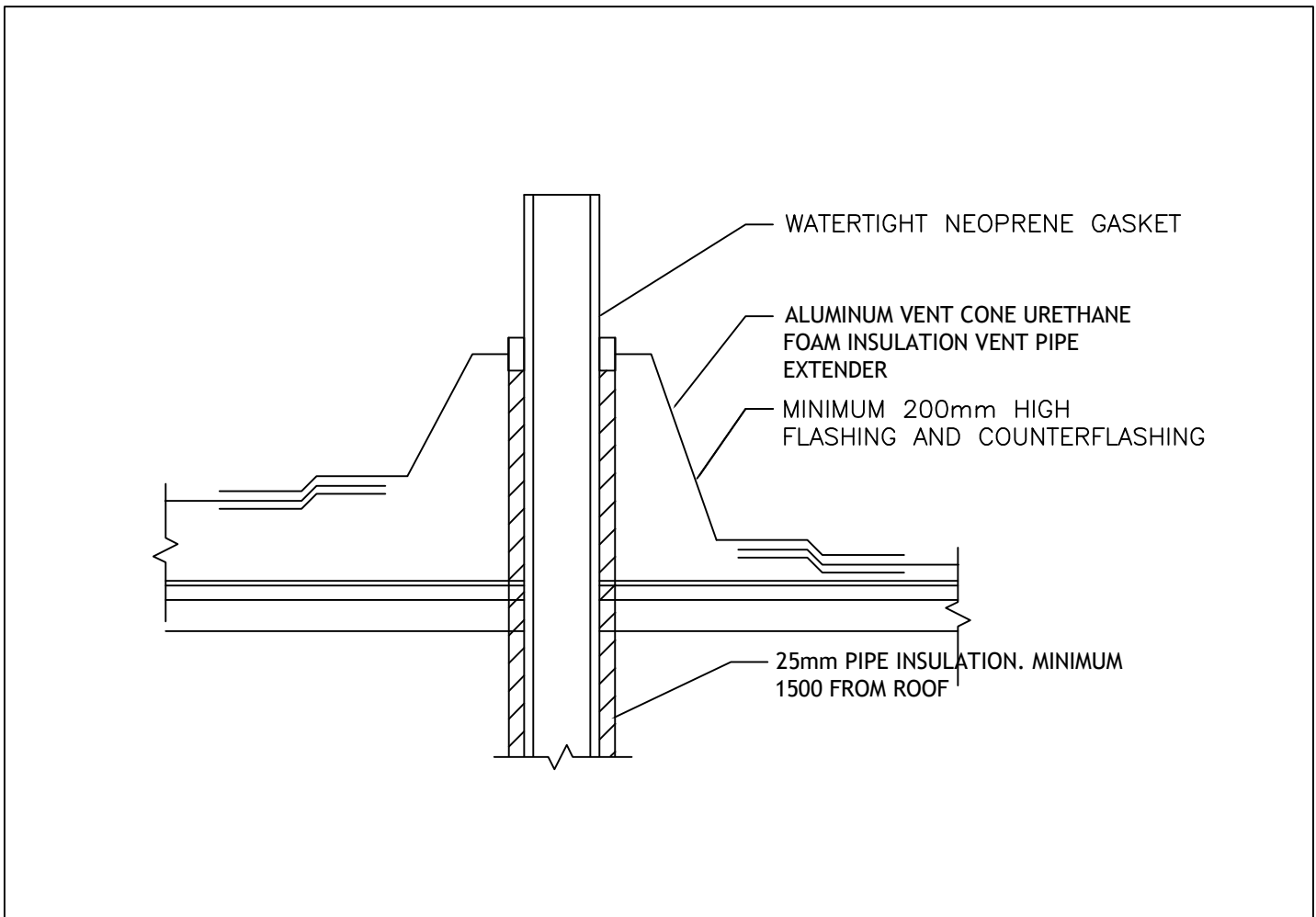
SCALE: N.T.S.



3
M-1.2

TYPICAL FLOOR DRAIN DETAIL

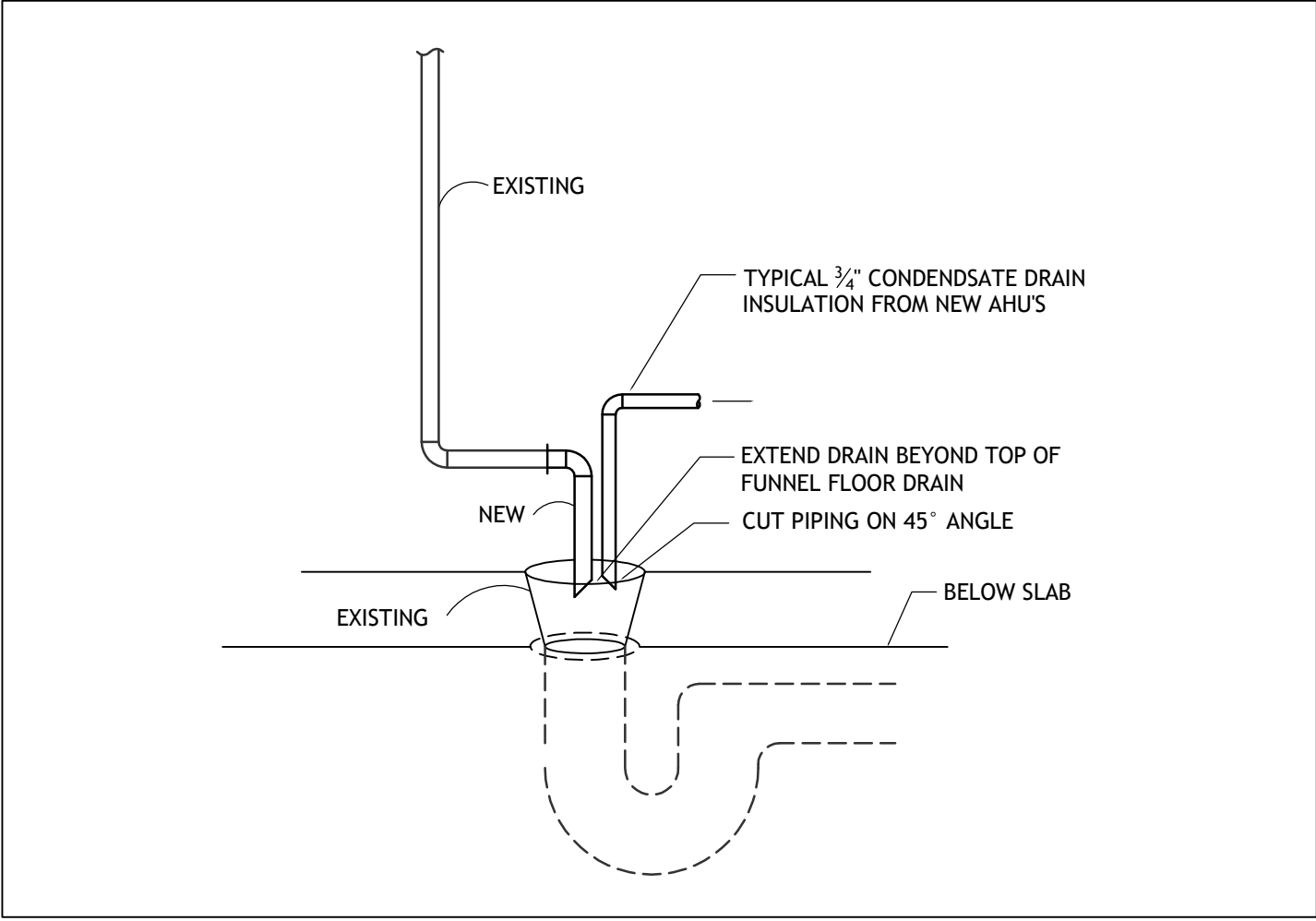
SCALE: N.T.S.



4
M-1.2

TYPICAL VENT DETAIL

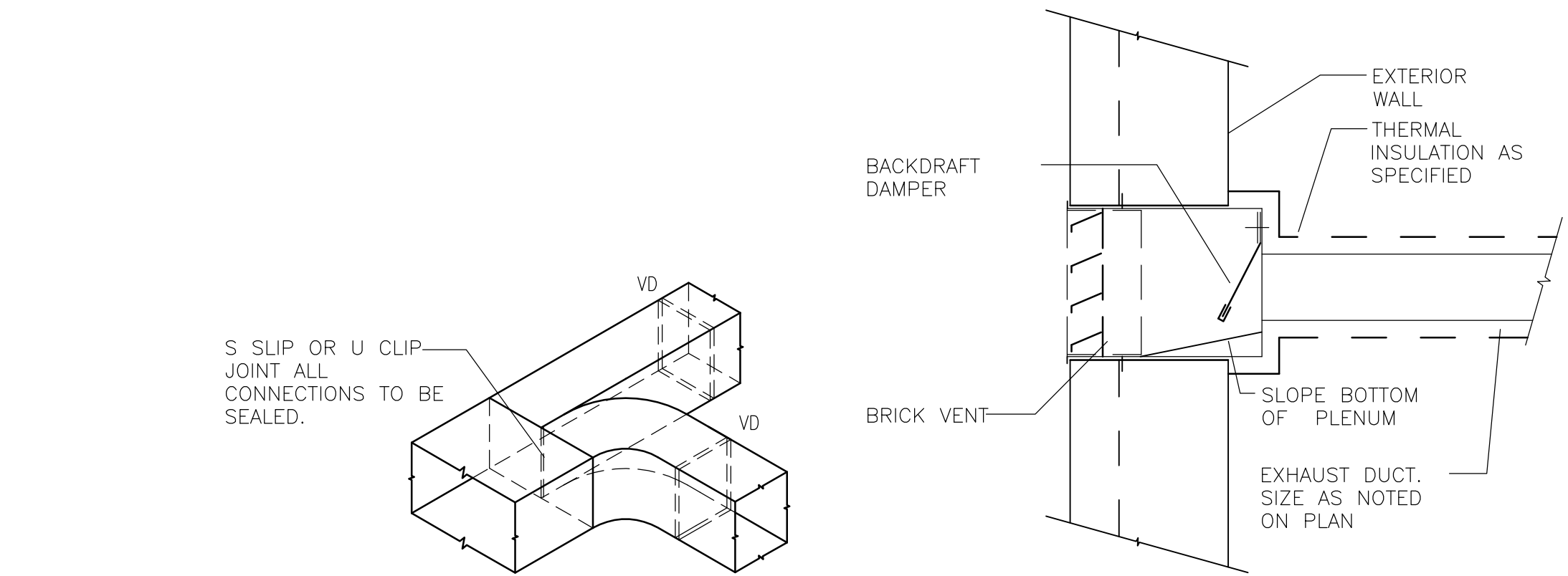
SCALE: N.T.S.



5
M-1.2

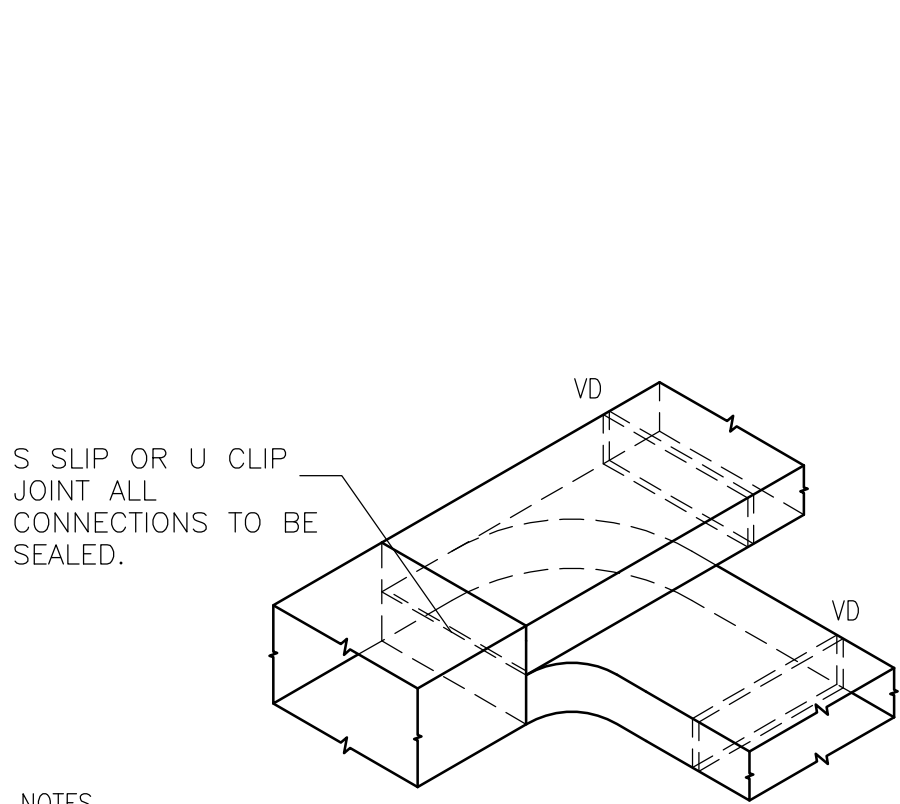
FUNNEL FLOOR DRAIN

SCALE: N.T.S.



DETAILS OF AIR FLOW BRANCHES
N.T.S.

BRICK VENT DETAIL
N.T.S.



NOTES
VOLUME CONTROL SHOULD BE BY BRANCH DAMPERS.
ALL TURNING RADIUS TO CONFORM TO SMACNA DUCT
CONSTRUCTION STANDARDS.

NOTE before commencing work:
The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1. ISSUED FOR PERMIT JUL 30, 2024
No. Issued For: Date



NOTES:
All drawings and specifications is an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.



Project
DAY CARE
PHASE 2
Location
230 THE ESPLANADE
TORONTO ON M5A 4J6
Project No. 24032A
For

Drawing
GENERAL NOTES &
SPECIFICATIONS

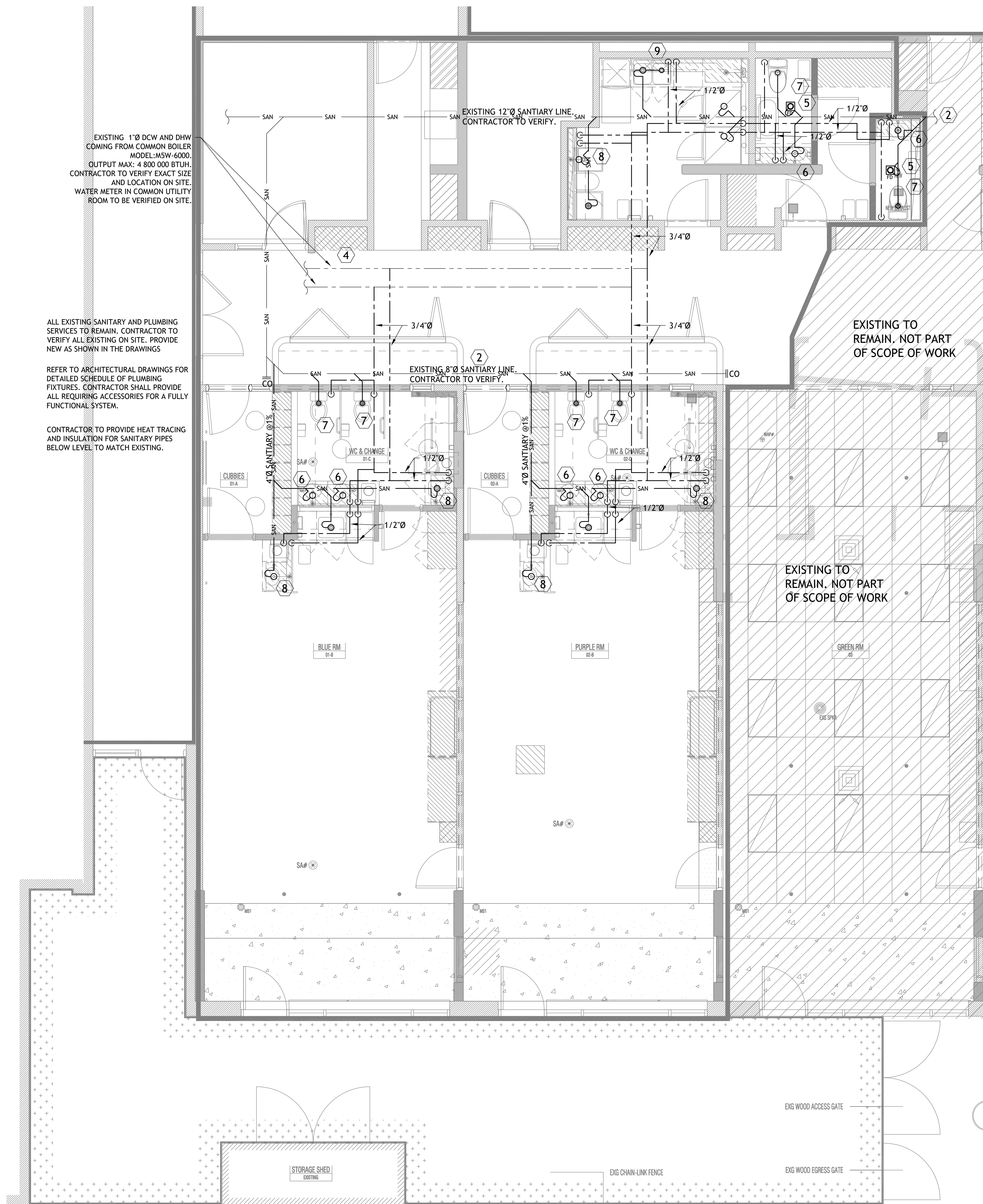
Scale N.T.S. Date JULY 2024

Drawing by HK Drawing No.

Checked by SH

Approved by SH OF

CAD FILE NAME: 24032A-M.DWG



FLOOR PLAN - PLUMBING

1
M-2.1

SCALE: 1/4" = 1'

PLUMBING SCHEDULE

ITEM NO.	EQUIPMENT DESCRIPTION	QTY	PLUMBING			
			HOT	COLD	DRAIN	VENT
1	HAND SINK	5	1/2"	1/2"	1-1/2"	1-1/2"
2	LAVATORY	6	1/2"	1/2"	1-1/2"	1-1/2"
3	WATER CLOSET	6	-	3/4"	3"	1-1/2"
4	KITCHEN SINK	1	1/2"	1/2"	2"	1-1/2"

GENERAL NOTES:

- CONTRACTOR TO CLEAN ALL DEBRIS AND RUBBISH GENERATED FROM THIS WORK.
- CONTRACTOR TO REPAIR ANY DAMAGE CAUSED BY THIS WORK AND MAKE GOOD TO MATCH EXISTING.
- ALL PENETRATIONS THROUGH FIRE RATED DEMISING WALLS AND FLOOR SHALL BE FIRE STOPPED AND SEALED.
- COORDINATE WITH ALL TRADES FOR NEW PLUMBING FIXTURE AND PIPING INSTALLATION.
- PROVIDE X-RAY SCANNING FLOOR BEFORE DRILL HOLES ON FLOOR.
- PROVIDE ALL NEW FIXTURES AS INDICATED.
- PROVIDE ISOLATION VALVE AND FLEXIBLE HOSE CONNECTIONS FOR EACH FIXTURE. SIZE TO MATCH FIXTURE.
- PROVIDE ISOLATION VALVE ON DCW AND DHW BRANCH PIPES, VALVE SIZE TO MATCH PIPE SIZE.
- ALL DCW AND DHW PIPE SHALL BE INSULATED AS PER SPECIFICATION.
- ALL PLUMBING VENT PIPING SHALL BE INSIDE WALLS AND INSTALLED IN ACCORDANCE WITH THE OBC.
- CONTRACTOR SHALL SEAL UNUSED OPENINGS AND REPAIR FLOOR/CEILING TO MATCH EXISTING.

KEYNOTES:

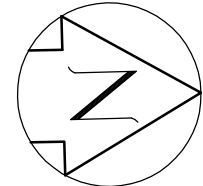
- CONTRACTOR TO PROVIDE VENTING AS REQUIRED BY OBC SECTION 7.5.8.
- CONTRACTOR TO VERIFY THE SIZE AND LOCATION OF THE EXISTING SANITARY STACK ON SITE. PLUMBER TO PROVIDE FLOOR XRAY BEFORE STARTING TO CORE.
- PROVIDE SANITARY LINES AS INDICATED AND CONNECT TO NEAREST SANITARY STACK. A SLOPE MUST BE MAINTAINED AS REQUIRED BY OBC SECTION 7.4.10.8. PROVIDE CLEAN OUTS AS REQUIRED.
- CONTRACTOR TO VERIFY EXISTING WATER METER, SHUT OFF VALVE AND ON DCW MAIN SUPPLY TO THE FACILITY. VERIFY SIZE AND LOCATE EXISTING INCOMING DCW LINE.
- PROVIDE NEW 3" FLOOR DRAIN (WATTS FD-75-C-A) WITH 3" TRAP WITH Z1022-XL PRIMER. CONNECT TO NEAREST SANITARY MAIN LINE.
- 1/2" HOT AND COLD WATER LINES TO SUPPLY EACH LAVATORY, 1 1/2" SANITARY DRAIN DOWN AND CONNECT TO 3" LINE. 1 1/2" SANITARY VENT UP TO CEILING VENT SYSTEM.
- 1/2" COLD WATER SUPPLY TO EACH WATER CLOSET, 3" CLOSET FLANGE DRAIN DOWN AND CONNECT TO DRAIN. 1 1/2" SANITARY VENT, FROM EACH UP TO CEILING VENT SYSTEM.
- 1/2" HOT AND COLD WATER LINES TO SUPPLY EACH HAND SINK, 1 1/2" SANITARY DRAIN DOWN AND CONNECT TO 3" LINE. 1 1/2" SANITARY VENT UP TO CEILING VENT SYSTEM.
- 1/2" COLD WATER SUPPLY TO EACH KITCHEN, 2" SANITARY DRAIN DOWN AND CONNECT TO MAIN SANITARY LINE. 1 1/2" SANITARY VENT, FROM EACH UP TO CEILING VENT SYSTEM.
- 3/4" COLD WATER LINE DOWN TO SERVE HOT WATER HEATER [HWT-1]. 3/4" HOT WATER FROM WATER HEATERS TO SERVE PLUMBING FIXTURES. PRESSURE RELIEF TO FLOOR DRAIN AS PRESCRIBED BY THE MANUFACTURER. SEE M-1.2 FOR DETAILS.

NOTE before commencing work:

The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1.	ISSUED FOR PERMIT	JUL 30, 2024
No.	Issued For:	Date

Orientation



NOTES:

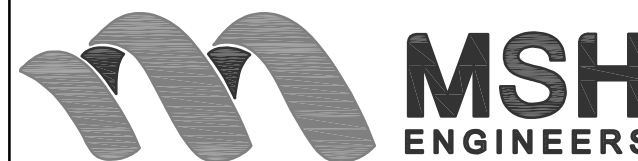
All drawings and specifications are an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.



Project
DAY CARE
PHASE 2
Location
230 THE ESPLANADE
TORONTO ON M5A 4J6
Project No. 24032A

For

Drawing
FLOOR PLAN
PLUMBING

Scale 1/4" = 1"

Date JULY 2024

Drawing by HK

Drawing No.

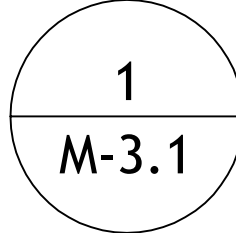
Checked by SH

Approved by SH

OF

CAD FILE NAME: 24032A-M.DWG

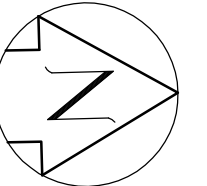
M-2.1



- GENERAL NOTES:**
1. CONTRACTOR TO COORDINATE ALL TRADES TO ENSURE NO INTERFERENCE OF NEW SYSTEMS. (SHEET METAL, PLUMBING, ETC.)
 2. CONTRACTOR TO PROVIDE ROOFTOP UNITS, NEW DUCTWORK, DIFFUSERS, GRILLES, BALANCING DAMPERS, FIRE DAMPERS, THERMOSTATS, CONTROL WIRING, AND ACCESSORIES AS INDICATED AND AS REQUIRED TO HAVE A FULLY FUNCTIONAL SYSTEM.
 3. CONTRACTOR TO VERIFY ALL EXISTING DUCT SIZES AND DUCT ROUTING.
 4. CONTRACTOR TO BALANCE DUCT SYSTEM AS INDICATED.
 5. ALL PENETRATION THROUGH FIRE RATED WALLS MUST BE SEALED AND FIRE STOP AS NECESSARY. PROVIDE FIRE DAMPERS AND ACCESS PANEL IN DUCTWORK FOR ALL DUCTS PENETRATING THROUGH FIRE RATED WALLS.
 6. PROVIDE 24"x12" AIR TRANSFER GRILLS FOR RETURN AIR BACK TO THE SERVING ROOF TOP ON ALL FULL HEIGHT WALLS PRESENT.

NOTE before commencing work:
The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1.	ISSUED FOR PERMIT	JUL 30, 2024
No.	Issued For:	Date



NOTES:

All drawings and specifications is an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.



Project DAY CARE
PHASE 2
Location 230 THE ESPLANADE
TORONTO ON M5A 4J6
Project No. 24032A

Drawing

FLOOR PLAN
HVAC

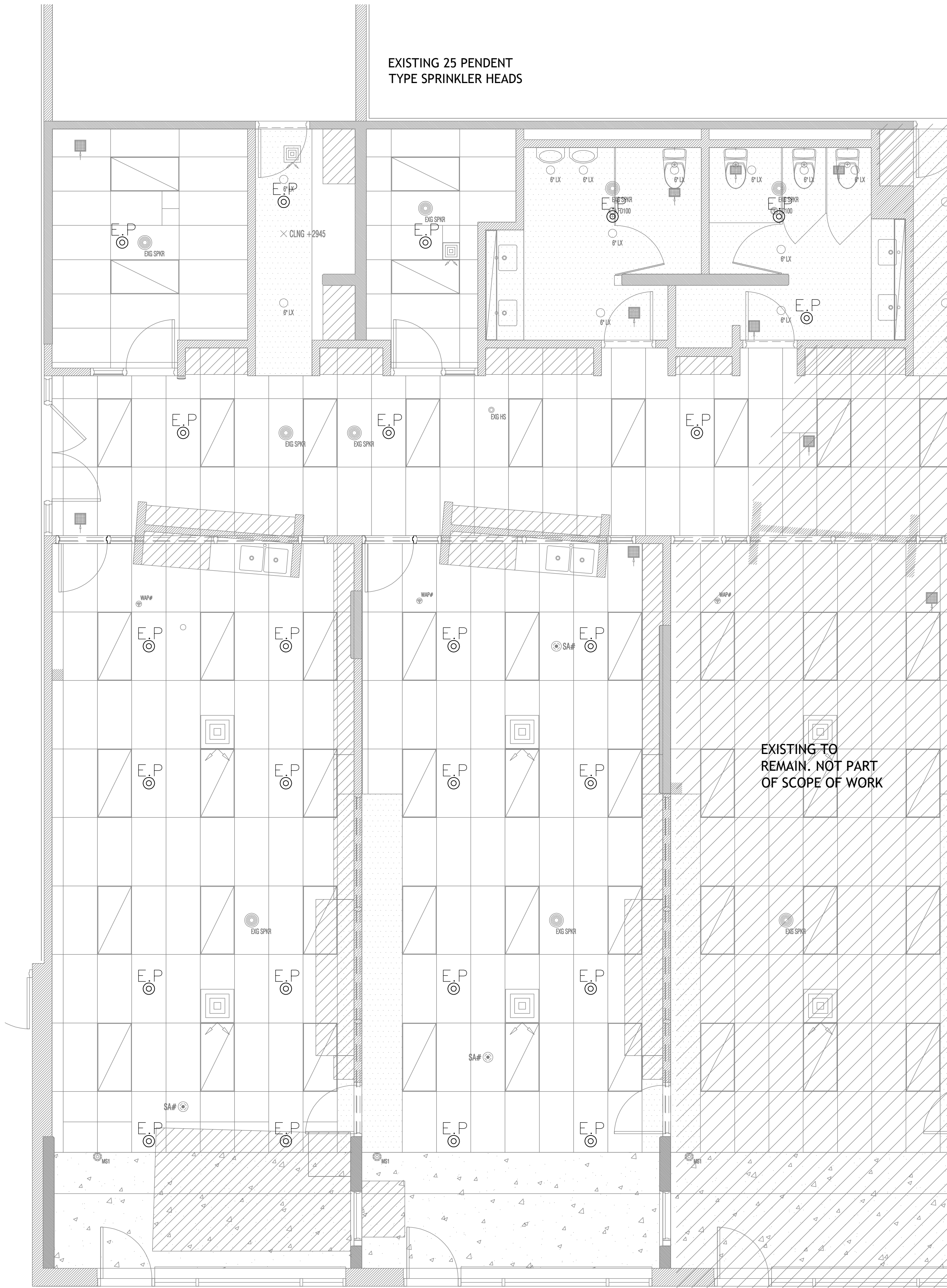
Scale 1/4" = 1"	Date JULY 2024
--------------------	-------------------

Drawing by	Drawing No.
HK	

Checked by	SH	M-31
------------	----	------

Approved by	SH	OF
-------------	----	----

CAD FILE NAME: 24032A-M.DWG



LEGEND	
	PROVIDE NEW PENDANT SPRINKLER HEAD AS SHOWN.
	PROVIDE NEW UPRIGHT SPRINKLER HEAD AS SHOWN.
	RELOCATE EXISTING SPRINKLER HEAD AS SHOWN.
	EXISTING UPRIGHT SPRINKLER HEAD.
	EXISTING PENDANT SPRINKLER HEAD.
	DEMOLISH EXISTING SPRINKLER

GENERAL NOTES:	
1.	CONTRACTOR TO VERIFY EXACT LOCATIONS OF EACH SPRINKLER HEAD. REPORT ANY DISCREPANCY TO ENGINEER.
2.	CONTRACTOR SHALL PROVIDE FIRE WATCH AT ALL TIMES DURING FIRE PROTECTION SYSTEM MODIFICATION AND UNTIL THE SYSTEM IS FULLY OPERATIONAL.
3.	CONTRACTOR TO CARRY BASE BUILDING SPRINKLER CONTRACTOR. ALL SPRINKLER SYSTEM WORK SHALL BE DONE BY BASE BUILDING SPRINKLER CONTRACTOR.
4.	PROVIDE NEW PIPING, SPRINKLER HEADS, AND ACCESSORIES TO BASE BUILDING STANDARDS AS REQUIRED AND INDICATED FOR A COMPLETE AND FUNCTIONAL SYSTEM
5.	CONTRACTOR TO RELOCATE EXISTING SPRINKLER HEADS TO ACCOMMODATE NEW SPRINKLER LAYOUT. LOCATIONS, TYPE AND NUMBER OF EXISTING SPRINKLER HEADS SHALL BE VERIFIED ON SITE.
6.	COORDINATE ALL SPRINKLER SYSTEM WORK WITH FACILITY MANAGEMENT AND OTHER TRADES.
7.	COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT.
8.	COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE ONCE WORK IS COMPLETE.
9.	VERIFY SPRINKLER PIPE SIZES ON SITE AND ADJUST PIPE SIZE CHANGES TO ACCOMMODATE NUMBER OF SPRINKLERS ON BRANCH IN ACCORDANCE WITH NFPA 13, LIGHT OCCUPANCY FOR HYDRAULICALLY DESIGNED SPRINKLER SYSTEMS.
10.	PROVIDE ACCESS PANELS IN DRYWALL CEILINGS WHERE MECHANICAL EQUIPMENT IS LOCATED ABOVE. ACCESS DOORS TO BE SIZE 24X24 IN. PAINTED TO MATCH CEILING FINISH.
11.	CONTRACTOR SHALL APPLY FOR A SPRINKLER PERMIT WITH COMPLETE HYDRUALIC LOAD CALCULATIONS, PIPING DETAILS IF THE NEED ARISES.

NOTE before commencing work: The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.	
1.	ISSUED FOR PERMIT
No.	Issued For: JUL 30, 2024
Orientation	

NOTES:

All drawings and specifications are an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.

Project	DAY CARE PHASE 2
Location	230 THE ESPLANADE TORONTO ON M5A 4J6
Project No.	24032A
For	
Drawing	FLOOR PLAN SPRINKLERS
Scale	1/4" = 1"
Date	JULY 2024
Drawing by	HK
Checked by	SH
Approved by	SH OF
CAD FILE NAME:	24032A-M.DWG

1 FLOOR PLAN - SPRINKLERS (EXISTING)
M-4.1 SCALE: 1/4" = 1'

24" x 36" (ARCH D)



EXISTING 25 PENDENT TYPE SPRINKLER HEADS TO REMAIN. RELOCATE EXISTING AS SHOWN IN THE DRAWINGS

PROPOSED 4 PENDENT TYPE SPRINKLER HEADS.

EXISTING TO REMAIN, NOT PART OF SCOPE OF WORK

LEGEND	
	PROVIDE NEW PENDANT SPRINKLER HEAD AS SHOWN.
	PROVIDE NEW UPRIGHT SPRINKLER HEAD AS SHOWN.
	RELOCATE EXISTING SPRINKLER HEAD AS SHOWN.
	EXISTING UPRIGHT SPRINKLER HEAD.
	EXISTING PENDANT SPRINKLER HEAD.
	DEMOLISH EXISTING SPRINKLER

GENERAL NOTES:	
1.	CONTRACTOR TO VERIFY EXACT LOCATIONS OF EACH SPRINKLER HEAD. REPORT ANY DISCREPANCY TO ENGINEER.
2.	CONTRACTOR SHALL PROVIDE FIRE WATCH AT ALL TIMES DURING FIRE PROTECTION SYSTEM MODIFICATION AND UNTIL THE SYSTEM IS FULLY OPERATIONAL.
3.	CONTRACTOR TO CARRY BASE BUILDING SPRINKLER CONTRACTOR. ALL SPRINKLER SYSTEM WORK SHALL BE DONE BY BASE BUILDING SPRINKLER CONTRACTOR.
4.	PROVIDE NEW PIPING, SPRINKLER HEADS, AND ACCESSORIES TO BASE BUILDING STANDARDS AS REQUIRED AND INDICATED FOR A COMPLETE AND FUNCTIONAL SYSTEM
5.	CONTRACTOR TO RELOCATE EXISTING SPRINKLER HEADS TO ACCOMMODATE NEW SPRINKLER LAYOUT. LOCATIONS, TYPE AND NUMBER OF EXISTING SPRINKLER HEADS SHALL BE VERIFIED ON SITE.
6.	COORDINATE ALL SPRINKLER SYSTEM WORK WITH FACILITY MANAGEMENT AND OTHER TRADES.
7.	COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT.
8.	COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE ONCE WORK IS COMPLETE.
9.	VERIFY SPRINKLER PIPE SIZES ON SITE AND ADJUST PIPE SIZE CHANGES TO ACCOMMODATE NUMBER OF SPRINKLERS ON BRANCH IN ACCORDANCE WITH NFPA 13, LIGHT OCCUPANCY FOR HYDRAULICALLY DESIGNED SPRINKLER SYSTEMS.
10.	PROVIDE ACCESS PANELS IN DRYWALL CEILINGS WHERE MECHANICAL EQUIPMENT IS LOCATED ABOVE. ACCESS DOORS TO BE SIZE 24X24 IN. PAINTED TO MATCH CEILING FINISH.
11.	CONTRACTOR SHALL APPLY FOR A SPRINKLER PERMIT WITH COMPLETE HYDRUALIC LOAD CALCULATIONS, PIPING DETAILS IF THE NEED ARISES.

NOTE before commencing work:
The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1.	ISSUED FOR PERMIT	JUL 30, 2024
No.	Issued For:	Date



NOTES:
All drawings and specifications is an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.
Do not scale drawings, dimensions to take precedent over scale.
Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.
The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.
All work to conform to all governing codes and By-laws.



Project	DAY CARE PHASE 2
Location	230 THE ESPLANADE TORONTO ON M5A 4J6
Project No.	24032A
For	
Drawing	FLOOR PLAN SPRINKLERS PROPOSED
Scale	1/4" = 1'
Date	JULY 2024
Drawing by	HK
Checked by	SH
Approved by	SH OF
CAD FILE NAME:	24032A-M.DWG

M-4.2

FLOOR PLAN - SPRINKLERS (PROPOSED)

SCALE: 1/4" = 1'

1
M-4.2

- STANDARDS, U.L.C., N.F.P.A., AND OTHER CODES, AS REQUIRED. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION'S BUILDING STANDARDS AND LANDLORD'S REQUIREMENTS.
- THE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR PROVIDE COMPLETE AND OPERATIONAL SYSTEMS AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE. THE CONTRACTOR SHALL MAINTAIN THE BUILDING IN A CLEAN AND SAFE CONDITION AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.

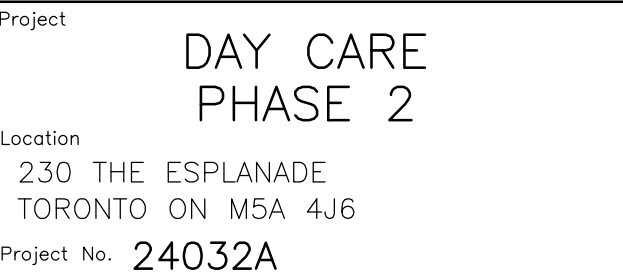
- EQUIPMENT. OBTAIN THE LANDLORD'S PERMISSION FOR THE USE OF ELECTRICAL, ELEVATOR, PLUMBING OR
 OPER DISPOSAL OF DEBRIS GENERATED BY DAILY OPERATIONS. ON COMPLETION OF THE WORK, ALL TOOLS,
 MATERIALS SHALL BE REMOVED AND THE PREMISES LEFT IN A CLEAN AND PERFECT CONDITION.

- NG 100MM (4") SIZE, AS EMT THIN WALL WITH STEEL SET
 CONNECTION TO MOTORS AND TRANSFORMERS.
 LOM, PARALLEL AND PERPENDICULAR TO BUILDING LINES. DO
 NGERS.
 WITH NYLON FISH WIRE.
 LL BE INSTALLED COMPLETE WITH PLASTIC BUSHINGS AT
 EMT, MIN 20MM(3/4").
 SHALL BE INSTALLED BETWEEN ANY TWO ADJACENT PULL
 OXPLE WIRING ONLY
 INCLUDE DEDICATED INSULATED GROUND WIRE.

[illegible]

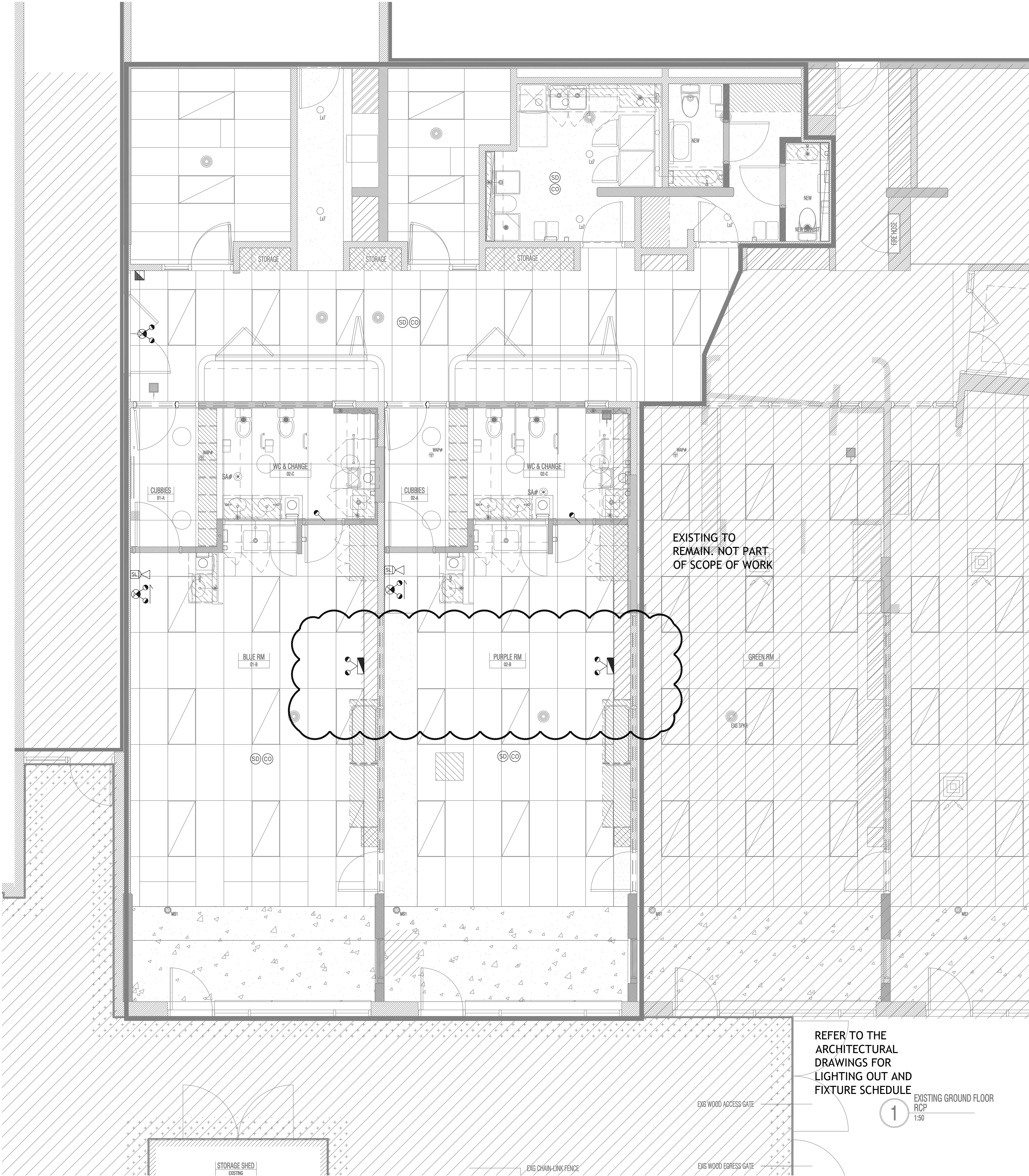
Do not scale drawings, dimensions to take precedent over scale.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.



Scale	N.T.S	Date	JULY 2024
-------	-------	------	-----------

Checked by	SH
Approved by	



LEGEND		
	4"Ø FIRE ALARM BELL	ELECTRONIC MINIHORN
	FIRE ALARM PULL STATION	
	HEAT DETECTOR	
	DUCT MOUNTED SMOKE DETECTOR	
	SMOKE DETECTOR	
	CARBON MONOXIDE DETECTOR	
	FIRE ALARM COMBINATION MINIHORN AND STROBE LIGHT	
	SINGLE POLE TOGGLE SWITCH WITH ONE, TWO OR THREE GANG COVERPLATE	
	SWITCHES AS ABOVE, NUMBER DENOTES 2, 3, OR 4 WAY.	
	DIMMER SWITCH	MASTER SWITCH

LIGHTING SCHEDULE			
Symbol	Label	Catalog Number	Description
	'Ex1'	'LUMACELL' RG12S200-2MQ12W	200W EMERGENCY BATTERY UNIT AND 2x12W MICRO-HALOGEN HEADS.
	'Ex2'	'LUMACELL' LSC28-W-2-MQ12	COMBINATION EXIT AND EMERGENCY LIGHTING UNIT
	'Ex3'	'LUMACELL' LS-3-W-U	EXIT SIGN
	'Ex4'	'LUMACELL' MQ-2-12V12W	EMERGENCY LIGHTING REMOTE TWIN HEAD
	'Ex5'	'LUMACELL' MQ-1-12V12W	EMERGENCY LIGHTING REMOTE SINGLE HEAD
	'A'	'LITHONIA' 2GT8	GT8 GENERAL PURPOSE T8 TROFFER 4'x2' LENS 1/3 ELEC. GEB10IS CSA
	'B'	'LITHONIA' 2GT8	GT8 GENERAL PURPOSE T8 TROFFER 2'x2' A12 LENS 1/3 ELEC. GEB10IS CSA
	'C'	6" POT LIGHT	COMMERCIAL POT LIGHT CSA APPROVED
	'D'	'LITHONIA' L-2-32-120-GEB10IS-CSA	4' 2LP T8 SPEC REFL ELEC TWO 32-WATT, T8 LINEAR FLUORESCENT. SURFACE MOUNTED

NOTE before commencing work:
The contractor shall check and verify location of all pipes, ducts, diffusers, light fixtures and equipment and coordinate with other trades on site to prevent interference. The contractor is responsible for any changes to the drawings without the written approval of MSH Engineers.

1. ISSUED FOR PERMIT
No. Issued For: JUL 30, 2024
Date

Orientation

NOTES:

All drawings and specifications are an instrument of service and remain the exclusive property of MSH Engineers, and are protected under the Copyright Act. They may not be reproduced, distributed, altered or submitted for approvals without written permission of the Designer.

Do not scale drawings, dimensions to take precedent over scale.

Contractor to check and verify all levels and dimensions on drawings and on site and report any discrepancies to MSH Engineers, and obtain clarification prior to commencing with the work.

The contractor accepts all responsibility for working with drawings, not marked "Issued for Construction" and for any changes to the drawings without the express approval of MSH Engineers.

All work to conform to all governing codes and By-laws.

Project
DAY CARE
PHASE 2

Location
230 THE ESPLANADE
TORONTO ON M5A 4J6

Project No. 24032A

For

Drawing
FLOOR PLAN
LIFE SAFETY SYSTEMS
& FIRE ALARM

Scale 1/4" = 1'-0"

Date
JULY 2024

Drawing by
HK

Checked by
SH

Approved by
SH OF

Drawing No.
E-2

CAD FILE NAME: 24032A-M.DWG

24" x 36" (ARCH D)

1
E-2

FLOOR PLAN - LIFE SAFETY SYSTEM

SCALE: 1/4" = 1'