LEGEND – PLUMBING

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
——— – ———	DOMESTIC COLD WATER PIPING
——— – – ———	DOMESTIC HOT WATER PIPING
——— – – – ———	DOMESTIC HOT WATER RECIRC. PIPING
– – – -V– – – –	VENT PIPING
———————	SANITARY PIPING ABOVE FLOOR
— — — —	SANITARY PIPING BELOW GRADE OR FLOOR
\\\\\\\\\\\\\\\\	PIPING TO BE REMOVED
∿∿∿∿∿∿	HEAT TRACED PIPING
—E——‖—	CONNECTION OF NEW AND EXISTING PIPING
———]	CAPPED PIPE
⊘ FD	FLOOR DRAIN
◐ FFD	FUNNEL FLOOR DRAIN
◎ HD	HUB DRAIN
⊙ RD	ROOF DRAIN
⊙ RD	ROOF DRAIN ABOVE
——☐ CO	CLEANOUT IN FLOOR
——‖ CO	CLEANOUT IN LINE OR STACK
Ⓜ	WATER METER
——⋈——	ISOLATION VALVE
——⋈——	CIRCUIT BALANCING VALVE
——N——	CHECK VALVE
——⊣——	STRAINER
—NN RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
⋈	3-WAY VALVE
$	TEMPERATURE & PRESSURE RELIEF VALVE
CTE	CONNECT TO EXISTING
——‖——	UNION
PG	PRESSURE GAUGE
T	THERMOMETER
▶	PUMP
——○	PIPE DOWN
——○	PIPE UP
——●	PIPE UP & DOWN
——○——	PIPE TEE
E	DENOTES EXISTING
——E——	EXISTING PIPING
⊗ FEX	FIRE EXTINGUISHER – SURFACE MOUNTED

LEGEND – HVAC

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
—E(NAME)—	EXISTING PIPING TO REMAIN
☒	POSITIVE PRESSURE (SUPPLY) DUCT UP
◐	POSITIVE PRESSURE (SUPPLY) DUCT UP
◩	NEGATIVE PRESSURE (RETURN) DUCT UP
☒	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
○	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
⧄	NEGATIVE PRESSURE (RETURN) DUCT DOWN
⊏ — ⊐	EXISTING DUCTWORK TO BE REMOVED
⊏——⊐	EXISTING DUCTWORK TO REMAIN
⊏——⊐	NEW DUCTWORK
⊠	SUPPLY AIR DIFFUSER (SQUARE)
◎	SUPPLY AIR DIFFUSER (ROUND)
⊏——⊐	SIDEWALL GRILLE
⧄	RETURN/EXHAUST GRILLE
⊏——⊐	FULL RADIUS DUCT CONNECTION
⊏——⊐	TAP-IN DUCT CONNECTION
——○	ROUND DUCT CONNECTION
⊏⊐	TURNING VANES
FD	FIRE DAMPER
EXFD	EXISTING FIRE DAMPER
MD	MOTORIZED DAMPER
EXMD	EXISTING MOTORIZED DAMPER
AD	ACCESS DOOR
BD	BALANCING DAMPER
OBBD	OPPOSED BLADE BALANCING DAMPER
OED	OPEN ENDED DUCT
Ⓣ	THERMOSTAT
CAP ⊓	CAP

MECHANICAL DRAWING LIST

M1.0	LEGENDS, GENERAL NOTES, EQUIPMENT SCHEDULE
M2.0	DEMOLITION PLUMBING AND DRAINAGE LAYOUT
M3.0	PROPOSED PLUMBING AND DRAINAGE LAYOUT
M4.0	DEMOLITION AND PROPOSED HVAC LAYOUT–GROUND FLOOR
M4.1	DEMOLITION AND PROPOSED HVAC LAYOUT–SECOND FLOOR
M5.0	DEMOLITION AND PROPOSED SPRINKLER LAYOUT
M6.0	MECHANICAL SPECIFICATIONS–1
M6.1	MECHANICAL SPECIFICATIONS–2

GENERAL NOTES

REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR COORDINATION OF GRILLES, DIFFUSERS AND OTHER ELEMENTS.

IN ALL INSTANCES THE NEED FOR ACCESS DOORS IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.

EXISTING ITEMS TO BE REMOVED REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO A LOCATION ON SITE DESIGNATED BY THE OWNER. IF THE OWNER DECLARES NO INTEREST IN THE REMOVED ITEMS, ASSUME OWNERSHIP AND REMOVE THE ITEMS FROM THE SITE.

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR PHASING AND STAGING.

PLUMBING NOTES

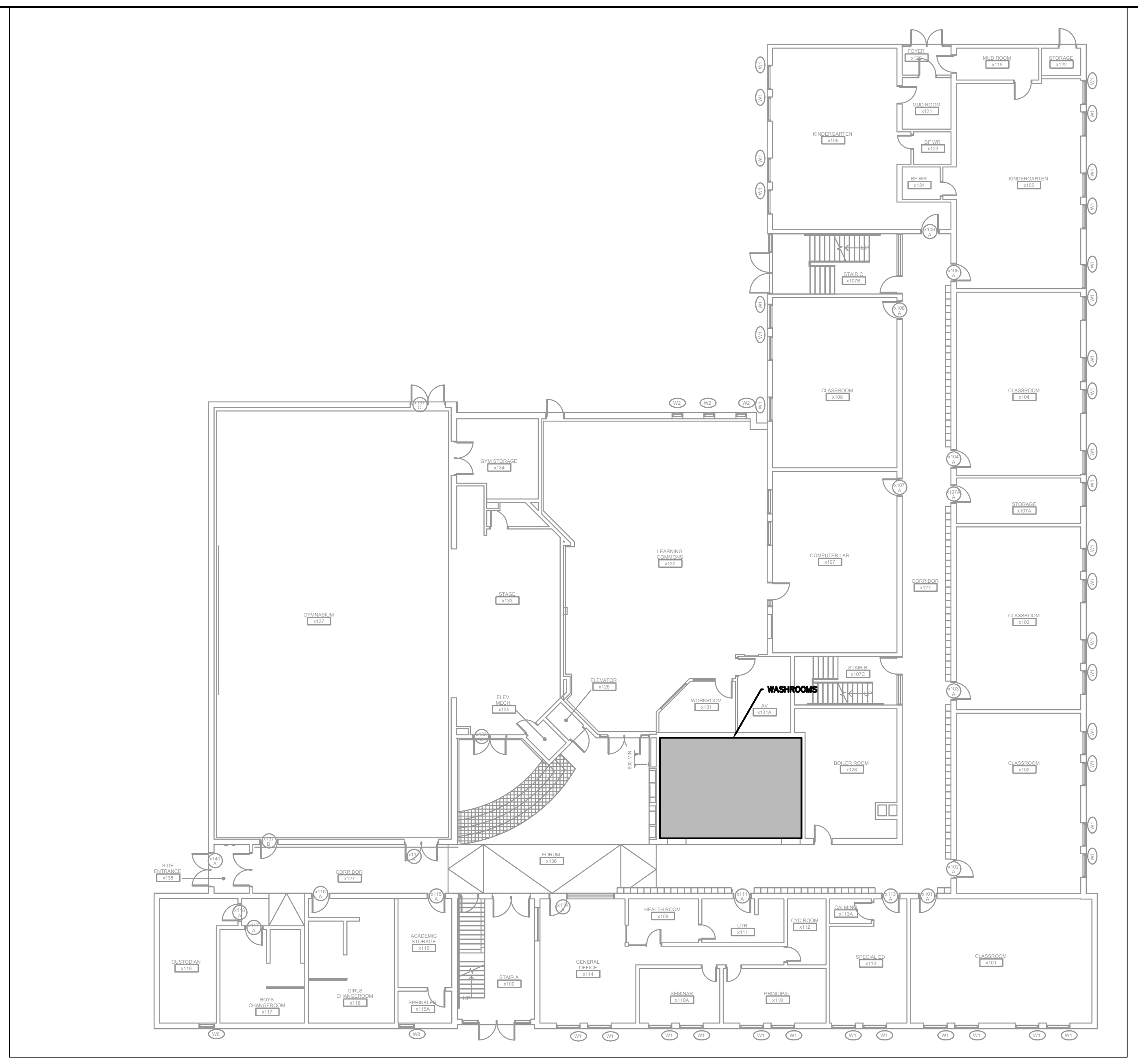
1. CONTRACTOR IS TO VERIFY CONNECTION POINTS TO SERVICES WITH OTHER TRADES ON SITE.
2. CONTRACTOR IS TO CLEAR DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
3. PROVIDE A CLEANOUT AT THE BOTTOM OF EVERY SOIL AND WASTE STACK THAT CONNECTS TO A HORIZONTAL DRAINAGE PIPE.
4. PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY BUILDING CODE, PART 7 – PLUMBING.
5. CHECK AND VERIFY LOCATION OF ALL PIPES, DUCTS AND EQUIPMENT WITH ALL OTHER TRADES TO PREVENT INTERFERENCE. REMOVAL OR RELOCATION OF ANY SUCH WORK INTERFERING WITH WORK OF OTHER TRADES IS THE RESPONSIBILITY OF THE MECHANICAL TRADE CONCERNED UNLESS OTHERWISE APPROVED IN WRITING.
6. ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS, TRENCH DRAINS) TO BE TRAPPED AND VENTED AS REQUIRED BY BUILDING CODE, PART 7 – PLUMBING.
7. FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL DRAWINGS.
8. PROVIDE ACCESS DOOR FOR ALL VALVES LOCATED ABOVE DRY WALL CEILING.
9. PROVIDE ACCESS DOOR FOR ALL CLEANOUTS LOCATED ABOVE DRY WALL CEILING.
10. IN ALL INSTANCES THE NEED FOR ACCESS DOOR IN GWB CEILINGS
11. SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.

    ALL DISTURBED SERVICES AFTER PIPE REMOVAL OR REROUTING TO BE FILLED–IN WITH APPROPRIATE MATERIAL TO MAINTAIN FIRE SEPARATION AND PATCHED TO MATCH EXISTING OR NEW FINISHES.
12. CONTRACTOR IS TO REMOVE ALL OBSOLETE PIPING WHEREVER POSSIBLE.
13. CONTRACTOR IS TO ENSURE THAT ALL EXISTING PIPING SERVING EXISTING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE PIPING IS TO BE REMOVED AS SHOWN.
14. BEFORE CUTTING ANY HOLES THROUGH THE EXISTING SLAB REFER TO EXISTING STRUCTURAL DRAWINGS FOR GENERAL REQUIREMENTS.
15. AFTER PIPE REMOVAL ALL EXISTING OPENINGS IN FIRE SEPARATION ARE TO BE FILLED–IN TO MAINTAIN INTEGRITY OF THAT FIRE SEPARATION.
16. RECONNECT VENTS FROM EXISTING EQUIPMENT AND PLUMBING FIXTURES WHICH ARE TO REMAIN TO NEW VENTS AS REQUIRED.
17. PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.
18. ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE. DO NOT INSTALL WATER LINES IN OUTSIDE WALL WHERE THEY MAY FREEZE, UNLESS BOTH THE WALL AND THE PIPES ARE PROPERLY INSULATED.
19. INSTALL SHUT–OFF VALVES AT EACH PLUMBING FIXTURE AND EACH EQUIPMENT CONNECTION.
20. REFER TO ARCHITECTURAL FOR OWNER SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.

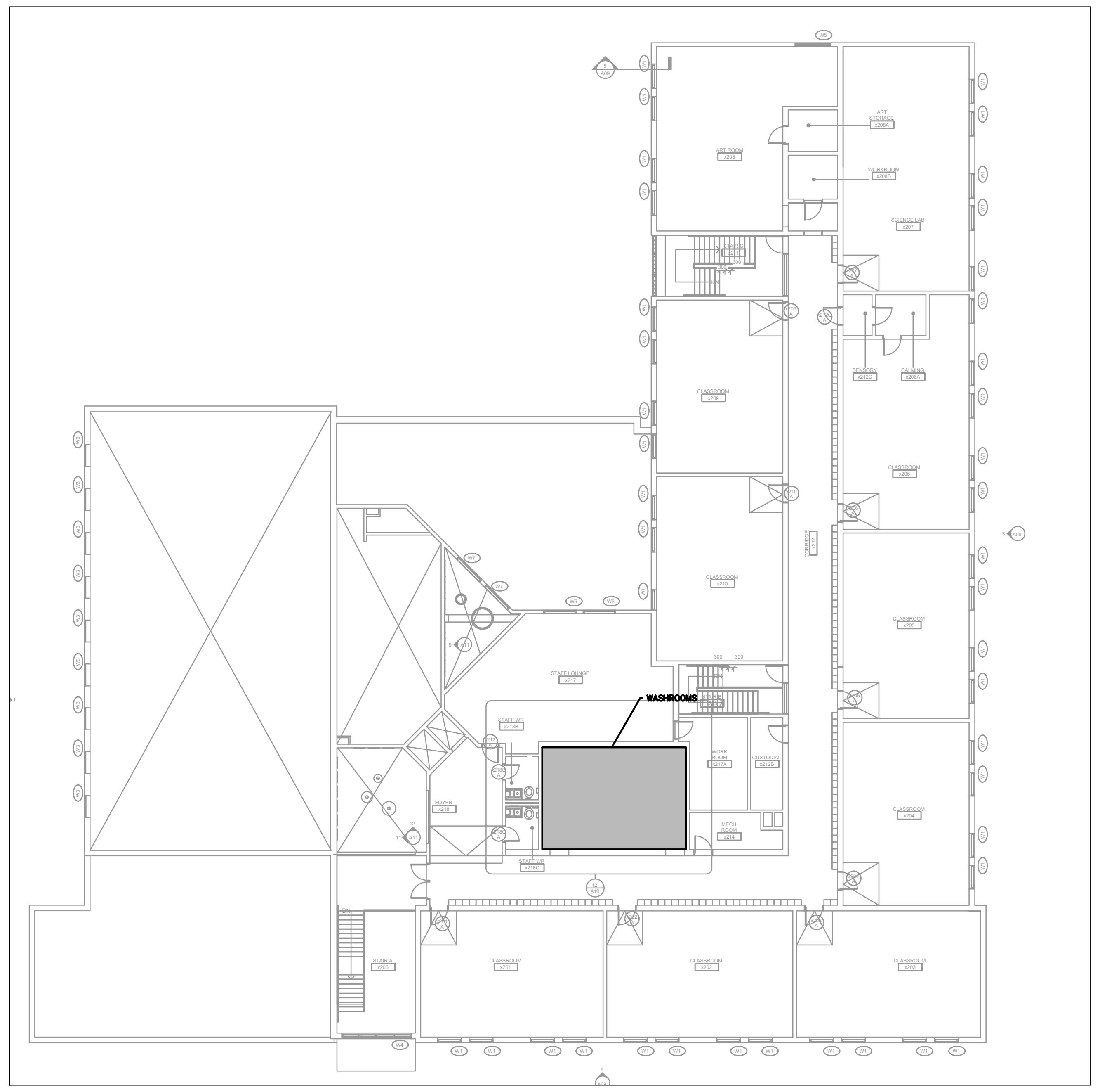
RETURN/ EXHAUST GRILLE SCHEDULE

SYMBOL	SIZE MM x MM (IN. x IN.)	APPLICATION	NECK SIZE MMØ (INSØ)	AIRFLOW RANGE CFM	NC RANGE	MANUFACTURER AND MODEL (BASIS OF DESIGN: E.H. PRICE)
R–1 CFM E–1 CFM	300x300 (12x12)	CEILING GRILLE	–	<450	<30	80D
R–2 CFM E–2 CFM	600x300 (24x12)	CEILING GRILLE	–	<800	<30	80D
R–3 CFM E–3 CFM	600x600 (24x24)	CEILING GRILLE	–	<2000	<30	80D
R–4 CFM	500x500 (20x20)	CEILING GRILLE	–	<1500	<30	80D
R–5 CFM	750x350 (30x14)	WALL GRILLE	–	<835	<30	530D
R–6 CFM	750x250 (30x10)	DUCT GRILLE	–	<540	<30	530D

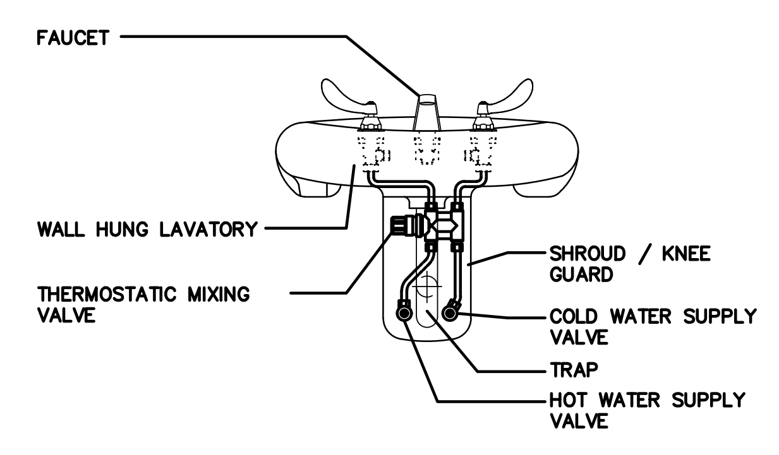
NOTE(S): 1. ACCEPTABLE ALTERNATES SUBJECT TO SHOP DRAWING REVIEW: TITUS, METALAIRE, KRUEGER.



1 M1.0 KEY PLAN - GROUND FLOOR
1:275



2 M1.0 KEY PLAN - SECOND FLOOR
1:275



TITLE:
DETAILS OF UNDER LAVATORY THERMOSTATIC MIXING VALVE

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	FIXTURN NAME	SANITARY		VENT		DCWS		DHWS		TEMPERED		REMARKS
		MM	INS	MM	INS	MM	INS	MM	INS	MM	INS	
WC1	GENERAL WALL MOUNTED FLUSH VALVE WATER CLOSET	100	4	75	3	30	1.25	–	–	–	–	AMERICAN STANDARD MADERA 2234 001,(KOHLER WELCOMME K–4350, MANSFIELD BALTIC 1311NS, ZURN Z5655–BWL), VITREOUS CHINA, SIPHON JET, ELONGATED RIM, TOP SPUD FOR FLUSH VALVE, BOLT CAP, BOTTOM OUTLET, FLOOR MOUNTED, 10" OR 12" ROUGH IN, MIN 2" TRAP WAY, MAX 6 LIT PER FLUSH TRIM: DELTA 81T201–5 (ZURN Z6000AV–WS1, SLOAN 111–1.6), EXPOSED POLISHED CHROME, EXTERNALLY ADJUSTABLE, DIAPHGRAM TYPE FLUSH VALVE WITH 1" SCREWDRIVER ANGLE STOP, OSCILATING HANDLE FLUSH CONNECTION AND COUPLING FOR 40 MM, TOP SPUD, WALL AND SPUD ESCUTCHEONS,SEAT BUMPER AND VACCUM BREAKER, FLUSH CYCLE SET FOR 6 LIT PER FLUSH,SEAT CENTOCO AM500STSCCSS
WC2	BARRIER FREE WALL MOUNTED FLUSH VALVE WATER CLOSET	100	4	75	3	30	1.25	–	–	–	–	AMERICAN STANDARD MADERA 2234 001,(KOHLER WELCOMME K–4350, MANSFIELD BALTIC 1311NS, ZURN Z5655–BWL), VITREOUS CHINA, SIPHON JET, ELONGATED RIM, TOP SPUD FOR FLUSH VALVE, BOLT CAP, BOTTOM OUTLET, FLOOR MOUNTED, 10" OR 12" ROUGH IN, MIN 2" TRAP WAY, MAX 6 LIT PER FLUSH TRIM: DELTA 81T201–5 (ZURN Z6000AV–WS1, SLOAN 111–1.6), EXPOSED POLISHED CHROME, EXTERNALLY ADJUSTABLE, DIAPHGRAM TYPE FLUSH VALVE WITH 1" SCREWDRIVER ANGLE STOP, OSCILATING HANDLE FLUSH CONNECTION AND COUPLING FOR 40 MM, TOP SPUD, WALL AND SPUD ESCUTCHEONS,SEAT BUMPER AND VACCUM BREAKER, FLUSH CYCLE SET FOR 6 LIT PER FLUSH,SEAT CENTOCO AM500STSCCSS, C/W BACKREST
WF1	BARRIER FREE WASH FOUNTAIN	50	2	32	1.25	13	0.50	13	0.50	13	0.5	WALL MOUNTED WASH FOUNTAIN C/W CONCEALED FLOOR MOUNTED WALL CARRIER (3 USER), BRADLEY MG–3 WALL MOUNTED TERREON BOWL GROUP LAVATORY SYSTEM, COMPLETE WITH STAINLESS STEEL PANEL, SUITABLE FOR THREE (3) USERS. COLOUR: COLOUR BY ARCHITECT. ALLOW FOR TWO(2) PREMIUM CLOURS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS, TRIM: ADAPTIVE INFRA–RED CONTROLLED, MOLDED SPRAYHEAD, STOP VALVES, TRANSFORMER, HORIZONTAL SWING CHECK VALVES, THERMOSTATIC MIXING VALVE PRESET AT 40°C. PROVIDE CONTROL TO LIMIT FLOW TO 2L/MINUTE. SUITABLE FOR 120/1/60.
L1	BARRIER FREE LAVATORY	50	2	32	1.25	13	0.50	13	0.50	13	0.5	B.F. WALL MOUNTED LAV C/W CONCEALED FLOOR MOUNTED WALL CARRIER, MANUFACTURER AMERICAN STANDARD MURRO (KOHLER, ZURN): VITREOUS CHINA, LOW SHELF, WITH INTEGRAL BACK, CONTOURED FRONT, SHALLOW FRONT BASIN, FRONT OVERFLOW, SOAP DEPRESSIONS, SUPPLY OPENINGS ON 102mm (4") CENTRES, CONCEALED SUPPORTS, TRIM:DELTA 591T0230 (MOEN COMMERCIAL 8301–AC ZURN Z6915–HW6–XL), HARDWIRED ELECTRONIC FAUCET. CAST BRASS ONE PIECE BODY WITH INTEGRAL WATER PROOF INFRA–RED SENSOR AND CONNECTOR. ADJUSTABLE SENSING RANGE 76mm TO 381mm (3" TO 15") AND TIME OUT 15 TO 75 SECONDS CHROME FINISH. VANDAL RESISTANT AERATOR HAVING INTEGRAL FLOW CONTROL FOR 1.5gpm (5.7 L/MIN) @ 413 KPA (60 PSI) MAX. UNDER COUNTER STAINLESS STEEL RECESSED HOUSING SURFACE MOUNTED HOUSING FOR SOLENOID AND CONTROLLER. SENSOR ACTIVATES IN PRESENCE OF PERSON'S HANDS IN LAVATORY. C/W PLUG–IN TRANSFORMER, INSULATION: MCGUIRE PROWRAP (PWV8902 TRUEBRO LAV GUARD) INSULATION: INSULATE WASTE AND SUPPLIES WITH UL LISTED PREFORMED INSULATION SYSTEM COMPLETE WITH SEAMLESS JACKET. WASTE FITTING: NPS 32 MM (1¼") OFFSET WASTE WITH OPEN GRID STRAINER.PROVIDE FLOOR MOUNTED WALL CARRIER, THERMOSTATIC MIXING VALVE UNDER LAV. DELTA R3070–MIXLF, POWERS LM490 OR EQUAL
FD	FLOOR DRAIN	50	2	50	2	–	–	–	–	–	–	REFER TO SPECIFICATIONS
TSP	TRAP SEAL PRIMER	–	–	–	–	10/13	0.38/0.50	–	–	–	–	ONE – 10MM/0.38" PER FD, FFD, HD, PD

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ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :
ASCENSION CES RENOVATION PROJECT

5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

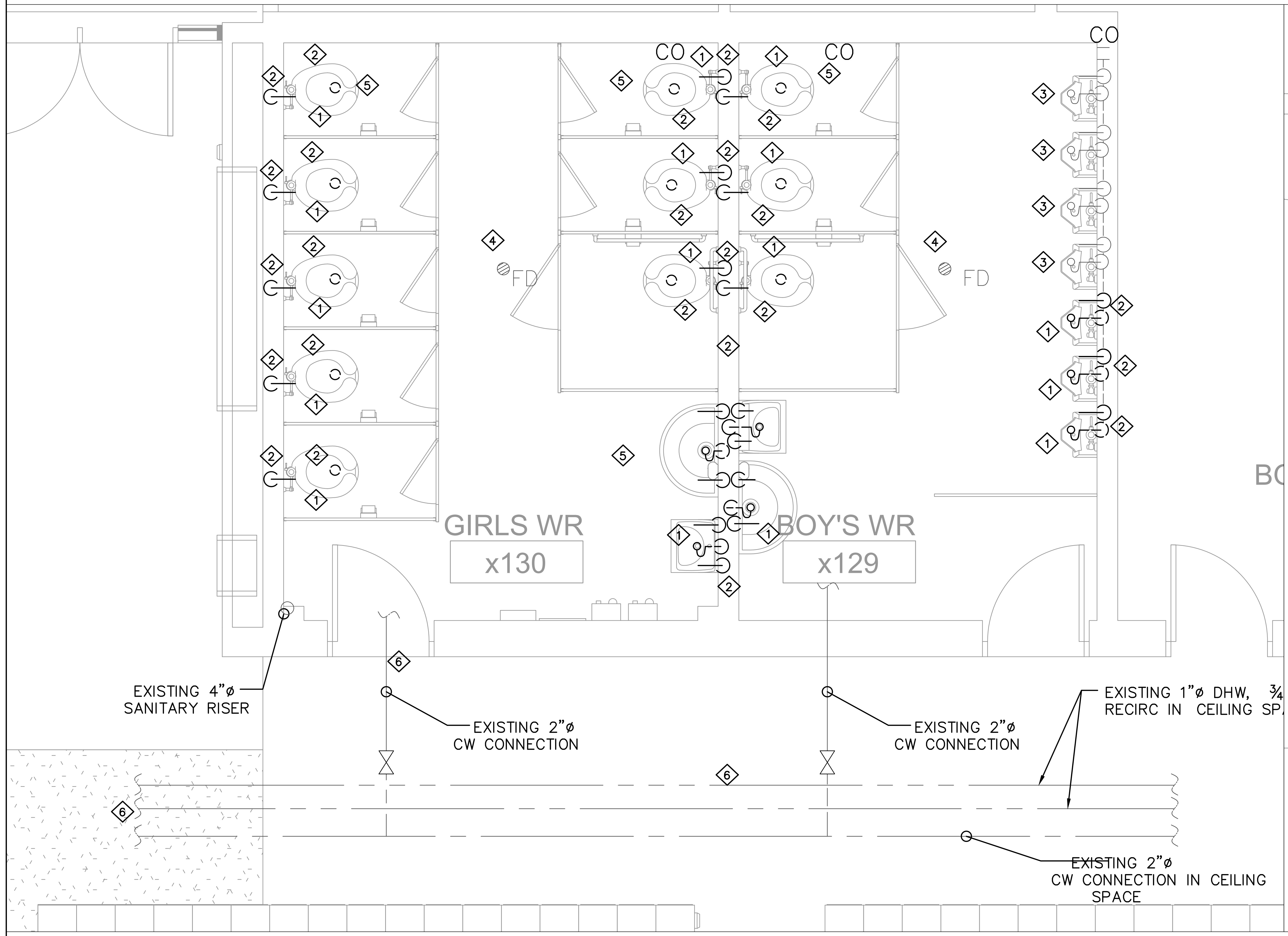
PROFESSIONAL SEAL :
M.K. AHMED
100069234
13/03/2025

DWG TITLE :
LEGENDS, GENERAL NOTES, EQUIPMENT SCHEDULE

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

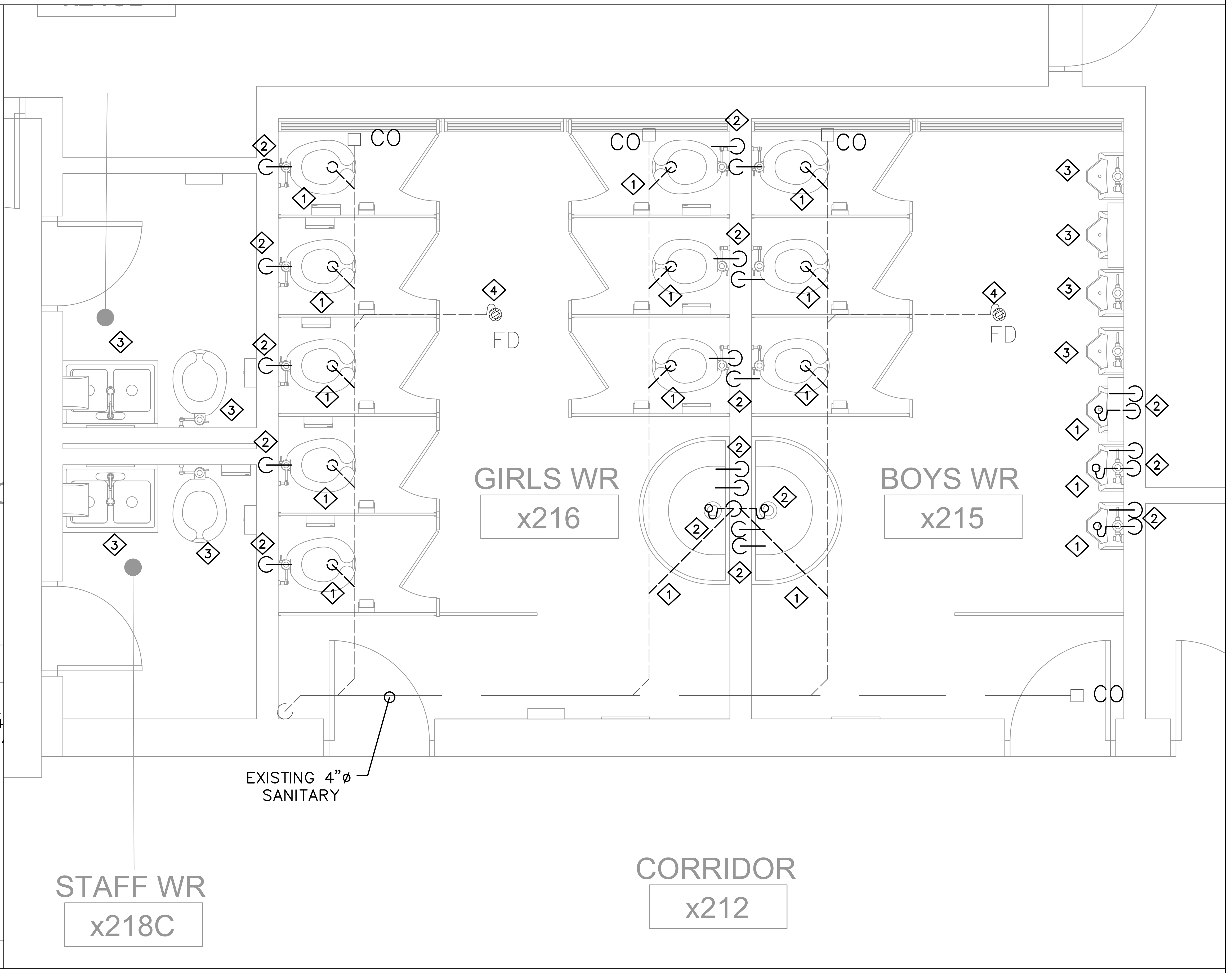
DATE : FEBRUARY 2025
SCALE : NTS
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M1.0
REVISION

March 13, 2025 4:17:35 PM



1 / M2.0 DEMOLITION PLUMBING AND DRAINAGE PLAN-GROUND FLOOR

SCALE 1:30



2 / M2.0 DEMOLITION PLUMBING AND DRAINAGE PLAN SECOND FLOOR

SCALE 1:30

DRAWING NOTES

◇1	DISCONNECT AND REMOVE THE EXISTING PLUMBING FIXTURES AS SHOWN.
◇2	CAP THE EXISTING SANITARY PIPING FOR THE FIXTURES WHICH ARE GETTING REMOVED. CAP THE EXISTING COLD WATER AND HOT WATER PIPING FOR THE FIXTURES GETTING REMOVED.
◇3	EXISTING FIXTURES TO REMAIN. EXISTING COLD WATER PIPING AND SANITARY PIPING TO REMAIN.
◇4	EXISTING FLOOR DRAINS TO REMAIN.
◇5	CONTRACTOR TO SCAN THE FLOOR TO VERIFY THE EXACT LOCATION OF THE SANITARY DRAIN PIPE AT SITE BEFORE PROCEEDING WITH THE WORK.
◇6	CONTRACTOR TO VERIFY THE EXACT LOCATION OF THE DCW, DHW AND RECIRC PIPING BEFORE PROCEEDING THE WORK.

DRAWING NOTES

◇1	DISCONNECT AND REMOVE THE EXISTING PLUMBING FIXTURES AS SHOWN.
◇2	CAP THE EXISTING SANITARY PIPING FOR THE FIXTURES WHICH ARE GETTING REMOVED. CAP THE EXISTING COLD WATER AND HOT WATER PIPING FOR THE FIXTURES GETTING REMOVED.
◇3	EXISTING FIXTURES TO REMAIN. EXISTING COLD WATER PIPING AND SANITARY PIPING TO REMAIN.
◇4	EXISTING FLOOR DRAINS TO REMAIN.
◇5	CONTRACTOR TO SCAN THE FLOOR TO VERIFY THE EXACT LOCATION OF THE SANITARY DRAIN PIPE AT SITE BEFORE PROCEEDING WITH THE WORK.
◇6	CONTRACTOR TO VERIFY THE EXACT LOCATION OF THE DCW, DHW AND RECIRC PIPING BEFORE PROCEEDING THE WORK.

March 13, 2025 4:17:37 PM

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :

ASCENSION CES RENOVATION PROJECT

5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

M.K. AHMED
100069234
13/03/2025

DWG TITLE :
DEMOLITION PLUMBING AND DRAINAGE LAYOUT- PARTIAL

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE : FEBRUARY 2025
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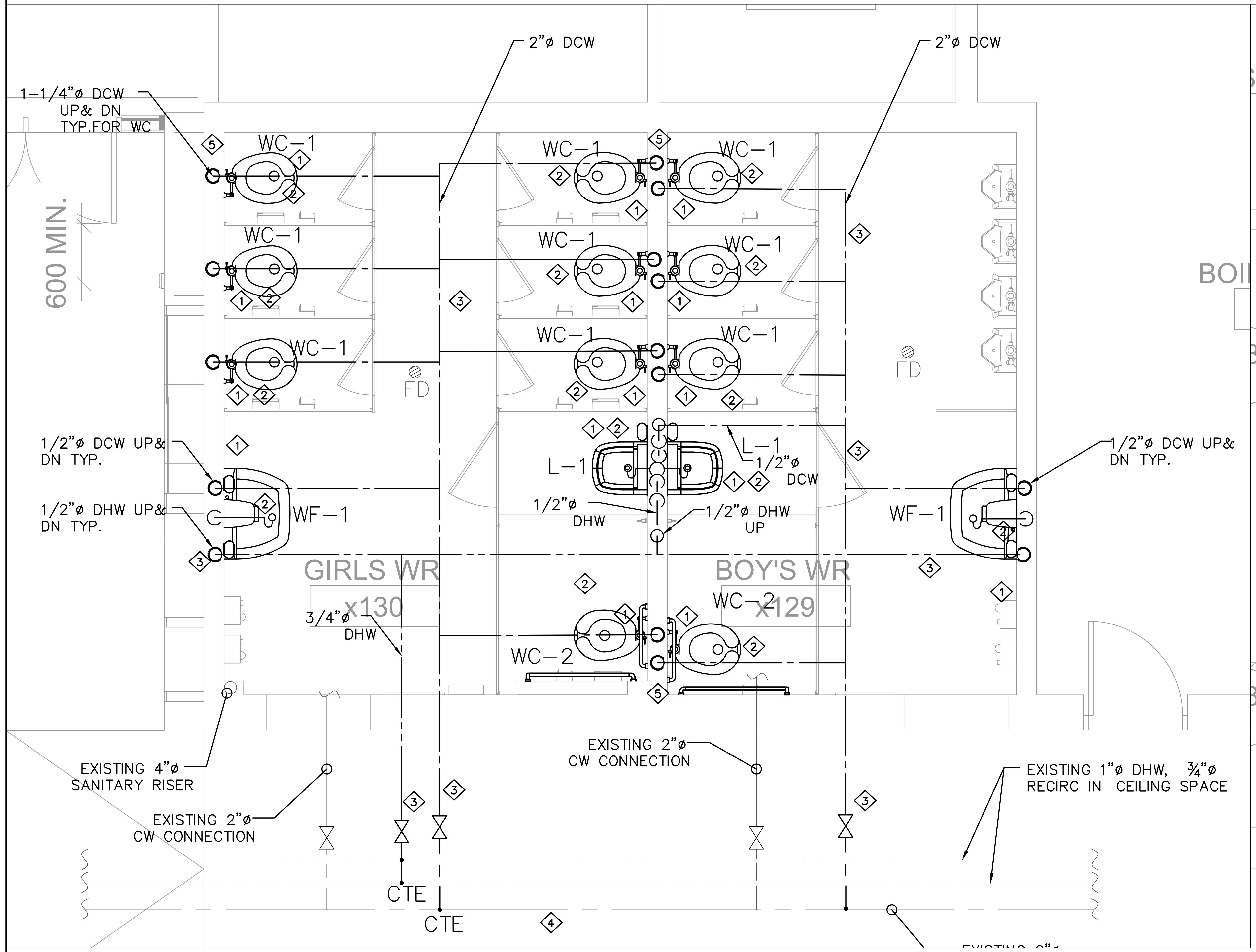
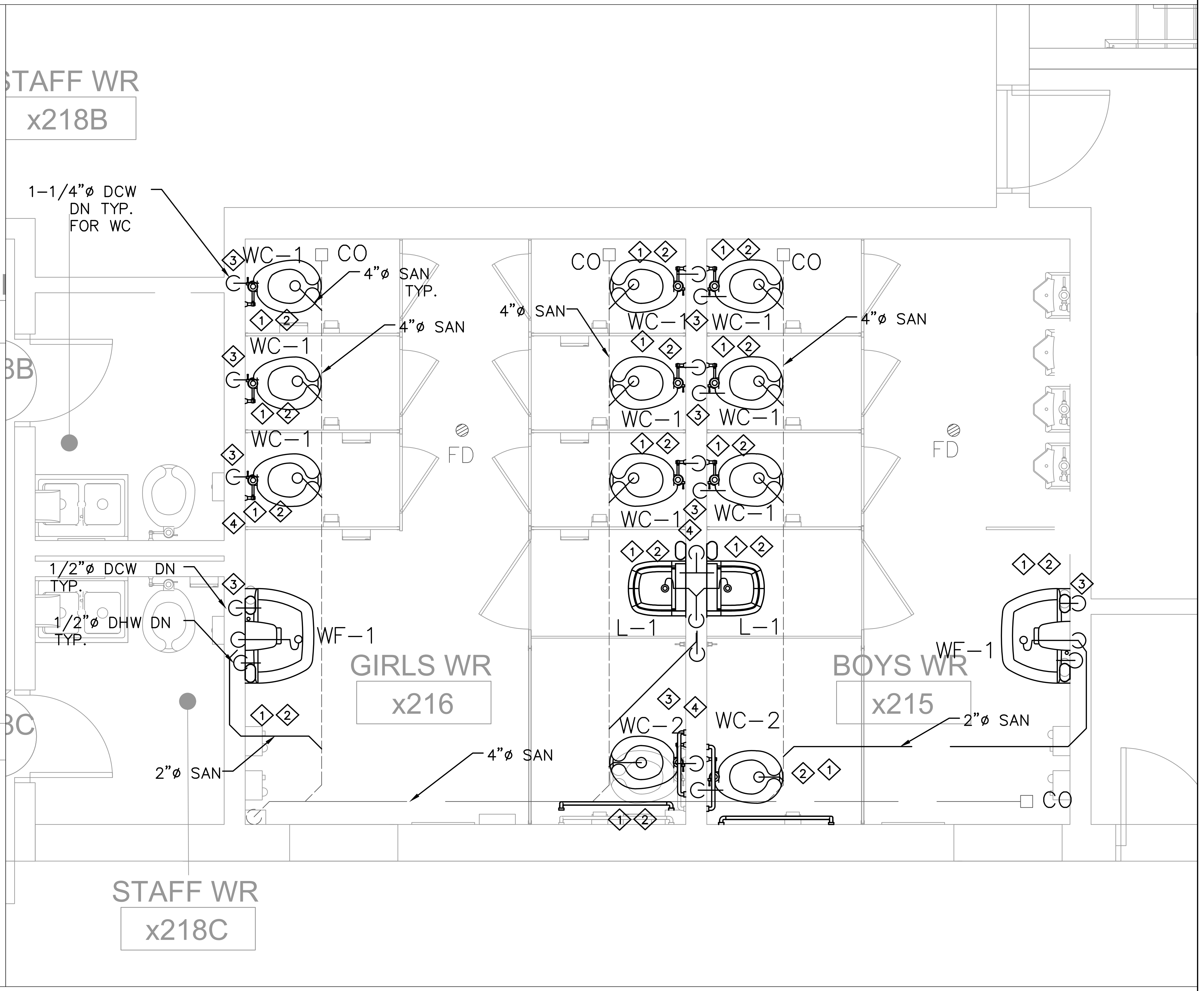
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M2.0
REVISION :



1/M3.0 PROPOSED PLUMBING AND DRAINAGE PLAN GROUND FLOOR
SCALE 1:30



2/M3.0 PROPOSED PLUMBING AND DRAINAGE PLAN SECOND FLOOR
SCALE 1:30

DRAWING NOTES

◇1	PROVIDE AND INSTALL NEW PLUMBING FIXTURES AS SHOWN.REFER TO THE SPECIFICATIONS.
◇2	CONTRACTOR TO SCAN THE FLOOR AND VERIFY THE EXACT LOCATION OF THE EXITING SANITARY LINE. CONNECT THE NEW FIXTURES TO THE EXISTING SANITARY LINE.
◇3	PROVIDE NEW 2"ø DOMESTIC COLD WATER LINE AND ¾"ø DOMESTIC HOT WATER LINE AND CONNECT TO THE NEW FIXTURES.PROVIDE NEW ISOLATION VALVES.
◇4	CONTRACTOR TO VERIFY THE EXACT LOCATION OF THE DCW, DHW AND RECIRC PIPING BEFORE PROCEEDING THE WORK.
◇5	PROVIDE VENT PIPING AS PER THE ONTARIO PLUMBING CODE AND THE LOCAL JURISDICTION.

DRAWING NOTES

◇1	PROVIDE AND INSTALL NEW PLUMBING FIXTURES AS SHOWN.REFER TO THE SPECIFICATIONS.
◇2	CONTRACTOR TO SCAN THE FLOOR AND VERIFY THE EXACT LOCATION OF THE EXITING SANITARY LINE. CONNECT THE NEW FIXTURES TO THE EXISTING SANITARY LINE.
◇3	CONNECT NEW FIXTURES TO THE DOMESTIC COLD WATER AND HOT WATER LINES COMING UP FROM THE CEILING SPACE BELOW.
◇4	PROVIDE VENT PIPING AS PER THE ONTARIO PLUMBING CODE AND THE LOCAL JURISDICTION.

March 13, 2025 4:17:42 PM

The Contractor shall verify all dimensions prior to commencement of the work.
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ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :
ASCENSION CES RENOVATION PROJECT
5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :
M.K. AHMED
100069234
13/03/2025

DWG TITLE :
PROPOSED PLUMBING AND DRAINAGE LAYOUT - PARTIAL

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE : FEBRUARY 2025
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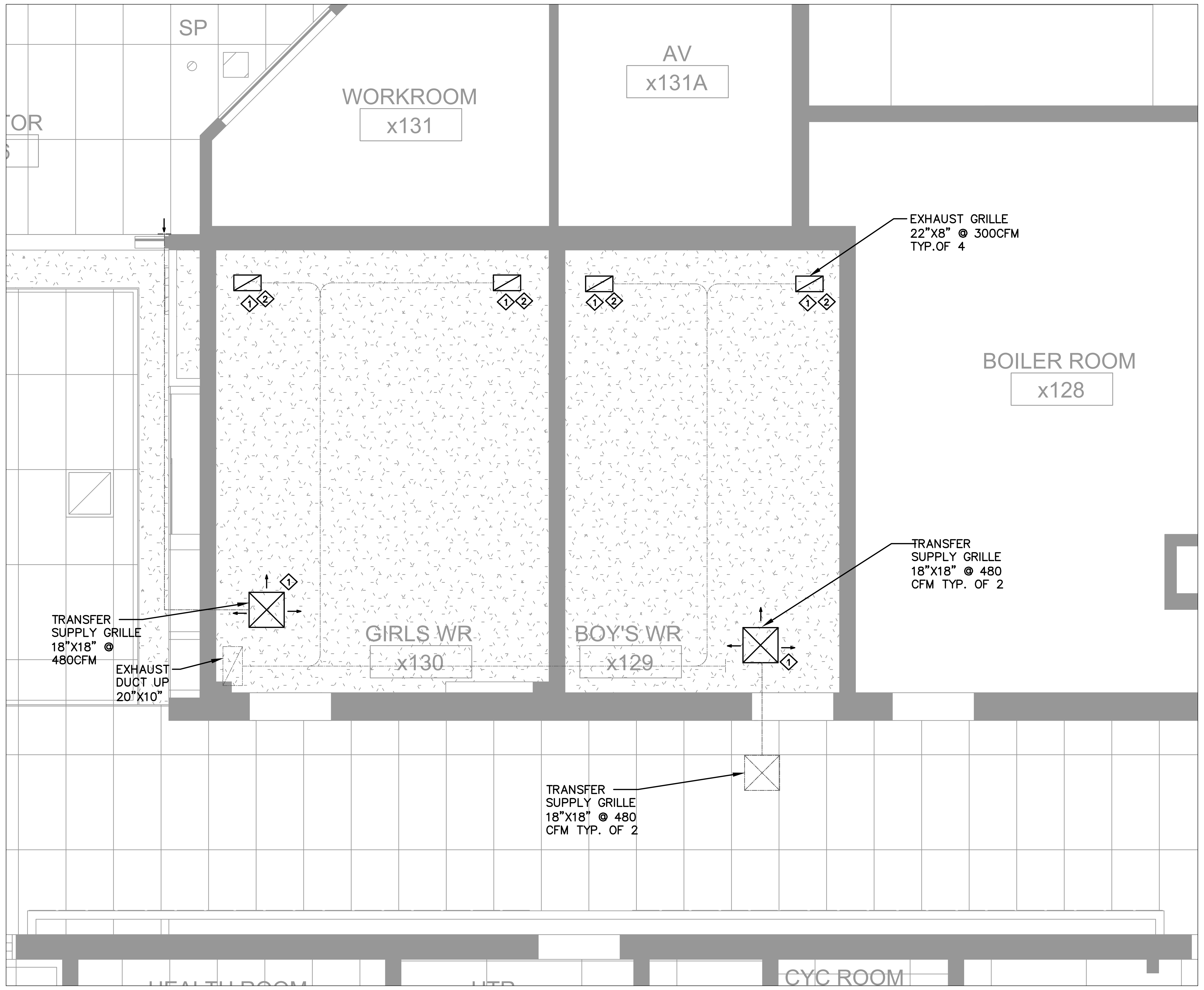
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M3.0
REVISION :



1
M4.0
DEMO & PROPOSED HVAC PLAN – GROUND FLOOR

SCALE 1:40

DRAWING NOTES	
①	DEMOLISH THE EXISTING EXHAUST AND SUPPLY GRILLES IN THE WASHROOMS AND PROVIDE NEW CEILING GRILLES. ALL THE EXISTING DUCTS TO REMAIN.
②	ADJUST THE AIR FLOWS TO MATCH THE EXISTING.

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PROJECT :
ASCENSION CES RENOVATION PROJECT

5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

M.K. AHMED
100069234
13/03/2025

DWG TITLE :
HVAC LAYOUT- GROUND AND FLOOR

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
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DATE :	FEBRUARY 2025
SCALE :	AS SHOWN
DRAWN BY:	MS
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DWG STATUS :	TENDER
PROJECT No. :	2025-476
DRAWING No. :	M4.0
REVISION	

March 13, 2025 4:17:47 PM

TRANSFER SUPPLY GRILLE 18"X18" @ 480CFM TYP.

EXHAUST GRILLE 22"X8" @ 300CFM TYP.OF 4

EXHAUST DUCT UP 20"X10"

TO EF-6

DRAWING NOTES

◇1	DEMOLISH THE EXISTING SUPPLY GRILLES IN THE WASHROOMS AND PROVIDE NEW CEILING GRILLES. ALL THE EXISTING DUCTS TO REMAIN.
◇2	DEMOLISH THE EXISTING EXHAUST WALL GRILLES IN THE WASHROOMS WHICH ARE LOCATED IN THE BULKHEAD. THE NEW EXHAUST GRILLES TO BE CEILING TYPE AS SHOWN. REFER TO THE ARCHITECTURAL FOR THE CEILING RELATED CHANGES. ADJUST THE DUCTWORK TO MATCH THE NEW CEILING.
◇3	ADJUST THE AIR FLOWS TO MATCH THE EXISTING.
◇4	EXISTING RADIATORS IN THE WASHROOMS TO REMAIN.
◇5	EXTEND THE EXISTING CONDENSATE PIPING FROM THE UNIT VENTILATORS BY 6" IN LENGTH NEAR WINDOW, DROP THE PIPING OUTSIDE. USE THE RIGID PIPES.

March 13, 2025 4:31:19 PM

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PROJECT :

ASCENSION CES RENOVATION PROJECT

5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

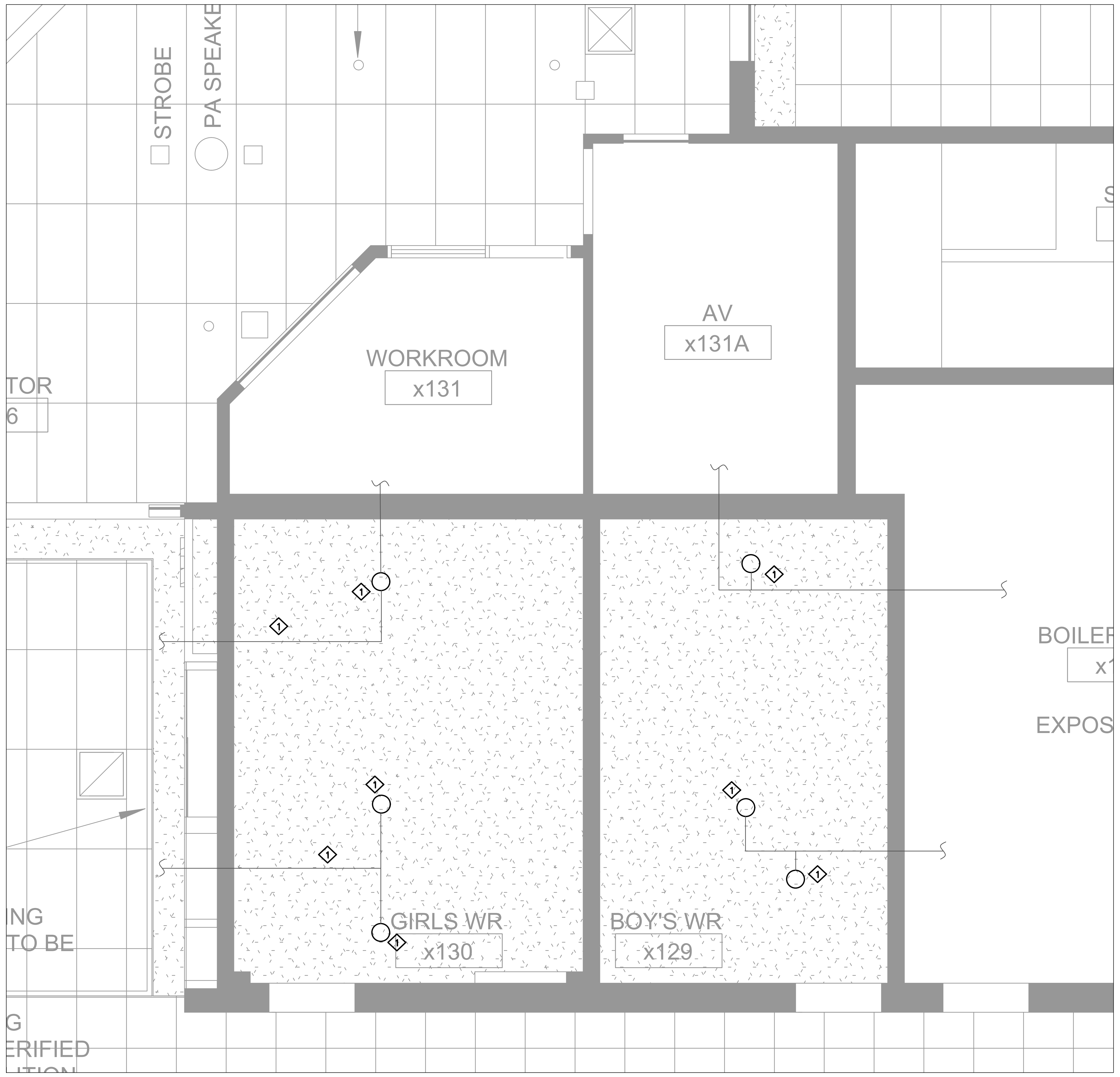
PROFESSIONAL SEAL :

M.K. AHMED
100069234
13/03/2025

DWG TITLE :
HVAC LAYOUT- SECOND FLOOR

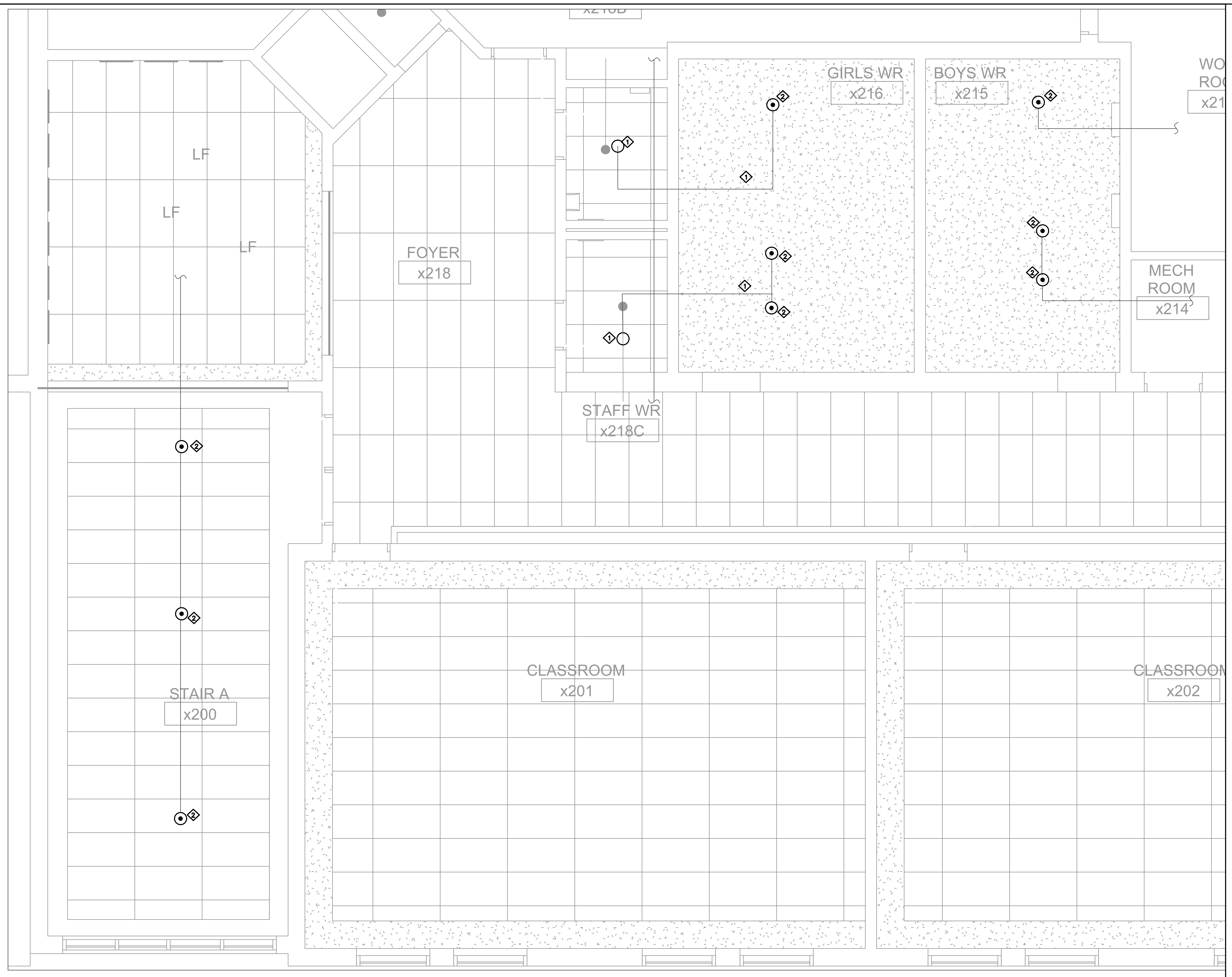
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE : FEBRUARY 2025
SCALE : 1:100
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M4.1
REVISION



1 / M5.0 PROPOSED SPRINKLER PLAN GROUND FLOOR
SCALE 1:30

DRAWING NOTES - DEMOLITION	
◇1	EXISTING SPRINKLER PIPING AND UPRIGHT SPRINKLER HEADS TO REMAIN.



2 / M5.0 PROPOSED SPRINKLER PLAN —SECOND FLOOR
SCALE 1:50

DRAWING NOTES - DEMOLITION	
◇1	EXISTING SPRINKLER PIPING AND UPRIGHT SPRINKLER HEADS TO REMAIN.
◇2	CONTRACTOR TO REPLACE EXISTING SPRINKLER UPRIGHT HEADS WITH THE NEW SPRINKLERS WITH THE DOWNWARD HEADS. EXISTING SPRINKLER PIPING TO REMAIN.CONTRACTOR TO ALLOW FOR PIPE FREEZING DURING THE REPLACEMENT OF SPRINKLER HEAD.

March 13, 2025 4:17:57 PM

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :

ASCENSION CES RENOVATION PROJECT

5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
13/03/2025
PROVINCE OF ONTARIO

DWG TITLE :
PROPOSED SPRINKLER LAYOUT- GROUND AND SECOND FLOOR PARTIAL

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE : FEBRUARY 2025
SCALE : AS SHOWN
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M5.0
REVISION

GENERAL SPECIFICATION

DEFINITIONS

1. WHEREVER THE TERM "INSTALL" IS USED IT MEANS INSTALL AND CONNECT COMPLETE.
2. WHEREVER THE TERM "SUPPLY" IS USED IT MEANS SUPPLY ONLY.
3. WHERE THE TERM "PROVIDE" IS USED IN RELATION TO EQUIPMENT, ETC., IT MEANS "SUPPLY, INSTALL, CONNECT, AND COMMISSION.
4. WHEREVER THE TERM "REMOVE" IS USED IT MEANS DISCONNECT AND DISPOSE FROM THE BUILDING AND SITE.

ABBREVIATIONS

1. "N" NEW ITEM TO BE SUPPLIED AND INSTALLED.
2. "EX" EXISTING ITEM TO REMAIN.
3. "REL" RELOCATE EXISTING ITEM TO NEW LOCATION.
4. "REM" REMOVE EXITING ITEM.

GENERAL REQUIREMENTS

1. THE DRAWINGS AND SPECIFICATIONS WILL BE READ WITH ARCHITECTURAL DRAWINGS. THE OWNER'S BUILDING REQUIREMENTS, THE LEGEND, AND SPECIFICATIONS OF THE DRAWING. MAXIMUM CONDITIONS WILL GOVERN. REVIEW MECHANICAL DRAWINGS AND PROVIDE POWER TO ALL MECHANICAL DEVICES WHICH MAY BE ABSENT FROM THE ELECTRICAL DRAWINGS.
2. ACCURATE DIMENSIONS FOR THE WORK MUST BE OBTAINED FROM ARCHITECTURAL OR ACTUAL MEASUREMENT ON THE SITE.
3. VISIT THE SITE PRIOR TO TENDER AND VERIFY ALL CONDITIONS AND DIMENSIONS, INCLUDING LOCATIONS OF EXISTING CAPPED SERVICES, AND ALL FOR ANY REROUTING OF EXISTING AND/OR NEW SERVICES AND EQUIPMENT IN TENDER PRICE. FAILURE TO DO SO SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY.
4. REPORT TO THE ENGINEER ALL AMBIGUITIES, DISCREPANCIES, OMISSIONS, ERRORS, DEPARTURES FROM BUILDING BYLAWS AND/OR FROM GOOD PRACTICE PRIOR TO TENDER CLOSING.
5. PROVIDE ALL WORK IN ACCORDANCE WITH THE ONTARIO BUILDING CODE, AND THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, AND LOCAL BY-LAWS.
6. APPLY FOR, OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED PRIOR TO COMMENCEMENTS OF CONSTRUCTION. INCLUDE ALL PROVINCIAL AND FEDERAL SALES TAXES.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED SCHEDULE TO MEET THE PROJECT COMPLETION DATE AND ALL SPECIFIED INTERIM SCHEDULES.
8. COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE.
9. MAKE GOOD ALL DAMAGES TO ADJACENT WORK, PROVIDE ALL CUTTING, PATCHING, FLASHING WORK AND CLEAN-UP OF FLOORS, WALLS, CEILINGS, ETC.
10. PROVIDE PROPER SHOP DRAWINGS OF ALL SPECIFIED PRODUCTS AND SUBMIT FOR APPROVAL TO THE ARCHITECT AND ENGINEER.
11. DURING PROGRESS OF WORK, SUBSTITUTE PRODUCTS WILL ONLY BE CONSIDERED WHEN TENDERED PRODUCTS BECOME UNOBTAINABLE AND WRITTEN PROOF IS SUBMITTED.
12. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTE PRODUCTS SHALL BE EQUAL TO THE SPECIFIED PRODUCTS. IMPLEMENTATION OF SUBSTITUTE PRODUCTS IS SUBJECT TO THE REVIEW OF PROPERLY SUBMITTED SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER.
13. ASSUME RESPONSIBILITY AND PAY FOR ANY ADDITIONAL INSTALLATION COSTS INCURRED BY ALL DIVISIONS RESULTING FROM THE ALTERNATES AND/OR SUBSTITUTIONS. MAKE REVISIONS TO RECORD DRAWINGS INCORPORATING ALL ALTERNATES AND/OR SUBSTITUTIONS AND ALL RELATED CHANGES.
14. PROVIDE THE OWNER WITH A WRITTEN WARRANTY, FOR ALL LABOUR, MATERIALS, AND EQUIPMENT IN THIS CONTRACT, FOR A PERIOD OF ONE YEAR COMMENCING AT SUCH TIME AS THE OWNER, OR HIS REPRESENTATIVE, DEEMS THE WORK ACCEPTABLE.
15. OBTAIN AND PAY FOR ONE (1) SET OF TRANSPARENCIES AND ONE (1) SET OF WHITE PRINTS. MARK PRINTS TO ACCURATELY INDICATE INSTALLED WORK AND TRANSFER ALL INFORMATION ONTO THE SET OF TRANSPARENCIES. UPON COMPLETION OF THE WORK SUBMIT THE COMPLETED RECORD DRAWINGS AND TRANSPARENCIES TO THE ENGINEER AND THE OWNER.
16. ASSEMBLE THREE (3) MANUALS, EACH CONTAINING DATA SHEETS, BROCHURES, OPERATING, MAINTENANCE, RECOMMENDED SPARE PARTS, AND LUBRICATING INSTRUCTIONS AND A COMPLETE SET OF REVIEWED SHOP DRAWINGS AND BIND IN HARD SECTIONS AND VOLUMES. PRESENT ONE (1) COPY FOR REVIEW BY CONSULTANT. MAKE ALL CORRECTIONS REQUESTED BY THE CONSULTANT AND RESUBMIT FOR REVIEW.
17. INCLUDE COST OF PREMIUM IN THE TENDER PRICE FOR WORK DURING NIGHTS, WEEKENDS OR OTHER TIME OUTSIDE NORMAL WORKING HOURS NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATIONS, AND TO COMPLETE THE WORK SUBMISSION FOR EXTRA OR DELETED WORK.
18. PROVIDE A COMPLETE COST BREAKDOWN OF ALL MATERIALS, EQUIPMENTS AND LABOUR COSTS ASSOCIATED WITH EACH SUBMISSION FOR EXTRA OR DELETED WORK.
19. CONFER WITH ALL TRADES INSTALLING EQUIPMENT WHICH MAY AFFECT THE MECHANICAL WORK AND ARRANGE THE WORK IN PROPER RELATION WITH EQUIPMENT INSTALLED UNDER ALL DIVISIONS OF THE CONTRACT.
20. INSTALL ALL PIPING IN THE BEST WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADES.
21. PROVIDE SLEEVES FOR ALL NEW PIPING THROUGH EXISTING SLAB, BEAMS, SLAB TO SLAB WALL ETC. WHERE INDICATED AND/OR REQUIRED. OBTAIN BASE BUILDING STRUCTURAL ENGINEER'S APPROVAL PRIOR TO COMMENCEMENT OF WORK.
22. IDENTIFY EACH PIPED AND DUCTED SERVICE COMPLETE WITH DIRECTIONAL FLOW ARROWS. LOCATE IDENTIFICATION AND FLOW ARROWS NOT MORE THAN 12M (40') APART IN STRAIGHT RUNS OF PIPES AND DUCTS. USE WORDING INDICATED ON THE MECHANICAL LEGEND. USE 50MM(2") HIGH STENCIL LETTERS.
23. ALL WALL AND FLOOR OPENINGS SHALL BE PACKED AND SEALED WITH AN APPROVED FIRE RESISTANT INSULATION TO 25MM (1") FROM END SIDE OF OPENING ON BOTH SIDES OF FLOOR OR WALL. REMAINING PORTION SHALL BE SEALED WITH AN APPROVED FIRE STOP SUBSTANCE EQUAL TO 'DOW CORNING' #3-6548 SILICON RTV FOAM PENETRATION SEALANT.
24. IN ALL AREAS REQUIRING CORE DRILLING THROUGH EXISTING FLOOR SLAB FOR MECHANICAL SERVICES, ETC. ALLOW FOR ALL NECESSARY RADIOGRAPHY TO LOCATE HIDDEN ELECTRICAL SERVICES, STRUCTURAL REINFORCING, ETC., AND INCLUDE ALL COSTS IN TENDER PRICE. CO-ORDINATE THIS WORK WITH OWNER COORDINATOR FOR TIME DURATION AND LOCATION REQUIRED AND ADHERE TO THE OWNER'S REQUIREMENTS. SUBMIT CORE DRILLING PLAN TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
25. CHECK AND VERIFY LOCATION OF EXISTING MECHANICAL AND ELECTRICAL INTERFERENCES IN CEILING SPACE OF FLOOR BELOW AND/OR BELOW FLOOR SLAB IN ALL AREAS REQUIRING CORE DRILLING AND/OR CUTTING OF FLOOR SLAB ON GRADE AND ENSURE COMPATIBILITY OF AREA BELOW TO THE SATISFACTION OF THE OWNER.
26. ALL SHUTDOWNS OF ANY PORTION OF THE EXISTING BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE OWNER'S BUILDING OPERATIONS STAFF AND/OR COORDINATED WITH THE OWNER FOR TIME AND DURATION OF INTERRUPTIONS AND ADHERE TO THE OWNER'S INSTRUCTIONS IN THE REGARD. COST FOR SHUTDOWNS, DRAINING AD REFILLING OF BASE BUILDING SYSTEMS SHALL BE INCLUDED IN THE TENDER PRICE.
27. PROVIDE ALL ACCESS DOORS WHERE SHOWN AND/OR REQUIRED BY SITE CONDITIONS. IN CEILINGS OR WALLS. ACCESS DOORS SHALL BE EQUAL TO MILCOR OR LEHAAGE, AND MUST BE COMPATIBLE WITH CEILING/WALL TYPE AND FINISH INSTALLATION TO COMPLY WITH THE ARCHITECT'S APPROVAL. ACCESS DOORS IN RATED CEILINGS OR WALLS SHALL BE ULC APPROVED FOR THE APPLICATION.
28. RE-USE EXITING MATERIALS AND EQUIPMENT WHEREVER POSSIBLE AND PROVIDE NEW ONLY WHERE REQUIRED AND AS SPECIFIED TO ENSURE A COMPLETE INSTALLATION. ALL EQUIPMENT, MATERIALS AND ASSOCIATED CONTROLS NOT USED IN THIS CONTACT SHALL BE RETURNED TO OWNER.
29. CHECK AND VERIFY ON SITE FOR ROUTING OF NEW DUCT WORK, PIPING AND LOCATION OF NEW EQUIPMENT AND INCLUDE IN TENDER PRICE FOR ANY RELOCATIONS OF EXITING SERVICES OR ADJUSTMENTS OF NEW SERVICES OF EQUIPMENTS AS REQUIRED TO SUIT SITE CONDITIONS. PROVIDE OFFSETS IN PIPING AND CUT WORK AS REQUIRED TO AVOID INTERFERENCES.
30. SEAL AIR TIGHT ALL AROUND DUCT WORK AND PIPING PENETRATIONS THROUGH PARTITIONS ABOVE CEILING WITH APPROVED SEALANT FOR FIRE RATED ASSEMBLIES.
31. ALL DEFICIENCIES MUST BE COMPLETE WITH 4 WEEKS UPON NOTICE ISSUED BY THE ENGINEER. THE ENGINEER MAY HAVE THE DEFICIENCIES COMPLETED BY OTHERS AT THE CONTRACTOR'S EXPENSE, IF THE DEFICIENCIES ARE NOT CORRECTED.
32. ALL ELECTRIC BASEBOARD AND FORCED FLOW HEATER SHALL BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL ELECTRIC DUCT HEATERS ARE SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR, BUT WIRED BY ELECTRICAL.

SCOPE OF WORK

1. DIVISION 15 SHALL FURNISH ALL LABOUR, MATERIALS AND EQUIPMENT NECESSARY FOR THE PROPER AND TIMELY COMPLETION OF THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED.
2. THE SPECIFICATIONS SHALL BE CONSIDERED AS AN INTEGRAL PART OF THE PLANS WHICH ACCOMPANY THEM, NEITHER THE PLANS NOR THE SPECIFICATIONS SHALL BE USED ALONE. ANY ITEMS OR SUBJECT OMITTED FROM ONE, BUT WHICH IS MENTIONED OR REASONABLY IMPLIED IN THE OTHER, SHALL BE CONSIDERED AS PROPERLY AND SUFFICIENTLY SPECIFIED, AND MUST, THEREFORE, BE PROVIDED. MISINTERPRETATIONS OF EITHER THE PLANS OR THE SPECIFICATIONS SHALL NOT RELIEVE THIS DIVISION OF RESPONSIBILITY.
3. IT IS THE INTENT THAT THE DRAWINGS AND SPECIFICATIONS DESCRIBE COMPLETE MECHANICAL SYSTEMS. ALL MATERIALS AND EQUIPMENT AND THE FURNISHING OF ALL LABOUR REASONABLY IMPLIED BY THESE DRAWINGS AND/OR THE SPECIFICATIONS SHALL BE INCLUDED TO PROVIDE SYSTEMS READY FOR SATISFACTORY OPERATION. REFER TO ALL OTHER TRADE DRAWINGS AND SPECIFICATIONS TO FULLY CO-ORDINATE THE INSTALLATION OF THE WORK.

STANDARD OF ACCEPTANCE

1. THE ITEM NAMED AND SPECIFIED BY MODEL OR CATALOGUE NUMBER FORMS PART OF SPECIFICATION AND SETS THE STANDARD REGARDING PERFORMANCE, QUALITY OF MATERIAL AND WORKMANSHIP.
2. TENDER PRICES SHALL BE BASED ON THE SPECIFIED EQUIPMENT LISTED AS ACCEPTABLE PRODUCT OR AS BASE BID. ALL ALTERNATES OF LISTED EQUIPMENT MUST BE LISTED SEPARATELY ON THE TENDER FORM WITH COST SAVINGS. THE OWNERS AND THE CONSULTANT HAVE THE OPTION OF ACCEPTING OR REJECTING ALTERNATE EQUIPMENT.
3. THE USE OF ALTERNATE EQUIPMENT SUCH AS HEATING/ COOLING UNITS, FANS, COMPRESSOR/CHILLER UNITS WILL REQUIRE THE SUBMISSION OF DETAILED SCALE SHOP DRAWINGS OF PROPOSED INSTALLATION DETAILS INCLUDING DUCTWORK, PIPING, ELECTRICAL. STRUCTURAL CONNECTIONS. LOADS AND SERVICE CLEARANCES.

CODES, REGULATIONS AND PERMITS

1. ALL MECHANICAL WORK SHALL BE INSTALLED, INSPECTED AND TESTED IN ACCORDANCE WITH GOVERNING CODES, RULES AND REGULATIONS OF THE MUNICIPALITY IN WHICH THE WORK IS PERFORMED AND ALSO OF PROVINCIAL AND FEDERAL AUTHORITIES HAVING JURISDICTION.
2. THE DIVISION 15 CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR THE INSTALLATION OF MECHANICAL WORK, ARRANGE FOR INSPECTIONS AND TESTS AND PAY ALL FEES AND COSTS FOR THE PERMITS AND INSPECTIONS. ALL NECESSARY PERMITS SHALL BE OBTAINED IMMEDIATELY AFTER NOTIFICATION OF AWARD OF CONTRACT.
3. THE ONTARIO BUILDING CODE AND THE APPLICABLE REQUIREMENTS OF C.S.A., A.S.T.M. ANSI, U.L.C .. AND NFPA STANDARDS INCLUDING THEIR LATER AMENDMENTS, AS WELL AS PROVINCIAL AND MUNICIPAL BY-LAWS AND REGULATIONS SHALL BE CONSIDERED PART OF THIS SPECIFICATION. LACK OF POSSESSION OF KNOWLEDGE OF ANY CODE OR STANDARD REQUIRED FOR PROPER COMPLETION OF THE WORK SHALL NOT CONSTITUTE SUFFICIENT REASON FOR DEVIATION THEREFROM.

RECORD DRAWINGS

1. CLEARLY RECORD ALL CONTRACT CHANGES AND DEVIATIONS FROM THE CONTRACT DRAWINGS ON A SET OF DRAWINGS AVAILABLE FROM THE GENERAL CONTRACTOR FOR THIS PURPOSE AND FORWARDED TO THE GENERAL CONTRACTOR AT THE COMPLETION OF THE PROJECT.

SITE VISIT

1. THIS CONTRACTOR SHALL VISIT THE SITE AND EVALUATE ALL EXISTING SITE CONDITIONS AS THEY MAY AFFECT THIS WORK. NO EXTRAS WILL BE ALLOWED FOR ANY EFFECTS FROM FAILING TO COMPLETE A COMPREHENSIVE SITE TOUR TO UNDERSTAND AND ACCOUNT FOR THE IMPACT OF EXISTING SITE CONDITIONS ON THE CONTRACT SCOPE OF WORK.

CUTTING AND PATCHING

1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR AND PAY FOR ALL CUTTING AND PATCHING REQUIRED IN THE SCOPE OF WORK AS DEFINED IN THE GENERAL CONDITIONS. ALL NEW FINISHES SHALL BE EQUAL TO THOSE OF SURROUNDING SURFACES FOR MATERIALS. COLOUR, TEXTURE AND WORKMANSHIP. THIS DIVISION SHALL CLEARLY MARK OUT ALL OPENINGS REQUIRED AND REVIEW WITH THE GENERAL CONTRACTOR BEFORE CUTTING PROCEEDS. THIS DIVISION SHALL INSTALL ALL OPENING FRAMES, SLEEVES, DUCTWORK AND PIPING, LOUVRES, ETC., INTO THE BUILDING STRUCTURE AS CONSTRUCTION PROGRESSES. ANY ITEMS MISSED DURING CONSTRUCTION THAT MUST BE ADDED WILL BE THE RESPONSIBILITY OF THIS DIVISION AND BE CO-ORDINATED WITH THE GENERAL TIRADES.

CO-ORDINATION

1. CONFER AND COOPERATE WITH OTHER TIRADES IN ORDER TO ELIMINATE ANY UNNECESSARY DELAYS TO THE CONSTRUCTION SCHEDULE. WHERE DOUBT EXISTS REGARDING OTHER TIRADES. CONFER WITH THE SUPERINTENDENT WITHOUT DELAY FOR DETAILED INSTRUCTIONS CONCERNING HOW TO PROCEED WITH THE WORK. EXPEDITE DELIVERY OF ALL EQUIPMENT AND MATERIALS TO MEET CONSTRUCTION SCHEDULE.
2. ANY INTERFERENCE ISSUES THAT ARISE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DUCTWORK FABRICATION.

COMMISSIONING

1. ENSURE THAT ALL EQUIPMENT AND SYSTEMS ARE OPERABLE AND SAFE FOR NORMAL OPERATION. ALL TESTING, ADJUSTING, BALANCING WORK AND RECORD KEEPING SHALL BE PERFORMED PRIOR TO COMMISSIONING. OPERATIONAL TESTS ON EQUIPMENT, DUCTWORK, PIPING AND CONTROL SYSTEMS SHALL BE PERFORMED PRIOR TO COMMISSIONING TO VERIFY THAT PRESSURE AND FLOW RATES MEET DESIGN REQUIREMENTS.

INTERRUPTION AND DEMOLITION OF EXISTING SERVICES

1. ARRANGE, SCHEDULE AND PERFORM WORK WITH MINIMUM DISTURBANCE TO EXISTING FACILITIES AND SERVICES.
2. SUBMIT A COMPLETE SCHEDULE OF SERVICE INTERRUPTIONS AND CHANGEOVERS WITH APPROXIMATE DATES REQUIRED. DURATIONS AND TIMES OF DAY. FOR APPROVAL BEFORE PROCEEDING.

SHOP DRAWINGS

1. SHOP DRAWINGS AND DATA SHEETS FOR EQUIPMENT INTENDED FOR INSTALLATION UNDER THIS CONTRACT SHALL BE SUBMITTED FOR REVIEW. AFTER CHECKING AND WHEN REVIEWED, COPIES WILL BE RETURNED TO THE CONTRACTOR.
2. SAMPLES, DRAWINGS, CATALOGUES, SPECIFICATIONS, ETC. SUBMITTED FOR APPROVAL. SHALL BE PROPERLY LABELLED INDICATING SPECIFIED SERVICES FOR WHICH MATERIAL OR EQUIPMENT IS TO BE USED. THE DRAWINGS AND INFORMATION SHALL INDICATE THE PROJECT NAME AND THE ARTICLE NUMBER OF SPECIFICATIONS RELATING TO SHOP DRAWINGS. THE CONTRACTOR'S NAME AND CONTRACTOR'S SIGNAL\JRE SHALL APPEAR ON ALL COPIES INDICATING THAT THE DRAWINGS HAVE BEEN CHECKED BY THE CONTRACTOR. DRAWINGS NOT SO DESIGNATED WILL BE RETURNED FOR CORRECTION. 'FAX' OR ELECTRONIC COPIES OF SHOP DRAWINGS ARE NOT ACCEPTABLE. PROVIDE COMPLETE, DETAILED WIRING AND CONTROL DIAGRAMS FOR ALL MECHANICAL EQUIPMENT FOR THIS PROJECT. THESE DRAWINGS SHALL BE SUBMITTED AT THE TIME OF SHOP DRAWING REVIEW. EQUIPMENT SHOP DRAWINGS WILL BE REJECTED UNLESS COMPLETE WIRING AND CONTROLS INFORMATION IS SUBMITTED.
3. SUBMIT ELECTRONIC COPIES OF ALL SHOP DRAWINGS. ELECTRONIC SUBMISSIONS WILL BE REVIEWED.

ARRANGEMENT OF PIPING AND DUCTWORK

1. CONCEAL PIPING AND DUCTWORK WHEREVER POSSIBLE BY RUNNING IT IN PIPE SPACES, DUCT SHAFTS, CHASES. CEILING SPACES AND FURRED OUT SECTIONS OF WALLS AND COLUMNS. DO NOT RUN PIPING OR DUCTWORK EXPOSED IN FINISHED AREAS WITHOUT OBTAINING PERMISSION OF THE ENGINEER.
2. PIPING OR OTHER EQUIPMENT OR DEVICES IN RETURN AIR PLENUMS SHALL HAVE FLAME SPREAD AND SMOKE DEVELOPMENT RATINGS FOR THAT APPLICATION.

TESTING

1. DIVISION 15 SHALL PERFORM TESTS ON ALL PIPING AND EQUIPMENT SYSTEMS AS EQUIPMENT IN VARIOUS SECTIONS OF THESE SPECIFICATIONS AND SHALL PROVIDE ALL NECESSARY PUMPS, COMPRESSORS, GAUGES, RECORDERS AND TEMPORARY CONNECTIONS TO THE PIPING AND EQUIPMENT.
2. ALL TESTS ON PIPING AND EQUIPMENT SHALL BE CONDUCTED BEFORE CONCEALMENT AND BEFORE THE APPLICATION OF PAINT AND INSULATION. AMPLE NOTICE OF THE SCHEDULING OF SUCH TESTS SHALL BE GIVEN. TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE AUTHORITIES HAVING JURISDICTION.

ACCESS DOOR

1. SUPPLY ACCESS DOORS FOR FURRED CEILINGS OR SPACES FOR SERVICING EQUIPMENT AND DUCT ACCESSORIES OR FOR INSPECTION OF LIFE SAFETY OR OPERATING DEVICES. SUPPLY STAINLESS STEEL ACCESS DOORS FOR TILED, MARBLE, TERRAZZO OR SPECIAL SURFACES. STANDARD OF ACCEPTANCE: ZURN, ACUDOR, ANCON.

MAINTENANCE INSTRUCTIONS

1. SUPPLY CERTIFIED PERSONNEL TO INSTRUCT OWNERS OPERATING STAFF ON OPERATION OF MECHANICAL EQUIPMENT. SUPPLY MAINTENANCE SPECIALIST PERSONNEL TO INSTRUCT OPERATING STAFF ON MAINTENANCE AND ADJUSTMENT OF MECHANICAL EQUIPMENT AND ANY CHANGES OR MODIFICATIONS IN EQUIPMENT MADE UNDER THE TERMS OF THE GUARANTEE. PROVIDE INSTRUCTION TO OWNERS STAFF DURING REGULAR WORK HOURS PRIOR TO ACCEPTANCE OF THE SYSTEMS FOR REGULAR OPERATION.

BUILDING STRUCTURE

1. INITIATE NO DRILLING, CUTTING OR WELDING OF THE BUILDING STEEL OR CONCRETE CONSTRUCTION FOR THE PURPOSE OF SUPPORTING MATERIALS OR EQUIPMENT WITHOUT PRIOR APPROVAL OF THE PRIME CONSULTANT.
2. HANGERS TO STEEL SHALL BE BEAM CLAMPS OR FLANGE HANGERS WHERE POSSIBLE. WHERE ATTACHMENT IS PERMITTED, WELDING STUDS OF A SIZE NOT LARGER THAN 13MM DIAMETER MAY BE USED. IF LARGER SIZE BOLTS ARE REQUIRED TO SUPPORT THE EQUIPMENT, THESE SHALL BE ATTACHED BY STEEL CUPS OR BRACKETS, SECURED TO THE BUILDING STEEL BY WELDING OR BOLTING AS APPROVED BY THE ENGINEER.

PIPING AND EQUIPMENT IDENTIFICATION

1. IDENTIFY ALL PIPING SYSTEMS. INDICATE PIPE SIZE, SERVICE AND DIRECTION OF FLOW.
2. THE LETTERING SHALL BE PROPORTIONAL TO THE OUTSIDE DIAMETER OF THE PIPE OR COVERING RANGING FROM 13 MM HIGH TO 20 MM O.D., PIPE OR COVERING UP TO 100 MM HIGH ON 300 MM O.D. PIPE OR COVERING. BRADLEY PIPE TAGS SHALL BE THE STANDARD OF LABELS. PIPES SMALLER THAN 20 MM O.D. PIPE OR COVERING MAY BE BANDED WITH COLOURED PLASTIC TAPE IN LIEU OF PAINT AND THE CONTENTS IDENTIFIED BY MEANS OF "DYMO" EMBOSSED PLASTIC LABELS. STENCIL A DIRECTION-OF-FLOW ARROW ON EACH COLOUR BAND. PIPE IDENTIFICATION SHALL BE APPLIED AT EACH HORIZONTAL OR VERTICAL CHANGE IN DIRECTION AND A MAXIMUM OF 12 M. APART.
3. ALL EQUIPMENT SHALL BE IDENTIFIED WITH 25 MM HIGH LETTERS IN LAMACOID ENGRAVED SELF ADHESIVE NAMEPLATES.

FIRE SEPARATION

1. SUPPLY AND INSTALL ALL FIRE DAMPERS AND FIRE STOP FLAPS C/W FUSIBLE LINKS AND ACCESS PLATES AS REQUIRED UNDER THE ONTARIO BUILDING CODE. DAMPERS SHALL BE TYPE 'B', 100LL FREE AREA UNLESS NOTED AND BE U.L.C. LISTED FOR THE SPECIFIC APPLICATION AND INSTALLATION ORIENTATION.
2. INSTALL FIRE DAMPERS IN ACCORDANCE WITH NFPA 90A AND ULC STANDARDS WITH BACKUP ANGLES AND BREAKAWAY JOINTS. PROVIDE DUCT ACCESS DOORS AS WELL AS DRYWALL ACCESS DOORS FOR COMPLETE ACCESSIBILITY.
3. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL FIRE RATED SEPARATIONS APPARENT FROM MECHANICAL OR ARCHITECTURAL DRAWINGS.

GRILLES AND DIFFUSERS

4. GRILLES, REGISTERS AND DIFFUSERS SHALL BE THE PRODUCT OF ONE MANUFACTURER FOR GENERIC TYPE, EG. GRILLES AND REGISTERS BY ONE, DIFFUSERS BY ONE, OR SAME. REFER TO THE SCHEDULE ON THE DRAWINGS; BASE BID: E.H. PRICE

H.V.A.C & DUCT WORK

1. ALL DUCT WORK AND HANGERS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA RECOMMENDATIONS.
2. NOTE THAT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHEN ACOUSTIC INSULATION IS INSTALLED. INCREASE DIMENSIONS ACCORDINGLY.
3. MAKE GOOD ALL EXCISING INSULATION WHEN CONNECTION TO EXISTING SERVICES.
4. PROVIDE DUCT ACCESS DOORS, MINIMUM 375 MM X 300 MM (15" X 12") SIZE FOR EQUIPMENT SUCH AS COILS (BOTH SIDES OF COIL), FIRE AND/OR SMOKE DAMPERS, CONTROL AND/OR BALANCING DAMPERS, HEAT AND/OR BALANCING DAMPERS, HEAT AND/OR SMOKE DETECTORS, BACK-DRAFT DAMPERS, ETS. AS REQUIRED FOR PROPER SERVICING.
5. FLEXIBLE DUCTS SHALL BE FLEXMSTER OR APPROVED EQUAL, TRIPLE LOCK ALUMINUM FLEXIBLE DUCTS, SPIRAL WOUND ALUMINUM STRIP WITH TRIPLE MECHANICAL LOCK SEAM. DUCTS SHALL CONFORM TO NFPA-80A AND UL-181.
6. FLEXIBLE DUCTS SHALL BE OF SIZE EQUAL TO DIFFUSER NECK SIZE. USE GEAR CLAMPS FOR SECURING FLEXIBLE DUCTS TO RIGID DUCT CONNECTIONS SUCH AS SPIN-ON FITTING, ETC. AND NECKS OF DIFFUSERS AND SEAL AIR TIGHT WITH DUCT TAPE. ROUND FLEXIBLE DUCTS SHALL BE MAXIMUM 2.4M (8'-0") LONG AND REMAINDER SHALL BE ROUND RIGID DUCT.
7. FINAL LOCATION OF NEW SUPPLY AIR DIFFUSERS, BOOTS, LIGHT PROFFERS, REGISTERS, RETURN AND EXHAUST AIR GRILLES SHALL BE COORDINATED WITH THE LATEST ARCHITECTURAL REFLECTED CEILING PLANS.
8. RELOCATED AND REUSE EXISTING DIFFUSERS, AND GRILLES AS INDICATED ON PLAN. PROVIDE NEW DUCT WORK ONLY IF NECESSARY AND REUSED EXISTING WHEREVER POSSIBLE AND WHERE CONDITIONS PERMIT.
9. PROVIDE FIRE DAMPERS WHERE SHOWN ON DRAWING AND/OR WHERE REEQUIPPED BY LOCAL AUTHORITIES AND/OR APPLICABLE CODES IN DUCT SECTIONS COMPLETE WITH APPROVED ACCESS DOORS.
10. FIR DAMPERS SHALL BE ULC LABELED, FABRICATED AND INSTALLED IN DUCT SLEEVE IN ACCORDANCE WITH NFPA-90A, CUA-90-1 AND APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION.
11. PROVIDE NEW BALANCING DAMPERS FOR ALL NEW AND EXCISING DUCT BRANCHES, AND IN ALL LOCATIONS NECESSARY FOR BALANCING THE AIR SYSTEMS, WITH SUITABLE MEANS OF CEILING ACCESS. PROVIDE VOLUME DAMPERS FOR ALL NEW SUPPLY AIR DIFFUSERS AND REGISTERS.
12. TEST, BALANCE, AND ADJUST ALL AIR SYSTEM TO OBTAIN THE DESIGN AIR QUANTITIES, SPECIFIED FLOW RATES AND TEMPERATURE RISES/DROPS ACROSS TERMINAL HEATING/COOLING ELEMENTS, COILS AND HEAT EXCHANGER INDICATED ON PLANS. BALANCING VALVES AND BALANCE FITTINGS. SUBMIT AIR SYSTEM TEST AND BALNCE REPORT TO THE ENGINEER AND OWNER IN AREAS WITH DRYWALL CEILINGS, THIS WROK SHALL BE DONE PRIOR TO ENCLOSING OF CEILING SPACE.
13. PROVIDE ALL CONTROLS, WIRING AND APPURTENANCES NECESSARY FOR COMPLETE AND OPERATING SYSTEMS.
14. CALIBRATE AS REQUIRED, EXISTING THERMOSTATS NOTED TO BE REUSED OR RELOCATED AND SUBMIT WRITTEN REPORT TO ENGINEER.
15. UNLESS OTHERWISE NOTED, DUCT WORK SHEET METAL TO BE AS FOLLOWS:

LONGEST SIDE	US GAUGE	LONGEST SIDE	US GAUGE
UP TO 12"	26	31" TO 56"	22
13" TO 30"	24	58" TO 84"	20

PITTSBURGH SEAMS SHALL BE USED ON LONGITUDINAL JOINTS AND HAMMER SEAMS TO MAKE AIR TIGHT. CROSS BREAK AL SHARP 90 DEGREE ELBOW.

16. ALL RADIUS ELBOWS MUST BE AT LEAST 1-1/2 TIMES THE WIDTH OF THE DUCT, OR PROVIDE TURNING VANES IN A SHARP 90 DEGREE ELBOW.
17. THE SUPPLY AND RETURN DUCT WORK 10'-0" FROM THE AIR HANDLING UNIT SHALL BE LINED WITH 1" ACOUSTIC FIBREGLASS INSULATION AND NEOPRENE COATED. THE DUCT SIZES ON THE DRAWINGS ARE INTERNAL, INCREASE THE DUCT SIZE TO SUIT THE INSULATION.
18. CEILING SPACE USED AS RETURN AIR PLENUM SHALL NOT CONTAIN ANY COMBUSTIBLES.
19. DUCT WORK MUST BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.
20. FLEXIBLE DUCTS SHALL BE ALUMINUM TYPE AND MUST NOT EXCEED 8 LINEAR FEET LONG. CLAMPS OR SCREWS MUST BE USED WHERE FLEX ARE SECURED TO RIGID DUCTS. DUCT TAPES ALONE ARE NOT PERMITTED.
21. PROVIDE DUCT PLENUM FOR ALL ROOF MOUNTED EXHAUST FANS, AND THE PLENUM SHALL BE INSULATED WITH 1" FIBREGLASS TO PREVENT CONDENSATION.
22. ALL EXISTING DUCT WORK SHOULD BE CLEANED OF ALL DIRT.

DUCT WORK INSULATION

1. ALL INSTALLATION SHALL BE IN ACCORDANCE TO ASHRAE GUIDELINES.
2. PROVIDE 25MM (1") THICK ACOUSTIC INSULATION FOR NEW SUPPLY, RETURN OR EXHAUST DUCTWORK 10'-0" FROM AIR HANDLING UNIT, 24.03 KG/M³ (1.5 LB/CU.FT. DENSITY NEOPRENE FACE) INTERNAL FIBERGLASS INSULATION. REMAINDER OF RIGID SUPPLY AIR DUCTWORK SHALL BE THERMALLY INSULATED.
3. NOTE THAT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHEN ACOUSTIC INSULATION IS INSTALLED. INCREASE DIMENSIONS ACCORDINGLY.
4. INSULATE ALL NEW SUPPLY AIR RIGID DUCTWORK UP TO 800MM (32") WIDE OR DIAMETER WITH 25MM (1") THICK FLEXIBLE GLASS FIBRE DUCT INSULATION, 18.42 KG/M³ (1.5 LB/CU.FT) DENSITY WITH FIRE RESISTIVE GLASS FIBRE REINFORCED THICK GLASS FIBRE DUCT INSULATION 48.06 KG/M³ (3LB/CU.FT.) DENSITY WITH FIRE RESISTIVE GLASS FIBRE REINFORCED KRAFT PAPER AND ALUMINUM FOIL VAPOUR BARRIER.
5. FOR EXTERIOR INSULATION, PROVIDE 2" THERMAL INSULATION ON THE EXTERIOR AND 1" ACOUSTIC LINING. THE INSULATION SHOULD BE RIGID INSULATION COMPLETE WITH ALUMINUM JACKETS.
   INSULATION: ASTM C612; RIGID, NONCOMBUSTIBLE BLANKET.
   .1 'KSI' VALUE : ASTM C518,0.036 AT 75.2 °F (24 °C).
   .2 MAXIMUM SERVICE TEMPERATURE: 250 °F (121 °C).
   .3 MAXIMUM MOISTURE ABSORPTION: 0.20 PERCENT BY VOLUME.
   .4 DENSITY: 48 KG/CU M.
   VAPOUR BARRIER JACKET:
   .1 KRAFT PAPER WITH GLASS FIBRE YARN AND BONDED TO ALUMINIZED FILM.
   .2 MOISTURE VAPOUR TRANSMISSION: ASTM E96; 0.04 PERM.
   .3 SECURE WITH PRESSURE SENSITIVE TAPE.

   ALUMINUM JACKET: ASTM B209M.
   .1 THICKNESS: 0.40 MM SHEET.
   .2 FINISH: SMOOTH.
   .3 JOINING: LONGITUDINAL SLIP JOINTS AND 2" (50 MM) LAPS.
   .4 FITTINGS: 0.4 MM THICK DIE SHAPED FITTING COVERS WITH FACTORY ATTACHED PROTECTIVE LINER.
   .5 METAL JACKET BANDS: 3/8" (10 MM) WIDE; 0.015" (0.38 MM) THICK ALUMINUM.

GENERAL NOTES

1. FINAL LOCATIONS OF AL THERMOSTATS SHALL BE CO-ORDINATED WITH ARCHITECT AND GENERAL CONTRACTOR TO SUIT FURNITURE LAYOUT AND TO AVOID INTERFERENCES WITH OTHER DEVICES. DISCONNECT AND RELOCATE EXISTING THERMOSTATS OUTWARD AS REQUIRED TO SUIT THE REFINISHING OF EXISTING WALL.

AIR BALANCING

1. THE CONTRACTOR MUST ENSURE THAT ALL EQUIPMENT ARE COMPLETE WITH ALL NECESSARY CONTROLS TO PROVIDE COMPLETE OPERATIONAL SYSTEMS.
2. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROLS AND WIRING TO SUPPORTS SHALL BE FROM THE BUILDING STRUCTURE.
3. SUBMIT 2 SETS OF OPERATING MANUALS OF ALL EQUIPMENT TO THE ENGINEER.
4. THE CONTRACTOR MUST INCLUDE THE STARTUP, COMMISSIONING AND AIR BALANCING IN HIS PRICE. SUBMIT TESTING AND BALANCING REPORTS TO THE ENGINEER PRIOR TO THE HOLDBACKS BEING RELEASED.
5. SUBMIT A CERTIFICATE TO PROVE THAT ALL EQUIPMENT ARE CLEANED, LUBRICATED AND TESTED. ALL GAUGES AND INSTRUMENTS MUST BE CALIBRATED PRIOR TO START-UP.
6. ALL PIPING MUST BE PRESSURE TESTED TO 150% OF DESIGN CONDITIONS. PROVIDE A CERTIFICATE TO THE ENGINEER.
7. THE AIR BALANCING SUBCONTRACTOR MUST BE APPROVED BY THE ENGINEER PRIOR TO THE ACTUAL WORK BEING DONE. CORRECT ALL DEFICIENCIES NOTED BY THE BALANCING CONTRACTOR.
8. ALL NEW OR RE-USED, RE-INSTALLED EQUIPMENT MUST BE CLEANED, LUBRICATED, AND TESTED. THEN WORK IS TO BE DOWN BY QUALIFIED AND CERTIFIED TECHNICIAN. PROVIDE A CERTIFICATE TO THE ENGINEER STATING COMPLETION OF THE WORK.
9. APPROVED BALANCING CONTRACTOR- COMPANY SPECIALIZING IN THE TESTING, ADJUSTING AND BALANCING OF SYSTEMS WITH A MINIMUM OF 5 YEARS OF DOCUMENTED EXPERIENCE AND SHALL BE CERTIFIED BY AABC & NEBB.

PIPE SYSTEMS

ALL PIPING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ANSL/ASME B31-1, UNLESS OTHERWISE SPECIFIED HEREIN. PROVIDE INSERTS, SLEEVES AND ANCHORS WHERE NECESSARY AND COORDINATE WITH OTHER TRADES TO THE FULLEST EXTENT IN THE PROVISION OF OPENINGS, CHASES, ETC. TO ACCOMMODATE THE PIPING SYSTEMS.

PIPE GRADES AND SLOPES

20. DRAINS AND WASTE PIPING SHALL SLOPE DOWN IN THE DIRECTION OF FLOW AT THE RATE OF 2:11 PER FOOT FOR BO SIZE AND UNDER AND 1111 PER FOOT FOR 100 SIZE AND LARGER. WHERE SLOPES FOR PIPING SERVICES INDICATED HEREIN ARE LESS THAN THOSE ESTABLISHED BY APPLICABLE CODES AND REGULATIONS, THE LATTER SHALL GOVERN.
21. ALL WATER SUPPLY PIPING SHALL BE GRADED SO THAT THE SYSTEM MAY BE COMPLETELY DRAINED THROUGH RISERS, DRIPS AND FIXTURES. FOR THIS PURPOSE, DRAIN COCKS SHALL BE PROVIDED AT ALL LOW POINTS OF THE SYSTEM. DOMESTIC HOT AND COLD WATER PIPING SHALL GRADE UP IN THE DIRECTION OF FLOW AT THE RATE OF 2% CIRCULATION PIPING SHALL GRADE DOWN IN THE DIRECTION OF FLOW AT 2%.

DISSIMILAR METALS

1. SEPARATE DISSIMILAR METALS IN ORDER TO PREVENT GALVANIC CORROSION.
2. PROVIDE GASKETS OR SHIMS OF APPROVED MATERIALS TO AVOID ELECTROLYTIC ACTION.
3. USE DIELECTRIC UNIONS AND/OR FLANGES WHERE PIPING OF DISSIMILAR METALS ARE CONNECTED.

PIPE EXTENSION AND CONTRACTION

1. ALL PIPING SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID UNDUE STRESS AND DISTORTION DUE TO EXPANSION AND CONTRACTION. PROVIDE FOR EXPANSION AND CONTRACTION BY THE USE OF EXPANSION LOOPS FOR OFFSETS. EXPANSION LOOPS SHALL BE INSTALLED IN THE LINE IN A COLD SPRUNG POSITION WITH PROPER ANCHORS AND GUIDES. STAINLESS BRAIDED EXPANSION LOOPS "METRALOOP" BY METRAFLEX INC.
2. PROVISION FOR EXPANSION AND CONTRACTION SHALL BE MADE ON THE BASIS OF 25 MM PER 30 M OF PIPE PER 38 DEG. C. TEMPERATURE RISE FOR STEEL PIPE AND 40 MM PER 30 M OF PIPE PER 38 DEG. C. TEMPERATURE RISE FOR BRASS OR COPPER PIPE.

ELEVATIONS

1. PROPOSED AND EXISTING ELEVATIONS. LOCATIONS, AND SIZES OF EXISTING SERVICES SHALL BE VERIFIED PRIOR TO STARTING WORK, INCLUDING BUILDING FLOOR, CEILING, AND STRUCTURAL STEEL, CONCRETE, AND WOOD ELEVATIONS.

PIPE HANGERS AND SUPPORTS

1. FABRICATE HANGERS, SUPPORTS AND SWAY BRACES IN ACCORDANCE WITH ANSL/ASME B31.1.
2. SUPPORT FROM STRUCTURAL MEMBERS. WHERE STRUCTURAL BEARINGS DO NOT EXIST OR INSERTS ARE NOT IN SUITABLE LOCATIONS, SUSPEND HANGERS FROM STEEL CHANNELS OR ANGLES. DIVISION 15 SHALL PROVIDE SUPPLEMENTARY STRUCTURAL MEMBERS. DO NOT SUSPEND FROM METAL DECK. ANCHORING OF PIPING AND EQUIPMENT SHALL BE TO MANUFACTURER'S RECOMMENDATIONS. SUBMIT ANCHORAGE SYSTEMS, ARRANGEMENT AND TYPE OF HANGERS SUPPORTS WITH CALCULATIONS FOR REVIEW.

SLEEVES AND ESCUTCHEONS

1. PIPE SLEEVES: AT POINTS WHERE PIPES PASS THROUGH MASONRY OR CONCRETE. SLEEVES OF: MINIMUM 0.8 MM THICK GALVANIZED SHEET STEEL WITH LOCK SEAM JOINTS. USE CAST IRON SLEEVE OR STEEL PIPE SLEEVES WITH ANNULAR FIN CONTINUOUSLY WELDED AT MIDPOINT;
   1. THROUGH FOUNDATION WALLS.
   2. WHERE SLEEVE EXTENDS ABOVE FINISHED FLOOR: EXTEND UP 50 MM, CAULK AND SEAL WHEN PIPE IS INSTALLED.
2. FOR PIPES PASSING THROUGH ROOFS, USE "THALER ROOFING PRODUCTS" INSULATED ALUMINUM CONE FLASHINGS AND FLASHING CLAMP DEVICE WITH TAMPER PROOF VENT TOP. ANCHOR SLEEVES IN ROOF CONSTRUCTION: FASTEN ROOF FLASHING TO CLAMP DEVICE: MAKE WATER-TIGHT DURABLE JOINT.

FIRESTOPPING

WHERE PIPES AND DUCTS PASS THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS, PACK SPACE WITH MATERIALS HAVING APPROVAL OF AUTHORITIES HAVING JURISDICTION.

DIVISION 15 TO PROVIDE ALL MATERIALS AND LABOUR TO COMPLETE U.L.C. FIRESTOPPING FOR DIVISION 15 WORK.

PIPING MATERIALS

EXT-EXTERIOR BUR-BURIED PIPING
INT-INTERIOR A.G.-ABOVE GRADE

	EXT	INT	BUR	A.G.	MATERIAL	CODE	
SANITARY SEWERS - ALL SIZES	√		√		CAST IRON	CSA B70	MECH. JOINTS. TARRED
	√		√		IPEX PSM	CSA B182-1	GASKET RING JOINTS
		√	√	√	COPPER DWV	ASTM B42	SOLDERED JOINTS
		√	√		ABS	CSA B181.1	SOLVENT WELD JOINTS
		√	√		PVC	CSA B181.2	SOLVENT WELD JOINTS
		√	√	√	CAST IRON	CSA B70	MECH. JOINTS
VENTING		√	√		TYPE L	ASTM B88	SEAMLESS SOLDERED
					COPPER		JOINTS
					CAST IRON	CSA B70	MECH. JOINTS
					ABS	CSA B181	SOLVENT WELD JOINTS
		√		√	COPPER DWV	ASTM B206	SEAMLESS SOLDERED JOINTS
					CAST IRON	CSA B70	MECH. JOINTS
COLD WATER	√		√		IPEX PVC	CSA B182-1	T&G, GASKET JOINTS
DOMESTIC HOT WATER		√		√	IPEX PVC	CSA B182-1	T&G, GASKET JOINTS

PIPE HANGER SPACING SCHEDULE

SERVICE	HANGER SPACING (FT.)								
	PIPE SIZE (MM.)								
	20	25	32	40	50	65	80	100	150
CW (TYPE 'L' COPPER) HARD TEMPER	8'-2"	8'-2"	9'-10"	9'-10"	9'-10"	9'-10"	9'-10"	9'-10"	9'-10"

1. THESE HANGER SPACINGS ARE A GUIDE ONLY. WHERE AUTHORITIES HAVING JURISDICTION, GOVERNING CODES OR SPECIFIC SALUTATIONS REQUIRE MORE STRINGENT DISTANCE BETWEEN HANGERS. THAT SPACING SHALL TAKE PRECEDENCE.

2. THIS CONTRACTOR SHALL. SUPPLY AND INSTALL. ALL REQUIRED SUPPLEMENTARY STEEL NECESSARY TO CONSTRUCT THESE HANGERS.

DIELECTRIC COUPLINGS

1. PROVIDE WHEREVER PIPES OF DISSIMILAR METALS ARE JOINED. PROVIDE INSTALLING UNIONS FOR PIPE SIZES NPS 2 AND UNDER THE FLANGES FOR PIPE SIZES OVER NPS 2. STANDARD OF ACCEPTANCE: WATTS

RECORD DRAWINGS

1. INSTALL ON ALL PIPING AND FOR ALL BRANCH LINES AND AS INDICATED ON PIPING SCHEMA TICS WHERE BALANCE VALVES (C.B.V.) ARE SHOWN.
2. ACCEPTABLE PRODUCTS SHALL BE BY TOUR AND ANDERSON.

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :
ASCENSION CES RENOVATION PROJECT
5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
MECHANICAL SPECIFICATIONS

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE : FEBRUARY 2025
SCALE : AS SHOWN
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M6.0
REVISION

March 13, 2025 4:18:01 PM

PLUMBING

1. PLUMBING SERVICES ARE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH:
THE ONTARIO BUILDING CODE (2006)
THE WATER RESOURCES ACT (REG. 815)
ASHRAE/IES 90.1 (2004)
FEDERAL, PROVINCIAL OR LOCAL AUTHORITIES HAVING JURISDICTION.
2. HOT AND COLD PORTABLE WATER PIPING TO BE TYPE–L COPPER (CONFORM TO ASTM–B88) WITH SOLDER–JOINT FITTINGS (CONFORM TO ANSI–B16.18 OR ANSI–B16.22).
3. BURIED DRAINAGE PIPING INSIDE THE BUILDING TO BE ABS PLASTIC (CERTIFIED TO CAN/CSA–B181.1) WITH SOLVENT CEMENT JOINT (CONFORM TO CAN/CSA–181.1).
4. ALL ABOVE GRADE SANITARY DRAINS AND VENT STACKS TO BE CAST IRON, NO HUB, WITH MJ JOINTS (CERTIFIED TO CSA–B70). BRANCH VENTS AND ABOVE GRADE SANITARY DRAINS MAY BE COPPER DRAINAGE TUBE (DWV) (COMPLY WITH ASTM–B306) WITH SOLDER JOINT FITTINGS (CONFORM TO ANSI–B16.29).
5. STANDARD FLOW ROOF DRAINS TO BE SMITH SERIES 1010ERCCID ROOF DRAIN, ALL DUCO COATED 15" (380MM) DIA.. CAST IRON BODY, WITH UNDER DECK CLAMP, ADJUSTABLE EXTENSION AND SUMP RECEIVER, 11" (280MM) SECURED C.I. DOME. ON SMALL AREA ROOFS PROVIDE SERIES 1330ERCCID DRAIN, WITH 8 1/2" (212MM) ALUMINUM DOME. IN PATIO AND TRAFFIC AREAS PROVIDE SERIES 1470ERCNB DRAIN, WITH ADJUSTABLE SLOTTED EXTENSIONS AND 8" X 8" (200MM X 200MM) NICKEL BRONZE SQUARE PROMENADE TOP. INVERTED ROOF INSTALLATION USE SERIES 1017EPRCCID DRAINS.
6. FLOW CONTROL ROOF DRAINS SMITH SERIES 1083ERCCID FLOW CONTROL ROOF DRAIN SLOPED ROOF ALL DUCO COATED CST IRON BODY, WITH ECK CLAMP, ADJUSTABLE DETENTION AND SUM RECEIVER, 11" (280MM) SECURED C.I. DOME AND 6" HIGH (150MM) FLOW RATE CONTROL WEIR. INVERTED ROOF INSTALLATION US SERIES 1017–85–ERPCCID DRAINS.
7. PARAPET, SCUPPER DRAINS, GUTTER, AND PIT DRAINS TO BE SMITH SERIES 1510/30SG SCUPPER DRAIN, ALL DUCO COATED CAST IRON BODY, WITH SECURED ANGLED GRATE, FLASHING CLAMP AND 45 DEGREE OR 90 DEGREE OUTLETS. FOR GUTTER INSTALLATION USE SMITH SERIES 1630, WITH 4 1/2 (114MM) HIGH DOME.
8. FLOOR DRAINS IN FINISHED AREAS TO BE SMITH SERIES 2005A FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, REVERSIBLE CLAMP DEVICE AND ADJUSTABLE 5' DIAMETER (127MM) NICKEL BRONZE 1/4" (6.35MM) THICK STRAINER, SECURED WITH IS.S. SCREWS, 4" (100MM) THROAT ON STRAINER. IN QUARRY OR MOSAIC TILED AREAS, PROVIDE SQUARE 'B' – 5"X5" (127MM X 127MM) POLISHED BRONZE (PB) SQUARE STRAINER. FLOOR DRAIN WITH FUNNEL PROVIDE 2005A–3580NB.
9. FLOOR DRAINS IN MECHANICAL ROOMS AND UNFINISHED AREAS TO BE SMITH SERIES 2320 FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, SEEPAGE FLANGE, ADJUSTABLE COLLAR, CALMING DEVICE AND 8" (200MM) DIAMETER GRATE. FLOATING FLOORS PROVIDE 9340, WITH MOMENT COMPENSATOR AND VIBRATION ISOLATOR.
10. FLOOR DRAINS WITH COMBINATION FUNNEL TO BE SMITH SERIES 2320–3591FUNNEL FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, SEEPAGE FLANGE, ADJUSTABLE COLLAR, CLAMPING DEVICE AND 8–1.2" (216MM) WITH 4" X 9" (101.6MM X 228.6MM) OVAL FUNNEL. FLOATING FLOOR PROVIDE 9340*–3591, WITH MOVEMENT COMPENSATOR AND VIBRATION ISOLATOR.
11. EXTERIOR NON–FREEZE WALL HYDRANT TO BE SMITH SERIES 5609QTNB HYDRANT, 1/4 TURN NON–DRIOP, CERAMIC CARTRIDGE, 3/4" (19MM) NON–FREEZE WALL TYPE WITH BRONZE FACE, ADJUSTABLE WALL–0FLANGE OPERATION KEY AND SERF–DRAINING INTEGRAL VACUUM BREAKER. LENGTH TO SUIT WALL THICKNESS.
12. INTERIOR HOSE BIBB TO BE CAMBRIDGE BRASS #32W201 HOSE BIBB, 1/2" (12.7MM) SIZE, WALL TYPE ROUGH BRONZE WITH HOSE END VACUUM BREAKER.
13. LINE CLEANOUTS TO BE SMITH SERIES #4420 LINE CLEANOUTS, IN CAST IRON PIPE WITH BOLTED NEOPRENE CASKETED COVER SECURED TO BODY WITH BRASS BOLTS, WITH FULL SIZE PIPE OPENING.
14. STACK CLEANOUT TO BE SMITH SERIES #4510 STACK CLEANOUT, IN BASE OF CAST IRON STACK WITH NEOPRENE CASKETED SECURED COVER. WHERE CLEANOUTS ARE CONCEALED BEHIND FINISHED WALLS ACCESS SHALL BE MADE BY SMITH 4530 ROUND STAINLESS STEEL PLATE AND SLOTTED FLAT HEAD STAINLESS STEEL SCREWS.
15. URINAL CLEANOUT TO BE SMITH SERIES SQ4–1819 URINAL WALL ACCESS CLEANOUT , WITH S.S BOLT AND WING NUT, COMPLETE WITH ROUND POLISHED S.S. ACCESS COVER AND SECURED WITH V.P. SCREW.
16. FLOOR CLEANOUTS IN UNFINISHED AREAS AND OUTSIDE AREAS, SMITH SERIES 4220 FLOOR CLEANOUT, DUCO COATED CAST IRON BODY WITH INTEGRAL CLAMP DEVICE, AND REMOVABLE POSITIVE SEAL CLOSURE PLUG AND HEAVY DUTY 6" (150MM) ADJUSTABLE COVER SECURED WITH STAINLESS STEEL SCREWS.
17. FLOOR CLEANOUTS IN TILED AREAS, SMITH SERIES 4140 FLOOR CLEANOUT, SAME AS ABOVE WITH SQUARE NICKEL BRONZE COVER AND FRAME RECESSED FOR TILE. COVER CAN BE ADJUSTED TO SUIT FLOOR LINES WHEN INSTALLING FINISHED FLOOR.
18. FLOOR CLEANOUTS IN TERRAZZO AREAS, SMITH SERIES 4180 FLOOR CLEANOUT, SAM AS ABOVE WITH SQUARE NICKEL BRONZE COVER AND FRAME RECESS FOR TERRAZZO. COVER CAN BE ADJUSTED TO SUIT FLOOR LINES WHEN INSTALLING FINISHED FLOOR.
19. FLOOR CLEANOUTS IN CARPETED AREAS, SMITH SERIES 4020Y FLOOR CLEANOUT, SAME AS ABOVE WITH NICKEL BRONZE COVER AND FRAME.
20. FLOOR CLEANOUTS IN OTHER FINISHED AREAS, SMITH SERIES 4020 FLOOR CLEANOUT, SAME AS ABOVE WITH NICKEL BRONZE FRAME AND COVER.
21. FLOOR CLEANOUTS FOR HEAVY TRAFFIC AREAS, SMITH SERIES 4100 FLOOR CLEANOUT, SAME AS ABOVE WITH EXTRA HEAVY NICKEL BRONZE COVER AND FRAME.
22. TRAP SEAL PRIMER SERVING 1 OR 2 DRAINS TO BE P.P.P. INC. MODEL PO–500 AUTOMATIC TRAP SEAL PRIMER VALVE, SEARING INDIVIDUAL OR REMOTE AREA DRAINS WITH ½" NPT (MTOF) CONNECTIONS WITH STRAINER AND INTEGRAL BACK FLOW PREVENTER & VACUUM BREAKER.
23. PROVIDE ISOLATION VALVES ON ALL MAIN LINES, BRANCH LINES AND AT PIECES OF EQUIPMENT. ALL VALES SHALL BE JENKINS, CRANE OR EQUAL WITH A MINIMUM RATING OF 125% OF THE SYSTEM DESIGN PRESSURE.
24. ALL ABOVE GRADE PIPING IS TO BE INSULATED WITH FIBREGLASS INSULATION TO PREVENT CONDENSATION OR TO RETAIN HEAT FOR ENERGY EFFICIENCY. INSULATION SYSTEM TO BE SCHULLER MICRO–LOK OR EQUAL, WITH SIZES AS SHOWN BELOW.

SERVICE & PIPE SIZE	INSULATION REQUIRED
SANITARY DRAINS (ANY SIZE)	1"
DOMESTIC COLD WATER (ANY SIZE)	1"
DOMESTIC HOT WATER (2" & SMALLER)	1"
DOMESTIC HOT WATER (2½" & LARGER)	1½"
DOMESTIC HOT WATER RECIRC.(ANY SIZE)	1"
DOMESTIC WATER (HOT OR COLD) BRANCHES	½"

25. IDENTIFY ALL PIPE OR PIPE COVERING WITH SMILLIE MCADAMS SUMMERLIN LTD.COIL–MARK OR ADHESIVE STYLE BUILDING SERVICE PIE MARKER. ALL IDENTIFICATION SHALL INCORPORATE DIRECTION OF FLOW ARROW AND THE MANUFACTURES STANDARD SYSTEM DESIGNATION. IDENTIFICATION MUST BE APPLIED AT INTERVALS NOT GREATER THAN 40 FT. (12M). ADJACENT TO VALVES, BEHIND ACCESS DOORS, AT CHANGES IN DIRECTION AND WHERE PIPES PASS THROUGH WALLS OR FLOORS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
26. IDENTIFY AL VALVES BY MEANS OF A 1–1/4" (32MM) DIAMETER BRASS TAG WITH 3/8" (9.5 MM) STAMPED BLACK PAINT FILLED CHARACTERS, OR A 1–1/4" (32MM) SQUARE ENGRAVED TWO–PLY PLASTIC TAG WITH 3/8" (9.5MM) BLACK CHARACTERS ON WHITE BACKGROUND, TAGS TO BE CONSECUTIVELY NUMBERED AND SECURED TO VALVES BY A BRASS BEAD CHAIN. PROVIDE AND MOUNT FOR OWNER A TYPED VALVE DIRECTORY IN A BLACK DOCUMENT FRAME, LISTING VALVE NUMBER, LOCATION, AND SERVICE. INDIVIDUAL FIXTURE VALVES NEED NOT BE IDENTIFIED.
27. IDENTIFY ALL EQUIPMENT SUCH AS, BUT NOT LIMITED TO FANS, PUMPS, MOTORS AHU'S AND THEIR RELATED STARTERS BY MEANS OF ON ENGRAVED TWO–PLY PLASTIC I.D. PLATE. EQUIPMENT I.D. PLATES SHALL HAVE 3/8" (9.5 MM) WHITE CHARACTERS ON BLACK BACKGROUND: STARTER I.D. PLATES SHALL BE AS ABOVE WITH 1/8"(3.1MM)CHARACTERS. ALL PLATES SHALL BE SIZED TO ACCOMMODATE REQUIRED DESCRIPTION BEARING TYPE OF EQUIPMENT, NUMBER AND SERVICE. LOCATE CONSPICUOUSLY AND SECURE WITH SELF ADHESIVE TAPE. RECOGNIZED ABBREVIATIONS WILL BE ACCEPTABLE. OTHER PROPOSED ABBREVIATIONS TO BE APPROVED BY THE CONSULTANT.
28. PROVIDE ACCESS PANELS TO ALL CONCEALED VALVES OR EQUIPEMNT. SIZE OF PANELS TO ALLOW FOR MAINTENANCE OR REMOVAL OF ITEM.

29. UNIVERSAL ACCESS DOORS FOR WALLS AND CEILINGS TO BE ACUDOR SERIES UF–5000 ACCESS DOORS, 14 GA. (17MM) STEEL, RUST RESISTANT, CONTINUOUS CONCEALED HINGE, WITH POSITIVE AND SELF–OPENING SCREWDRIVER OPERATED LOCK. DOORS IN TILE WALLS SHALL BE STAINLESS STEEL AND SHALL SUIT TILE PATTERN. ALL OTHER PANELS SHALL BE PRIME PAINTED STEEL. MINIMUM SIZE OF PANELS SHALL BE 12" X 18" (300MM X450MM). WHEREVER POSSIBLE 24" X 24" (600MM X 600MM) PANELS SHALL BE USED.
30. RECESSED ACCESS DOOR FOR TILE APPLICATIONS TO BE ACUDOR SERIES AT–5020 RECESSED ACCESS DOOR FOR CEILING TILE, 16 GA. (1.5MM) STEEL WITH CONCEALED PIVOTING ROD TYPE HINGE AND ALLEN KEY OPERATED LOCK. DOOR TO BE RECESSED 5/8" (14MM) TO RECEIVE CEILING TILE. FOR CERAMIC WALL TILE PROVIDE #AT–5020SS STAINLESS STEEL RECESSED ACCESS DOOR WITH ALLEN KEY LOCK.
31. RECESSED ACCESS DOOR FOR DRYWALL APPLICATIONS TO BE ACUDOR SERIES DW–5015 RECESSED ACCESS DOOR, 16 GA. (1.5MM) STEEL WITH CONCEALED PIVOTING ROD TYPE HIGH AND SELF–OPENING SCREWDRIVER OPERATED LOCK. DOOR TO BE RECESSED 5/8"(14MM) TO RECEIVE DRYWALL. FLANGE OF DOOR TO BE GALVANIZED STEEL TAPING BEADING TO PROVIDE FINISH OF DRYWALL JOINTS.
32. FIRE RATED ACCESS DOORS TOBE INSULATED ACUDOR SERIES FW–5050 FIRE RATED ACCESS DOORS, FOR WALLS AND CEILING UL/ULC 1–1/2 HOUR 'B' LABEL WITH MAXIMUM TEMPERATURE RISE OF 250 DEGREES AFTER 30 MINUTES. DOOR WITH 2' (50MM) INSULATION, STEEL. 20 GA (1MM) WITH 16 GA. (1.6MM) FRAME, CONCEALED HINGE, SELF LATCHING RING PULL AND GREY BAKED ENAMEL FINISH.
33. PROVIDE PLUMBING FIXTURES AND EQUIPMENT AS SPECIFIED ON THE DRAWINGS. ALL ITEMS TO BE NEW AND OF THE HIGHEST QUALITY. ALL ITEMS INSTALLED BY THIS CONTRACTOR MUST BE INSTALLED COMPLETE AND INCLUDE ALL PIPING, VALVES AND MISCELLANEOUS FITTINGS, CONTROLS, SUPPORT BASE OR STRUCTURE, TO ENSURE A TOTALLY FUNCTIONAL UNIT OR SYSTEM. COORDINATE INSTALLATION WITH OTHER TRADES AS REQUIRED.
34. ALL PLUMBING INSTALLATIONS ARE TO BE IN THE BEST WORKMANLIKE MANOR AND IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE.
35. SUPPORT ALL PIPING AS FOLLOWS:

PIPE SIZE	DISTANCE BETWEEN SUPPORTS
1" & SMALLER (METALLIC)	6'–0" MAXIMUM
1¼" & SMALLER (METALLIC)	8'–0" MAXIMUM
½" & SMALLER (PLASTIC)	3'–0" MAXIMUM
1¼" & SMALLER (PLASTIC)	4'–0" MAXIMUM

36. PROVIDE SLEEVES FOR ALL PIPING PENETRATING WALLS AND FLOORS. ENSURE ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES ARE PROPERLY SEALED WITH AN APPROVED COMPOUND.
37. ALL TRENCHING, BEDDING, AND BACKFILL OF BURIED PIPING IS THE RESPONSIBILITY OF THE CONTRACTOR.
38. PRESSURE TEST THE HOT AND COLD WATER PIPES WITH WATER PRESSURE AT 1000KPa FOR 1 HOUR OR AIR PRESSURE AT 700KPa FOR 2 HOURS.

PLUMBING FITTINGS AND ACCESSORIES

VALVES

GATE VALVES:	NPS 2 AND UNDER	CRANE 1320 / CRANE 428
	OVER NPS 2	CRANE 465 1/2
GLOBE VALVES:	NPS 2 AND UNDER	CRANE 1310
CHECK VALVES:	NPS 2 AND UNDER	CRANE 1342
	OVER NPS 2	CRANE 373
BALL VALVES:	NPS 2 AND UNDER	CRANE 9322S

FLOOR DRAINS

1. FINISHED FLOORS ZURN ZN–211BP, 125BP, 125 MM ROUND NICKEL BRONZE STRAINER.
2. UNFINISHED AREAS ZURN ZXN–211AP – IN WATERPROOF MEMBRANE AREAS USE ZXN–401AP NICKEL BRONZE STRAINER.
3. CERAMIC TILE AREAS ZURN ZXN–211 HP WITH NICKEL BRONZE STIRAINER,150X150 SIZE.
4. ANCON DRAINS CONSIDERED EQUAL TO ZURN.

CLEANOUTS

1. CLEANOUT PLUGS (CAST IRON) HEAVY CI MALE FERRULE WITH BRASS SCREWS AND THREADED BRASS OR BRONZE PLUG. SEALING–CAULKED SEAT OR WITH NEOPRENE GASKET. ACCEPTABLE MATERIALS: ZURN Z1450 SERIES, ANCON.

PLUMBING FIXTURES

1. FIXTURES ARE NOT TO BE INSTALLED UNTIL DIRECTED BY THE ENGINEER. ALL ROUGH–IN SHALL BE ACCURATELY LAID OUT, AND NO OFFSETS WILL BE ACCEPTED. ALL FIXTURES SHALL BE THE BEST OF THEIR RESPECTIVE KIND, FREE FROM ALL DEFECTS AND ANY FIXTURE WHICH IN THE OPINION OF THE ENGINEER IS DEFECTIVE OR DAMAGED SHALL BE REMOVED AND REPLACED BY A FIXTURE WHICH IS ACCEPTABLE. THE FIXTURES SHALL INCLUDE ALL TRIM, TRAPS AND WASTE WATER CONNECTIONS, TANKS. ETC., USUALLY CLASSED AS FITTINGS AND REQUIRED TO MAKE FIXTURE COMPLETE IN EVERY RESPECT. FIXTURES SHALL BE WHITE. CRANE AND AMERICAN STANDARD FIXTURES ARE CONSIDERED EQUALS.

PLUMBING FIXTURES

FD– FLOOR DRAINS

ADJUSTABLE FLOOR DRAIN–ZURN–Z415–BZ1–DP

TRAP SEAL PRIMERS

PPP–PR–500 PRESSURE DROP ACTIVATED TRAP PRIMER

CLEANOUTS

ADJUSTABLE ON GRADE CLEANOUTS– SIOUX CHIEF 834 SERIES FINISH LINE ADJUSTABLE ON GRADE CLEANOUT, MODEL NO 834–4–P–NR–V–832 S4

WATER HAMMER ARRESTORS

.1 WATTS DRAINAGE SERIES 05

A. .2 ANSI A112.26.1; COPPER CONSTRUCTION, PISTON TYPE SIZED TO PDI WH–201, PRE–CHARGED SUITABLE FOR OPERATION IN TEMPERATURE RANGE 99°F TO 300°F (–73°C TO 149°C) AND MAXIMUM 150 PSI (1000 KPA) WORKING PRESSURE.

March 13, 2025 4:18:06 PM

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	FEB 18, 2025
2	ISSUED FOR TENDER	MAR 13, 2025

PROJECT :
ASCENSION CES RENOVATION PROJECT
5205 New Street,
Burlington, Ontario, L7L 1V3
HALTON CATHOLIC DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :
M.K. AHMED
100069234
13/03/2025

DWG TITLE :
MECHANICAL
SPECIFICATIONS-2

REGAL CONSULTING ENGINEERS INC.
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DATE : FEBRUARY 2025
SCALE : AS SHOWN
DRAWN BY: MS
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2025-476
DRAWING No. : M6.1
REVISION