LEGEND – PLUMBING

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRC. PIPING
	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
M	WATER METER
	ISOLATION VALVE
	CIRCUIT BALANCING VALVE
	CHECK VALVE
	STRAINER
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
FSF	FIRE STOP FLAP
CAP	CAP
T	THERMOSTAT

MECHANICAL DRAWING LIST

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 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.
11. 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.

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	FIXTURN NAME	SANITARY		VENT		DCWS		DHWS		TEMPERED		REMARKS
		MM	INS	MM	INS	MM	INS	MM	INS	MM	INS	
W1–BF	WATER CLOSET FLOOR MOUNTED– FLUSHOMETER –EXPOSED–MANUAL	75	3	38	1.5	38	1.50	–	–	–	–	1. American Standard Madera FloWise 3461001.020 Barrier free Toilet, Floor mounted with floor outlet, Toilet operates in the range of 4.2 to 6.0 LPF (1.1 – 1.6 GPF), Vitreous china, White finish, Ever Clean antimicrobial surface, Elongated bowl, 419 mm (16–1/2") rim height, 254 mm (10") to 305 mm (12") rough–in from wall to the center of waste outlet, Direct–fed siphon jet flush action, 38 mm (1–1/2") top spud, Flush valve by others, Fully–glazed 54 mm (21/8") trapway, Condensation channel, Toilet seat not included, Two (2) colour matched bolt caps with retainers (481310–100). Overall Dimensions: 356 mm (14") wide x 718 mm (28–1/4") from finished wall Water Surface: 254 x 305 mm (10" x 12") water surface are.
												2. Centoco #500STSCCFE–001 FAST–N–LOCK, for elongated bowl, Open front, Heavy–duty, For commercial applications, Polypropylene, Toilet seat, Less seat cover, Plastic commercial check hinges, and Stainless–steel hinge pin, Specified in White finish,
												3. SL–ROYAL 111–1.28 ROYAL Manual Exposed Water closet flushometer, 38 mm (1–1/2") spud coupling For top spud toilet, constructed from Semi–red brass, Polished chrome finish, High Efficiency 4.8 LPF (1.28 GPF), Chloramine resistant PERMEX®synthetic rubber diaphragm, Metal oscillating handle with triple seal handle packing, Flush tube for 292 mm (11–1/2") rough–in, Adjustable tailpiece, 25mm (1") I.P.S. screwdriver Bak–Chek®angle control stop with free spinning vandal–resistant stop cap, Dual–filtered fixed bypass, Sweat solder adapter kit with cover tube, High back pressure vacuum breaker, Inlet located right of valve, 25 mm (1") supply pipe, Cast wall flange with set screw, Non–hold–open, no external volume adjustment, Pressure Range: 103 – 552 kPa (15 – 80 PSI) operating water pressure Compliances and certifications: Requires less than 5 pounds of force to activate (push–button), cUPC compliant.
												4. CM–16104 wall mounting, back rest, solid core plastic laminate panel back, Antique white, 305 mm (12") wide, 102 mm (4") high, 8" (204 mm), 18 gauge stainless steel bar with #4 gloss with flanges and covers, concealed snap flanges and mounting hardware included, Provide adequate backing in wall for support and comply to local codes for barrier free requirements
L1–BF	WALL HUNG LAVATORY– TWO HANDLE FAUCET	50	2	32	1.25	13	0.50	13	0.50	13	0.5	1. American Standard Murro with Ever clean #0954.004EC/0059.020EC Basin, 540mm x 520mm x 165mm (21–1/4" x 20–1/2" x 6–1/2") high, vitreous china, for carrier with concealed arms, rear overflow, recessed self–draining faucet ledge, semi–pedestal P–trap cover.
												2. Chicago Faucets #802–VCP–317VP–XK–E2805 Two handle faucet, 4" (102mm) centerset, solid brass body construction, ceramic 1/4 turn cartridge, with Vandal Resistant 1.9LPM (0.5 GPM), aerator outlet, metal red and blue index buttons 102mm (4") long wrist blade handle with vandal resistant screw.
												3. McGuire #155AC open grid drain, chrome plated cast brass one piece top, 1.5mm (1/16") tubular 32mm (1–1/4") tailpiece.
												4. McGuire #H170BVRB Faucet Supplies, chrome finish polished brass, 13mm (1/2") I. D. Inlet x 127mm (5") horizontal extension tubes, combination V. P. Loose key handle, escutcheon and stainless steel braided flexible riser.
												5. McGuire #8872C P–Trap, heavy cast brass adjustable body, with slip nut, 32mm (1–1/4") size, shallow wall flange and seamless tubular wall bend
												6. Watts #TCA–411, Carrier, mounted on concrete floor, with epoxy coated cast iron concealed arms with sliding adjustable arm brackets, heavy gauge steel uprights with integral welded feet. Minimum space required: for one unit: 102mm (4") for two to six units in a row: 152mm (6") finished metal stud wall to back of pipe space.
S2	2– COMPARTMENT STAINLESS STEEL SINK	38	1.50	32	1.25	13	0.50	13	0.50	–	–	
FD	FLOOR DRAIN	75	3	38	1.5	–	–	–	–	–	–	REFER TO SPECIFICATIONS
TSP	TRAP SEAL PRIMER	–	–	–	–	10/13	0.38/0 .50	–	–	–	–	ONE – 10MM/0.38" PER FD, FFD, HD, PD

UNIT VENTILATOR SCHEDULE

REFER	AIRFLOW (CFM)	E.S.P. (IN.W.C.)	HEATING COIL (HOT WATER)			ELECTRICAL			MANUFACTURER, MODEL AND ACCESSORIES
			EWT/LAT (°F)	CAPACITY (MBH)	WATER FLOW (GPM)	VOLTAGE	M.C.A.	M.O.C.P.	
UV–1,	1256	0	50	78.175	8	115V/1ø/60Hz	6.3	15	DAIKIN UAVS9H13 FACE AND BYPASS MODEL. C/W W/SENSORS/ACTUATORS, FILTERS, AUXILIARY DRAIN PAN.

NOTES: 1. ACCEPTABLE ALTERNATES SUBJECT TO SHOP DRAWING REVIEW: CARRIER, TRANE, YORK.
2. REFER TO THE CONTROL SCHEMATICS AND SEQUENCES OF OPERATION.

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

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR 100% REVIEW	5th MAY 2026
2	ISSUED FOR TENDER	8th MAY 2026
3	ISSUED FOR BUILDING PERMIT	8th MAY 2026
4		
5		
6		
7		
8		

PROJECT: ST. THERESA CATHOLIC SCHOOL
173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER M.K. AHMED 100069234 09/05/2026 PROVINCE OF ONTARIO

DWG TITLE :
LEGENDS, GENERAL NOTES, EQUIPMENT SCHEDULE

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

DATE : MAY 2026
SCALE : NTS
DRAWN BY: TD
CHECKED BY : MA
DWG STATUS :
PROJECT No. : 2025-504-2
DRAWING No. : M1.0
REVISION

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 OR APPROVED EQUAL.
2. ALL RETURN GRILLES SHALL C/W MERV 13 FILTERS.

DIFFUSER SCHEDULE

SYMBOL	SIZE MM x MM (IN. x IN.)	APPLICATION	NECK SIZE INSØ	AIRFLOW RANGE CFM	NC RANGE	MANUFACTURER AND MODEL (BASIS OF DESIGN: E.H. PRICE)
S-1 CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	6"	–135	<30	SCD
S-2 CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	8"	136–250	<30	SCD
S-3 CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	10"	251–350	<30	SCD
S-4 CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	12"	351–471	<30	SCD
S-5 CFM	300x200 (12x8)	DUCT MOUNTED GRILLE	–	–345	<30	520D
S-6 CFM	200x100 (8x4)	DUCT MOUNTED GRILLE	–	0–90	<30	520D

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

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR 100% REVIEW	5TH MAY 2026
2	ISSUED FOR TENDER	6TH MAY 2026
3	ISSUED FOR BUILDING PERMIT	6TH MAY 2026
4		
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PROJECT :
ST. THERESA CATHOLIC SCHOOL
173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :
EQUIPMENT SCHEDULE-2

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
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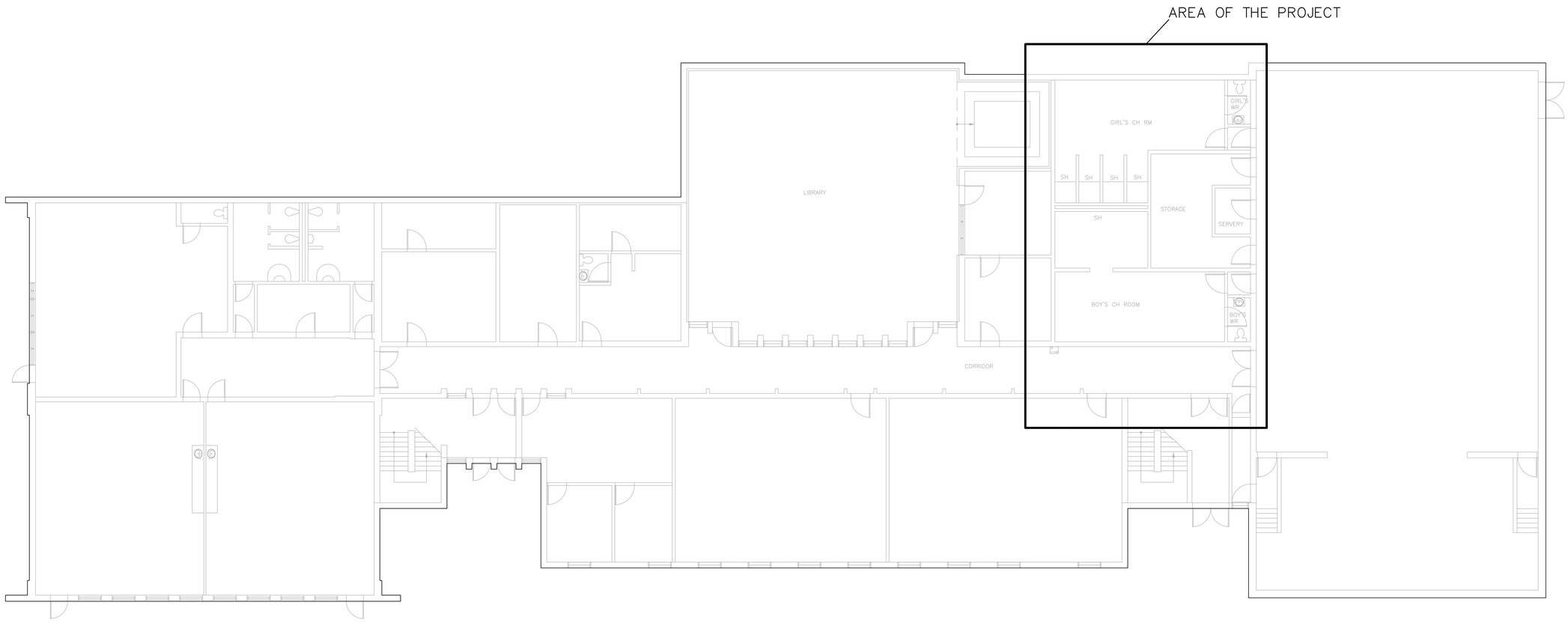
www.regal-eng.com

DATE : MAY 2026
SCALE : NTS
DRAWN BY: TD
CHECKED BY : MA
DWG STATUS :
PROJECT No. : 2025-504-2
DRAWING No. : M1.1
REVISION



GROUND FLOOR

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 100% REVIEW	5TH MAY 2026
2	ISSUED FOR TENDER	6TH MAY 2026
3	ISSUED FOR BUILDING PERMIT	6TH MAY 2026
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PROJECT :

ST. THERESA CATHOLIC SCHOOL

173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :

KEY PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
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208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
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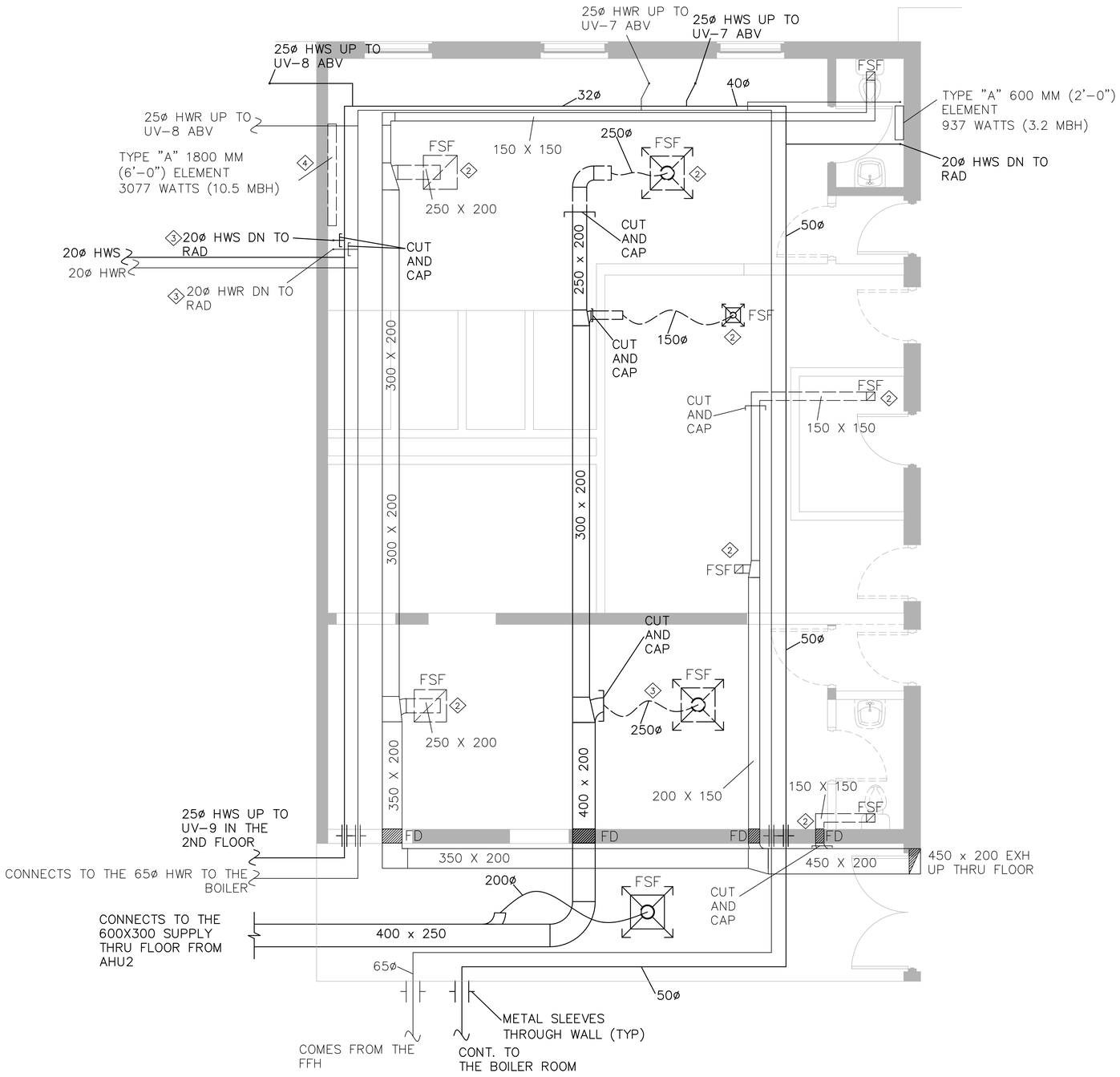
DATE :	MAY 2026
SCALE :	1:110
DRAWN BY:	TD
CHECKED BY :	MA
DWG STATUS :	
PROJECT No. :	2025-504-2
DRAWING No. :	M1.2
REVISION	



DRAWING NOTES

1	ALL HOT WATER HEATING PIPING (HWS AND HWR) RUN IN OPEN STEEL WEB JOIST
2	REMOVE THE EXISTING SUPPLY DIFFUSERS AND EXHAUST GRILLS FROM THE CEILING AND SEAL AND AIRTIGHT THE DUCT WITH A MATCHING MATERIAL TO THE EXISTING DUCT MATERIAL. GENERAL CONTRACTOR TO PATCH AND FINISH THE WALL OPENING ONCE THE DUCTING IS DEMOLISHED. THE FIRE RATED WALLS NEEDS TO BE PATCH AND FINISH FROM A FIRE RATED MATERIAL.
3	REMOVE AND REPLACE THE SUPPLY DIFFUSER, DUCT AND CONNECT TO THE EXISTING.
4	CONTRACTOR TO REMOVE AND DEMOLISH THE EXISTING WALL FIN RAD AND REMOVED FROM THE SITE. CAP THE HWS AND HWR PIPE.

GENERAL DEMOLITION NOTES

1. EXISTING MECHANICAL ITEMS NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
2. EXISTING MECHANICAL ITEMS SHOWN BUT NOT NOTED AS BEING REMOVED OR RENOVATED SHALL REMAIN AS PRESENTLY INSTALLED AND OPERATING.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ON SITE ALL LOCATIONS AND SIZES OF ALL SERVICES AND EQUIPMENT PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL OPENING THAT RESULT FROM THE REMOVAL OF EQUIPMENT OR SERVICES SHALL BE NEATLY PATCHED WITH SUITABLE NEW MATERIALS TO SUIT EXISTING CONSTRUCTION.
5. REMOVAL OF EXISTING PIPING OR DUCT SYSTEMS INCLUDES REMOVAL OF ALL HANGERS, INSULATION, FITTING, ETC.
6. MAINTAIN INTEGRITY OF EXISTING SYSTEMS THAT ARE TO REMAIN OR MODIFIED.
7. INSTALL NEW SYSTEM OF SERVICES WHERE REQUIRED TO MAINTAIN SYSTEM OPERATION PRIOR TO DEMOLITION OF EXISTING SERVICES.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR 100% REVIEW	5th MAY 2026
2	ISSUED FOR TENDER	8th MAY 2026
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PROJECT :

ST. THERESA CATHOLIC SCHOOL

173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :

DEMOLITION PLAN - HVAC

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
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DATE :	MAY 2026
SCALE :	1:40
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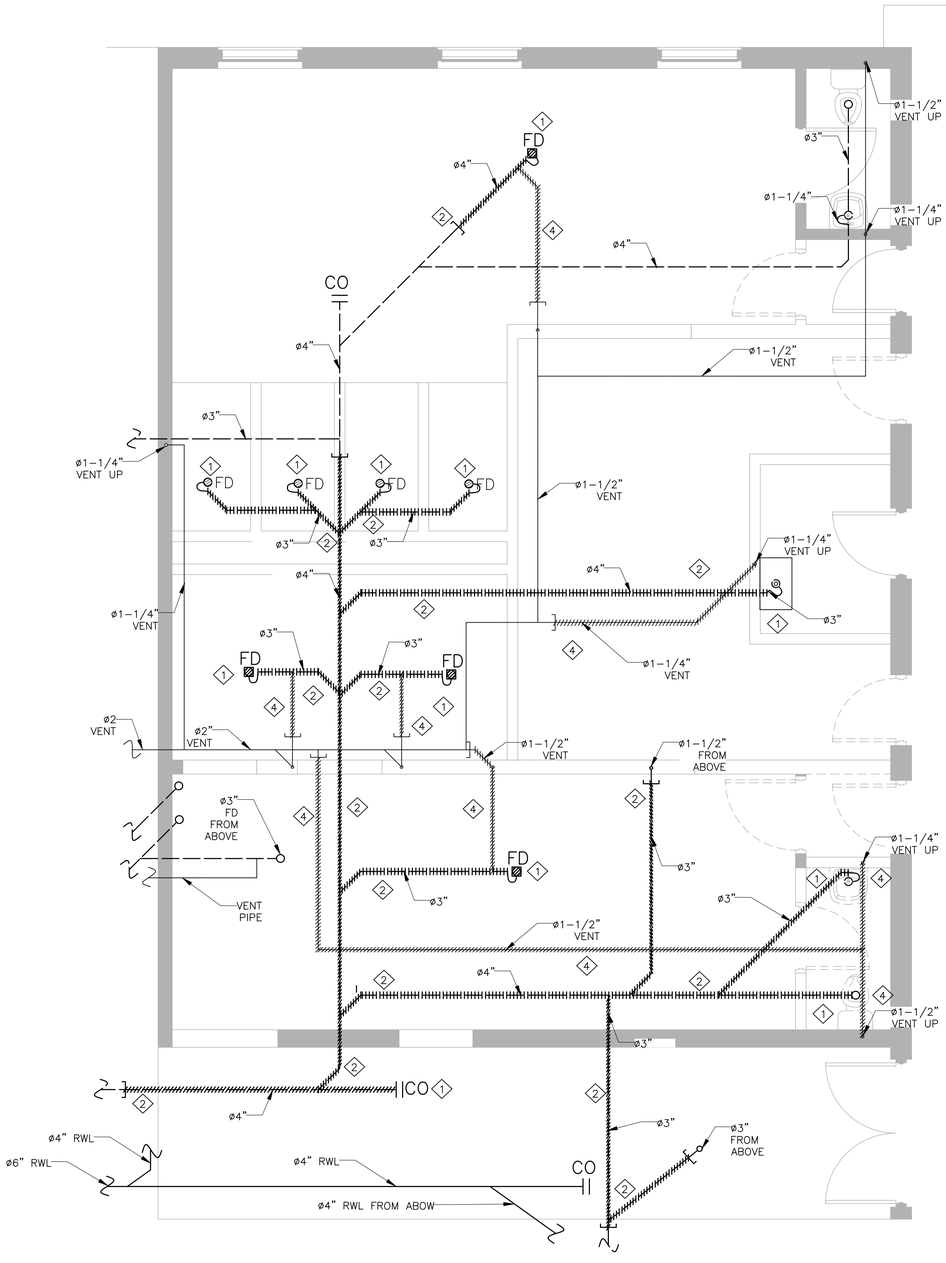
CHECKED BY :	MA
DWG STATUS :	
PROJECT No. :	2025-504-2
DRAWING No. :	M2.0
REVISION	



DRAWING NOTES

1	DISMANTLE AND REMOVE THE EXISTING PLUMBING FIXTURES AND ASSOCIATED ACCESSORIES.
2	DISMANTLE, REMOVE, CAP AND SEAL THE EXISTING DRAINAGE LINES
3	CONTRACTOR TO PERFORM A FLOOR SCAN AND LOCATE THE EXACT LOCATION OF THE EXISTING SANITARY DRAIN PIPE. MECHANICAL CONTRACTOR TO VERIFY THE CONDITION OF THE EXISTING UNDERGROUND DRAINAGE LINE AND COMMUNICATE TO THE CONSULTANT BEFORE THE COMMENCEMENT OF WORK.
4	DISMANTLE, CAP AND SEAL THE EXISTING VENT LINES. CONTRACTOR TO CONFIRM THE CONNECTIONS OF THE VENT LINES WITH THE SECOND FLOOR EQUIPMENT. WHEN REMOVAL OF VENT LINES PENETRATING THE ROOF, THE ROOF OPENING TO BE CLOSED AND SEALED. ROOFING WORK TO BE DONE BY THE APPROVED ROOFING CONTRACTOR TO THE SCHOOL BOARD.

GENERAL DEMOLITION NOTES

1. EXISTING MECHANICAL ITEMS NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
2. EXISTING MECHANICAL ITEMS SHOWN BUT NOT NOTED AS BEING REMOVED OR RENOVATED SHALL REMAIN AS PRESENTLY INSTALLED AND OPERATING.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ON SITE ALL LOCATIONS AND SIZES OF ALL SERVICES AND EQUIPMENT PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL OPENING THAT RESULT FROM THE REMOVAL OF EQUIPMENT OR SERVICES SHALL BE NEATLY PATCHED WITH SUITABLE NEW MATERIALS TO SUIT EXISTING CONSTRUCTION.
5. REMOVAL OF EXISTING PIPING OR DUCT SYSTEMS INCLUDES REMOVAL OF ALL HANGERS, INSULATION, FITTING, ETC.
6. MAINTAIN INTEGRITY OF EXISTING SYSTEMS THAT ARE TO REMAIN OR MODIFIED.
7. INSTALL NEW SYSTEM OF SERVICES WHERE REQUIRED TO MAINTAIN SYSTEM OPERATION PRIOR TO DEMOLITION OF EXISTING SERVICES.

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No.	Description	Date
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2	ISSUED FOR TENDER	8th MAY 2026
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PROJECT :

ST. THERESA CATHOLIC SCHOOL

173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100068234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :

DEMOLITION PLAN - DRAINAGE

RCEI
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208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
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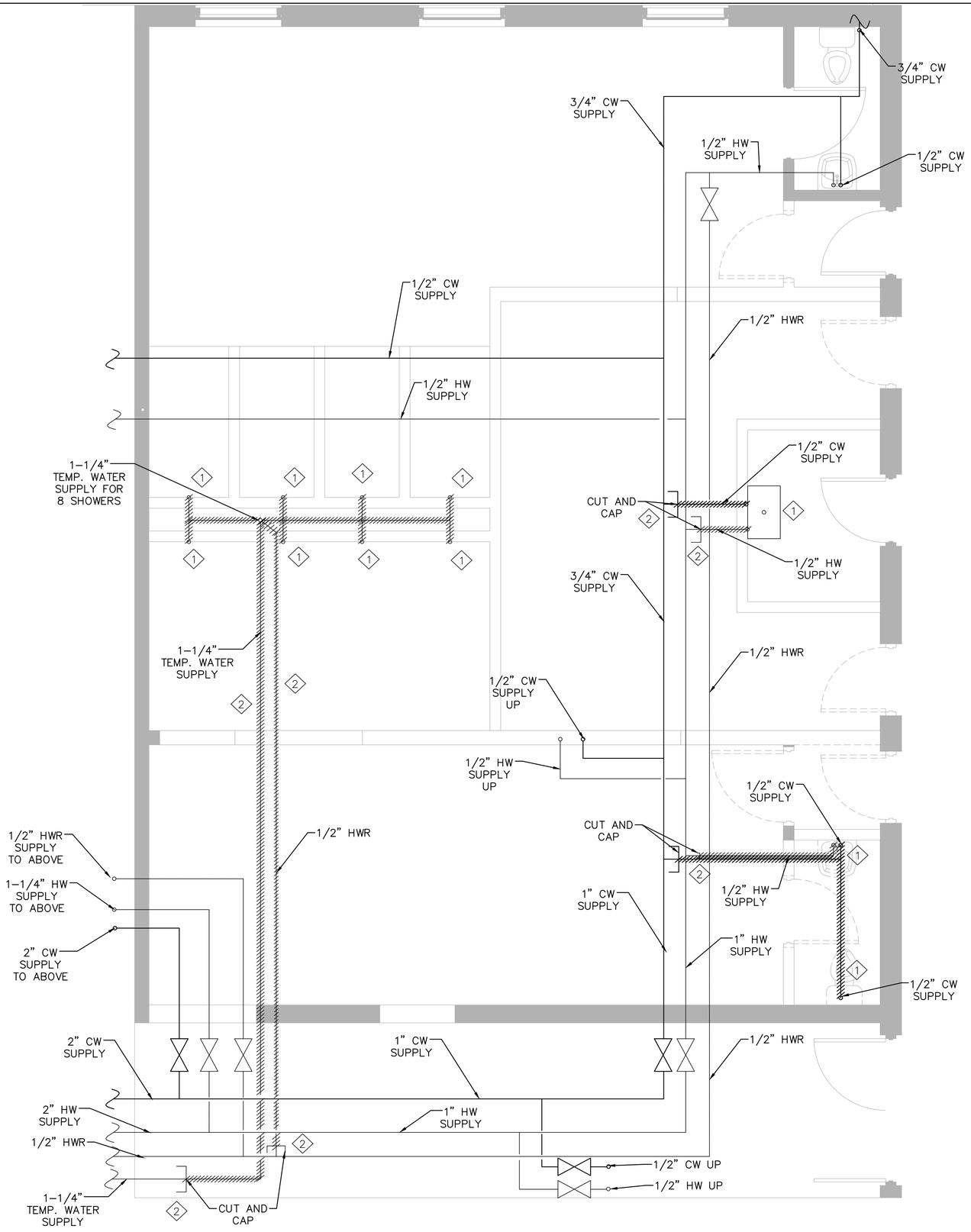
DATE :	MAY 2026
SCALE :	1:40
DRAWN BY:	TD
CHECKED BY :	MA
DWG STATUS :	
PROJECT No. :	2025-504-2
DRAWING No. :	M2.1
REVISION	



DRAWING NOTES

1	DISMANTLE AND REMOVE THE EXISTING PLUMBING FIXTURES AND ASSOCIATED ACCESSORIES.
2	DISMANTLE, CAP AND SEAL THE EXISTING CW, HW, HWR AND TEMPERED WATER LINES AS SHOWN.
3	CONTRACTOR LOCATE THE EXACT LOCATION OF THE EXISTING PLUMBING LINES BEFORE THE COMMENCEMENT OF WORK.

GENERAL DEMOLITION NOTES

1. EXISTING MECHANICAL ITEMS NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
2. EXISTING MECHANICAL ITEMS SHOWN BUT NOT NOTED AS BEING REMOVED OR RENOVATED SHALL REMAIN AS PRESENTLY INSTALLED AND OPERATING.
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6. MAINTAIN INTEGRITY OF EXISTING SYSTEMS THAT ARE TO REMAIN OR MODIFIED.
7. INSTALL NEW SYSTEM OF SERVICES WHERE REQUIRED TO MAINTAIN SYSTEM OPERATION PRIOR TO DEMOLITION OF EXISTING SERVICES.

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1	ISSUED FOR 100% REVIEW	5TH MAY 2026
2	ISSUED FOR TENDER	8TH MAY 2026
3	ISSUED FOR BUILDING PERMIT	8TH MAY 2026
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PROJECT :
ST. THERESA CATHOLIC SCHOOL
173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :
DEMOLITION PLAN - PLUMBING

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
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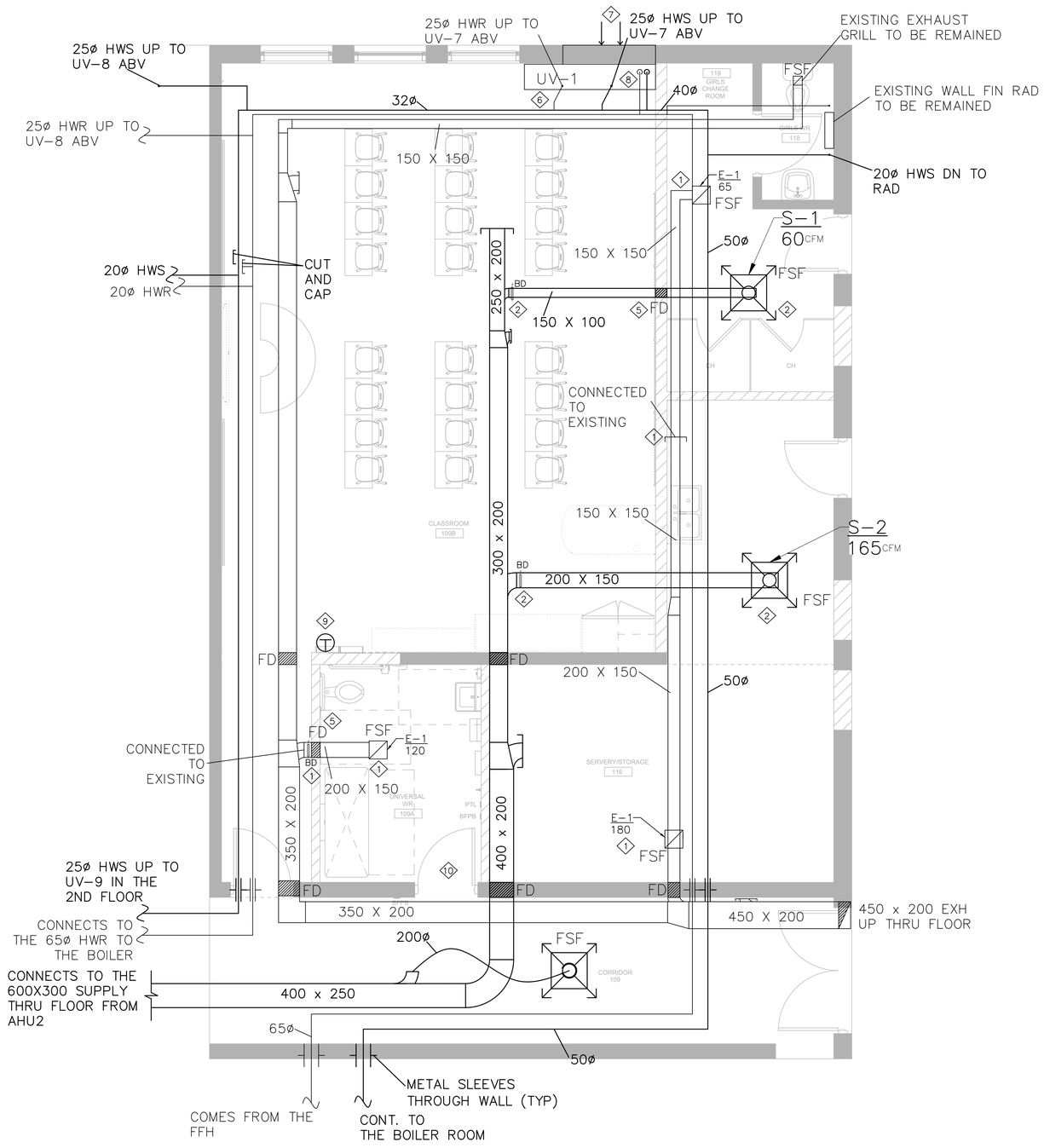
DATE : MAY 2026
SCALE : 1:30
DRAWN BY: TD
CHECKED BY : MA
DWG STATUS :
PROJECT No. : 2025-504-2
DRAWING No. : M2.2
REVISION



DRAWING NOTES

1	SUPPLY AND INSTALL NEW EXHAUST GRILL , BALANCING DAMPER, DUCT AND CONNECTED TO THE EXISTING EXHAUST DUCT. CONTRACTOR TO DO AIR BALANCING AND SUBMIT BALANCING REPORT AT THE TIME OF COMMISSIONING OF THE SYSTEM.
2	SUPPLY AND INSTALL SUPPLY AIR DIFFUSERS, BALANCING DAMPER AND DUCT CONNECTED TO THE EXISTING SUPPLY AIR DUCT. CONTRACTOR TO DO AIR BALANCING AND SUBMIT BALANCING REPORT AT THE TIME OF COMMISSIONING OF THE SYSTEM.
3	FLEXIBLE DUCT IS ONLY PERMITTED TO COME STRAIGHT DOWN FROM THE RECTANGULAR DUCT TO THE COLLAR OF THE SUPPLY AIR DIFFUSER. ONLY 1.2 M LENGTH OF FLEXIBLE DUCT PERMITTED FOR THE PROJECT.
4	FLEXIBLE DUCT IS NOT PERMITTED TO CHANGE THE DIRECTION OF THE AIR FLOW.
5	INSTALL FIRE DAMPERS WHEN PENETRATING THROUGH FIRE RATED WALLS AS SHOWN.
6	PROVIDE AND INSTALL NEW PACKAGED HORIZONTAL UNIT VENTILATOR AT THE LOCATION ALONG WITH ASSOCIATED ACCESSORIES INCLUDING FILTERS, DIGITAL THERMOSTATS, HEATING COILS, 3 WAY CONTROL VALVES ETC. AS RECOMMENDED BY THE MANUFACTURER FOR ITS COMPLETE INSTALLATION. RECONNECT THE HEATING SUPPLY AND RETURN PIPE CONNECTIONS ALONG WITH FITTINGS, VALVES, REDUCERS, INSULATION ETC. PROVIDE AND CONNECT THE DRAIN PIPES WITH INSULATION AND CONNECTION FROM THE UNIT VENTILATOR TO THE NEARBY EXISTING DRAIN. COORDINATE WITH THE ELECTRICAL TRADE TO CONNECT THE ELECTRICAL POWER SUPPLY (BY DIVISION 26). COORDINATE WITH THE BAS CONTRACTOR TO PROVIDE AND CONNECT THE BAS CONTROLS AND WIRING TO THE UNIT VENTILATORS (BY DIVISION 25). PROVIDE AND INSTALL ALL ASSOCIATED ACCESSORIES AND CONNECT TO THE UNIT VENTILATORS COMPLETE.
7	ARCHITECT TO PROVIDE A NEW WALL OPENING MATCHING THE SIZE OF NEW LOUVERS AND CONNECT THE FRESH AIR INLET LOUVER TO THE UNIT VENTILATORS COMPLETE AS REQUIRED BY THE MANUFACTURER. PROVIDE AND INSTALL BIRD SCREEN ON THE FRESH AIR LOUVER. FOR THE WALL OPENING DETAILS REFER TO THE DRAWING M4.1.
8	PROVIDE CONTROLS FOR THE NEW UNIT VENTILATOR AND CONNECT TO THE EXISTING BAS SYSTEM. CONTRACTOR TO COORDINATE WITH THE APPROVED BAS CONTRACTOR TO THE SCHOOL BOARD. REFER M4.0 FOR BAS SCHEMATIC OF THE UNIT VENTILATOR.
9	INSTALL THE TEMPERATURE SENSOR IN THE PROPOSED CONTROL PANEL BY THE DOOR. REFER M4.0 FOR THE MILLWORK DETAILS
10	ARCHITECT TO PROVIDE A DOOR WITH AN UNDER CUT.

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PROJECT :
ST. THERESA CATHOLIC SCHOOL
173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :
PROPOSED PLAN - HVAC

RCEI
REGAL CONSULTING ENGINEERS INC.
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208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
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DATE : MAY 2026
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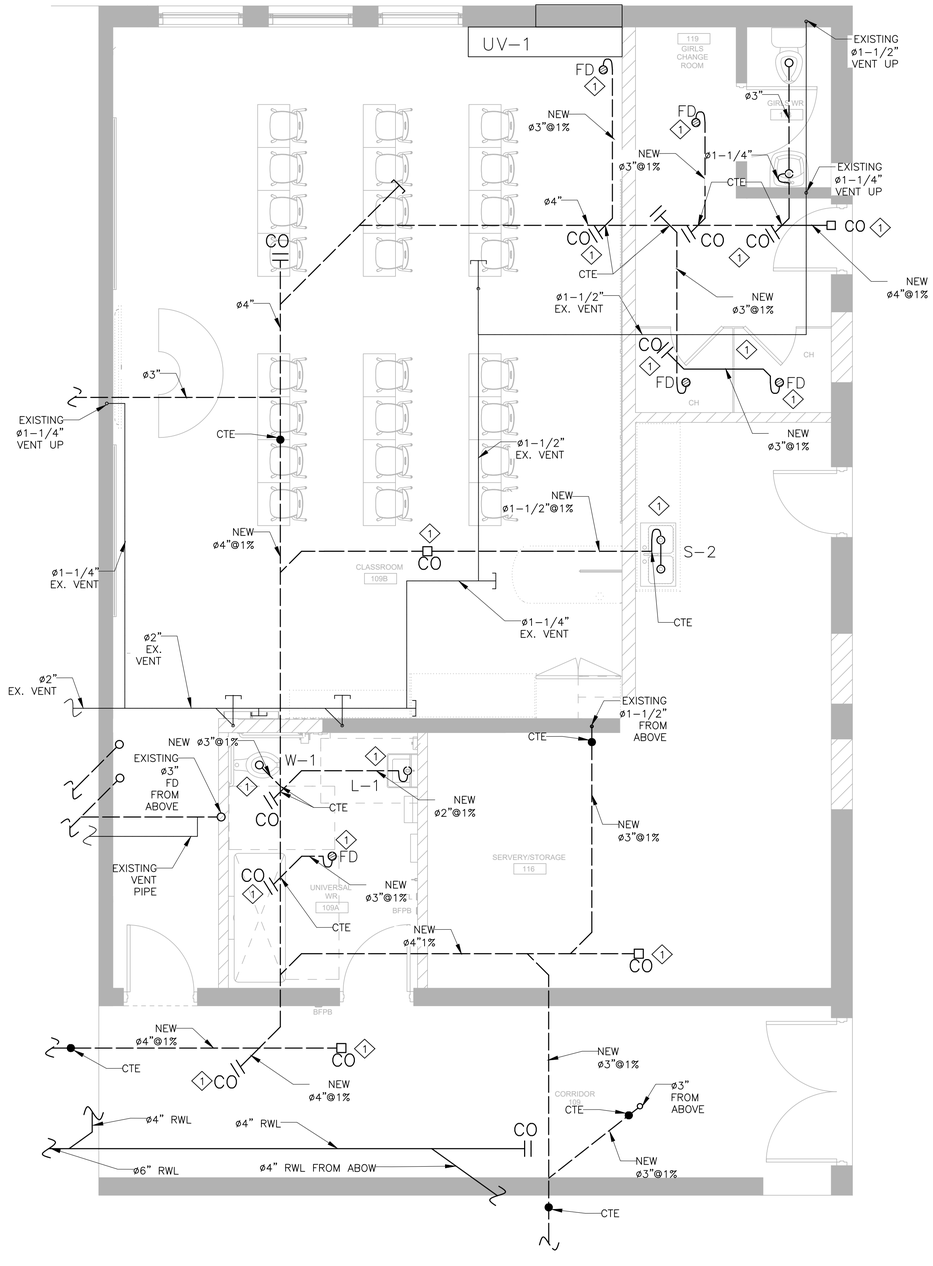
CHECKED BY : MA
DWG STATUS :
PROJECT No. : 2025-504-2
DRAWING No. : M3.0
REVISION



DRAWING NOTES

1	SUPPLY AND INSTALL NEW FIXTURE UNITS AT THE LOCATION SHOWN. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION. PROVIDE SANITARY DRAIN CONNECTIONS, P-TRAPS, CLEAN OUTS AND ALL ACCESSORIES AS NEEDED TO MAKE A COMPLETE INSTALLATION AS SHOWN.
2	CONTRACTOR TO PROVIDE 3"Ø VENT PIPE RISER TO THE CEILING SPACE AND CONNECT TO THE EXISTING VENTING SYSTEM AS PER OBC AND LOCAL AHJ.
3	MECHANICAL TRADE TO SCAN THE FLOOR TO FIND THE EXACT LOCATION OF THE UNDERGROUND EXISTING SANITARY LINE. CONNECT THE NEW SANITARY LINE TO THE EXISTING. THE CONTRACTOR TO CUT AND REMOVE THE CONCRETE SLAB AS REQUIRED TO COMPLETE THE PLUMBING SCOPE.

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PROJECT :

ST. THERESA CATHOLIC SCHOOL

173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100068234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED PLAN - DRAINAGE

RCEI
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DATE :	MAY 2026
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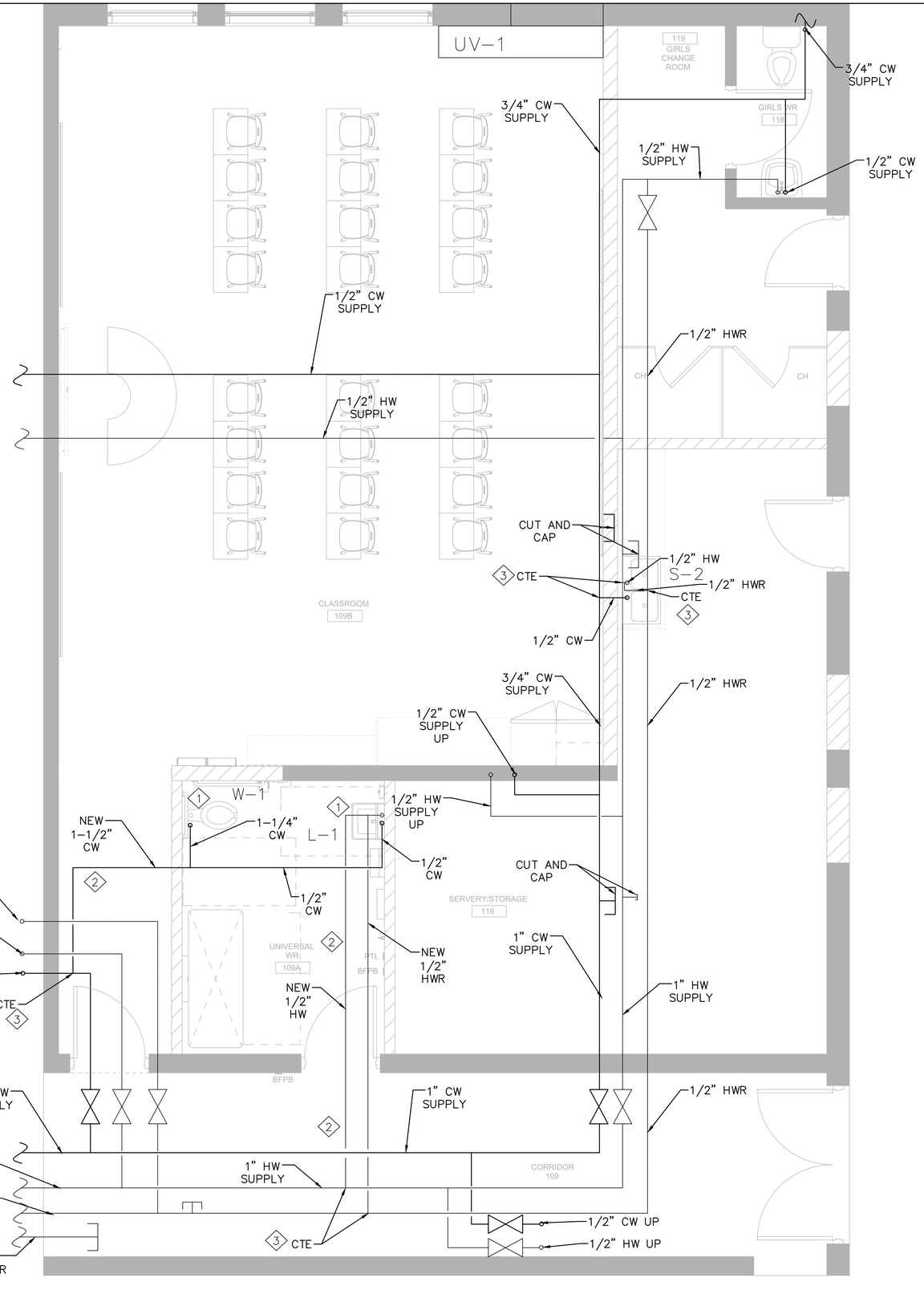
CHECKED BY :	MA
DWG STATUS :	
PROJECT No. :	2025-504-2
DRAWING No. :	M3.1
REVISION	



DRAWING NOTES

1	SUPPLY AND INSTALL NEW FIXTURE UNITS AT THE LOCATION SHOWN. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION. PROVIDE HOT, COLD WATER AND HOT WATER RE-CIRCULATION CONNECTIONS AND ALL ACCESSORIES AS NEEDED TO MAKE A COMPLETE INSTALLATION AS SHOWN.
2	PROVIDE AND INSTALL NEW DOMESTIC COLD WATER, HOT WATER AND HOT WATER RE-CIRCULATION PIPES FROM THE CEILING SPACE AND CONNECT TO THE NEW PLUMBING FIXTURES ALONG WITH FITTINGS, SUPPORT, VALVES, INSULATION ETC.
3	MECHANICAL TRADE TO FIND THE EXACT LOCATION OF THE PLUMBING LINES AND CONNECT THE NEW PLUMBING LINES TO THE EXISTING.

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PROJECT :

ST. THERESA CATHOLIC SCHOOL

173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED PLAN - PLUMBING

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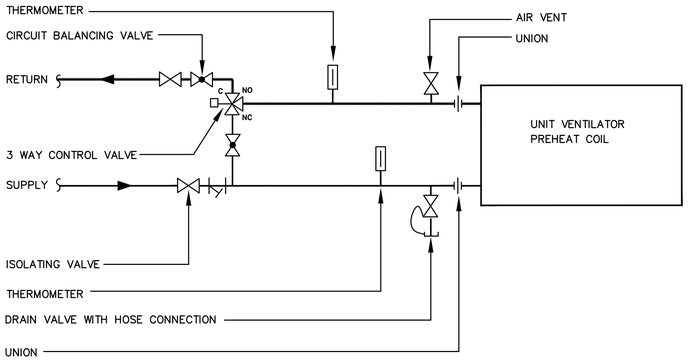
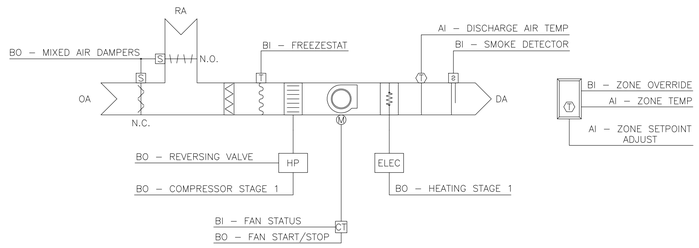
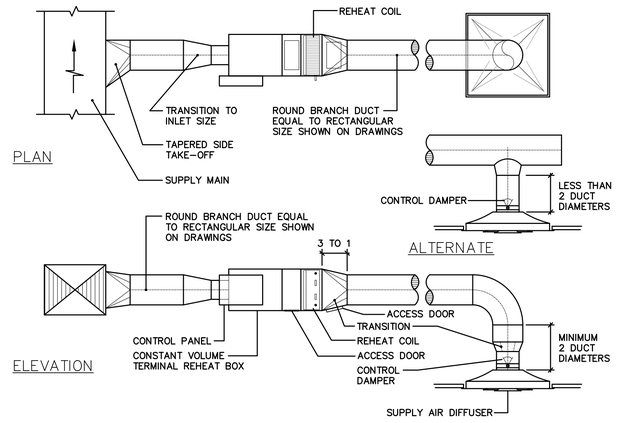


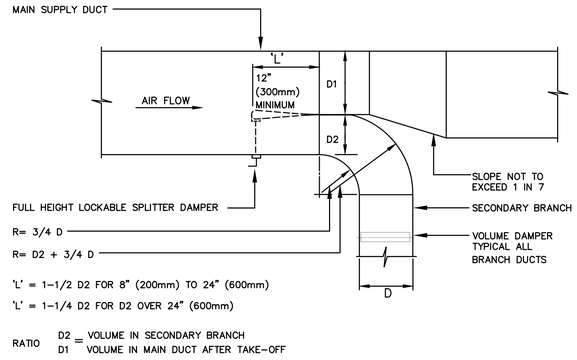
DETAIL OF PIPING TO HEATING COIL
NOT TO SCALE



BAS SCHEMATIC FOR THE UNIT VENTILATOR
NOT TO SCALE

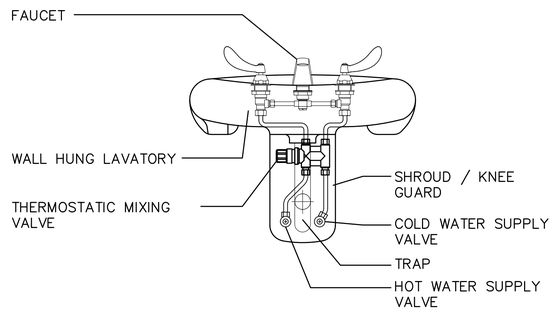


DETAIL OF TERMINAL REHEAT BOX (ROUND DUCTWORK ALTERNATE)
NOT TO SCALE

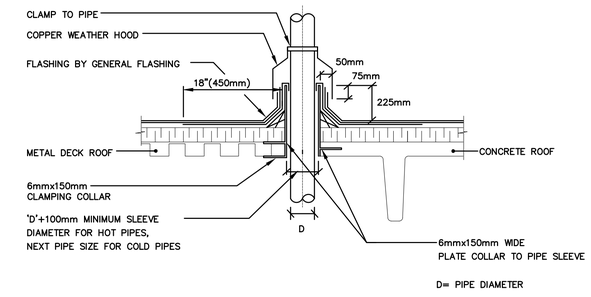


RATIO $\frac{D2}{D1} = \frac{\text{VOLUME IN SECONDARY BRANCH}}{\text{VOLUME IN MAIN DUCT AFTER TAKE–OFF}}$

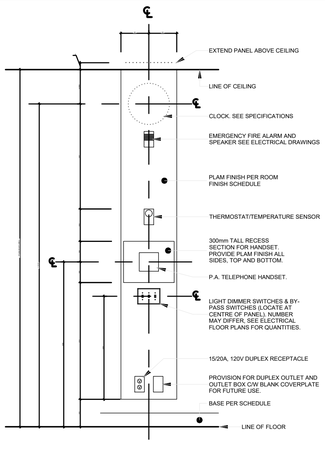
DETAIL OF FULL RADIUS ELBOW BRANCH TAKE–OFF
NOT TO SCALE



DETAILS OF UNDER LAVATORY THERMOSTATIC MIXING VALVE
NOT TO SCALE



DETAIL OF PIPE THROUGH ROOF
NOT TO SCALE



MILLWORK DETAIL FOR THE CONTROL PANEL
NOT TO SCALE

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PROJECT :
ST. THERESA CATHOLIC SCHOOL
173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
09/05/2026
PROVINCE OF ONTARIO

DWG TITLE :
MECHANICAL DETAILS

RCEI
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CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
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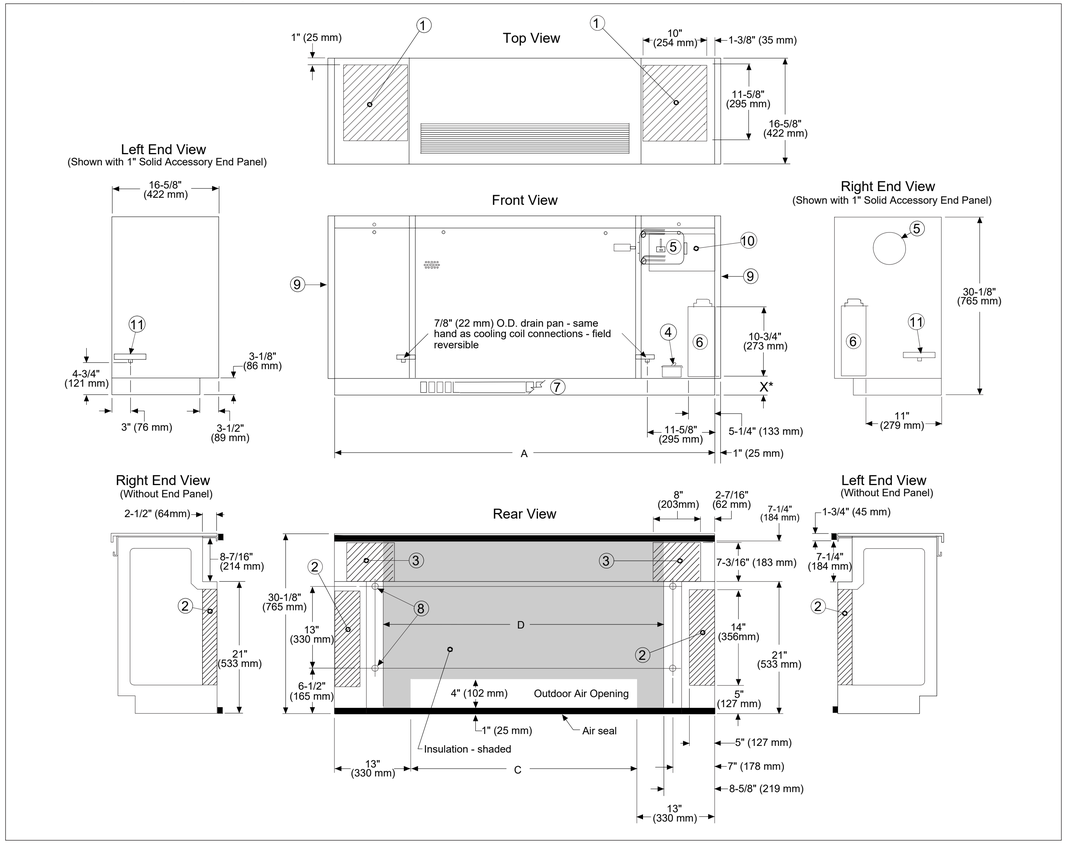
DATE : MAY 2026
SCALE : NTS
DRAWN BY: TD
CHECKED BY : MA
DWG STATUS :
PROJECT No. : 2025-504-2
DRAWING No. : M4.0
REVISION

Certified Drawing	AVS-003J
Daikin Applied certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval to this drawing signifies that the equipment is acceptable under the provision of the specifications. Any change made hereon by any person whomsoever is subject to acceptance by Daikin	Group: Unit Ventilator Type: Inlet Air Arrange. Date: May 2018

Daikin Classroom Floor Unit Ventilator Model AVS (J Vintage) Arrangement AL – Open Pipe Tunnel

16-5/8" (422 mm) Deep Floor Unit Dimensions



Unit Size	Dimensions in inches (mm)		
	A	B	C
S07, H07, V07	62 (1575)	43 (1092)	36 (914)
S10, H10, V10	74 (1880)	55 (1397)	48 (1219)
S13, H13, V13	86 (2184)	67 (1702)	60 (1524)
S15, H15, V15	98 (2489)	79 (2007)	72 (1829)

Drawing Notes (①, *, etc.)

1 Bottom entry within 10" x 11-5/8" (254 mm x 295 mm) area
2 Rear entry area 14" x 5" (356 mm x 127 mm).
3 Opening between pipe tunnel & end compartment.
4 Disconnect Switch for main power wiring.
5 Fan motor.
6 Electrical connection box.
7 Slotted kickplate for return air arrangements; partially open kickplate for draftstop arrangements.
8 (4) - 7/8" (22 mm) diameter holes in back for anchoring unit to wall.
9 Accessory panels not included with unit, order separately as an accessory.
10 Controls location (MicroTech® units only).
11 Galvanized drain pan (optional stainless steel).
X = 3.88" for units with MicroTech controls. X = 14.43" for all other control options.

Table 1: Louver Specifications

Unit	Nominal Air Flow		Louver Dimensisons ± 1/16" (± 2mm)		Recommended Wall Opening	
	CFM	L/s	L = Length	Height	Length	Height
S07 H07 V07	750	354	36" (914mm	10-3/8" (264mm)	36-1/4" (921mm)	10-1/2" (267mm)
S10 H10 V10	1000	472	48" (1219mm)		48-1/4" (1225mm)	
S13 H13 V13	1250	590	60" (1524mm)		60-1/4" (1530mm	
S15 H15 V15	1500	708	72" (1829mm)		72-1/4" (1835mm)	
H20 V20	2000	944	72" (1829mm)		72-1/4" (1835mm)	

Notes: 1. ARQ/GRQ units only available with S-series fan motor.
2. H20/V20 only available on horizontal UV's.

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.

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173 CRAWFORTH STREET, WHITBY ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100068234
06/05/2026
PROVINCE OF ONTARIO

DWG TITLE :
MECHANICAL DETAILS - UNIT VENTILATOR

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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.

ABBREVIATIONS

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 WITH 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 WRITHEN 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 THE IN 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 PIES 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 CCOOORDINATOR 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 COR 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 COOOORDINATED 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 LEHAAGRL, 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.

MECHANICAL SPECIFICATION

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. PAINT MATTE BLACK ALL DUCTS WHICH ARE VISIBLE THROUGH GRILLES.
3. NOTE THAT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHEN ACOUSTIC INSULATION IS INSTALLED, INCREASE DIMENSIONS ACCORDINGLY.
4. MAKE GOOD ALL EXCISING INSULATION WHEN CONNECTION TO EXISTING SERVICES.
5. 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.
6. 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.
7. 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 RIGID DUCT.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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 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 DOWN PRIOR TO ENCLOSING OF CEILING SPACE.
14. PROVIDE ALL CONTROLS, WIRING AND APPURTENANCES NECESSARY FOR COMPLETE AND OPERATING SYSTEMS.
15. CALIBRATE AS REQUIRED, EXISTING THERMOSTATS NOTED TO BE REUSED OR RELOCATED AND SUBMIT WRITTEN REPORT TO ENGINEER.
16. 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.
17. 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.
18. THE SUPPLY AND RETURN DUCT WORK TO/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.
19. CEILING SPACE USED AS RETURN AIR PLENUM SHALL NOT CONTAIN ANY COMBUSTIBLES.
20. DUCT WORK MUST BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.
21. 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.
22. PROVIDE DUCT PLENUM FOR ALL ROOF MOUNTED EXHAUST FANS, AND THE PLENUM SHALL BE INSULATED WITH 1" FIBREGLASS TO PREVENT CONDENSATION.
23. 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 750MM (30") 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 ONT THE EXTERIOR AND 1" ACOUSTIC LINING. ALL SPECIFIED TO CONFORM TO THE ABOVE.

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.

CONTROLS

1. THE CONTROLS FOR THE ELECTRIC BASEBOARD AND FORCE FLOW HEATERS ARE TO BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL CONTROLS FOR THE ELECTRIC DUCT HEATERS. ALL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
2. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROLS AND WIRING TO THE INTENDED HVAC SYSTEMS.

AIR BALANCING

1. ALL MODULATING DAMPER, VAV BOXES AND ZONE DAMPERS MUST BE SET TO PROVIDE SPECIFIED MAXIMUM AIR FLOW. ALSO SET AT 25% FOR MINIMUM FLOW UNLESS OTHERWISE SPECIFIED. CALIBRATE THE THERMOSTATS AND SET THEM AT 21° HEATING AND 23° COOLING.
2. THIS CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE EXISTING AREAS ARE NOT AFFECTED BY NEW ADDITIONS.
3. IF NECESSARY, PROVIDE A SECOND FOLLOWOUP BALANCING REPORT TO CORRECT ALL DEFICIENCIES.
4. THE BALANCE REPORT SHALL ALSO REPORT THE PERCENTAGE OF OUTDOOR AIR AT THE NEW AIR CONDITION UNITS.

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 THE THE ENGINEER PRIOR TOT HEN 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.

PLUMBING

1. PLUMBING SERVICES ARE TO BE SUPLIED 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 1510/305G 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-OFLANGE 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 P0-500 AUTOMATIC TRAP SEAL PRIMER VALVE, SEARING INDIVIDUAL OR REMOTE AREA DRAINS WITH ¾" 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
RAIN WATER LEADERS (ANY SIZE)	1"
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 S