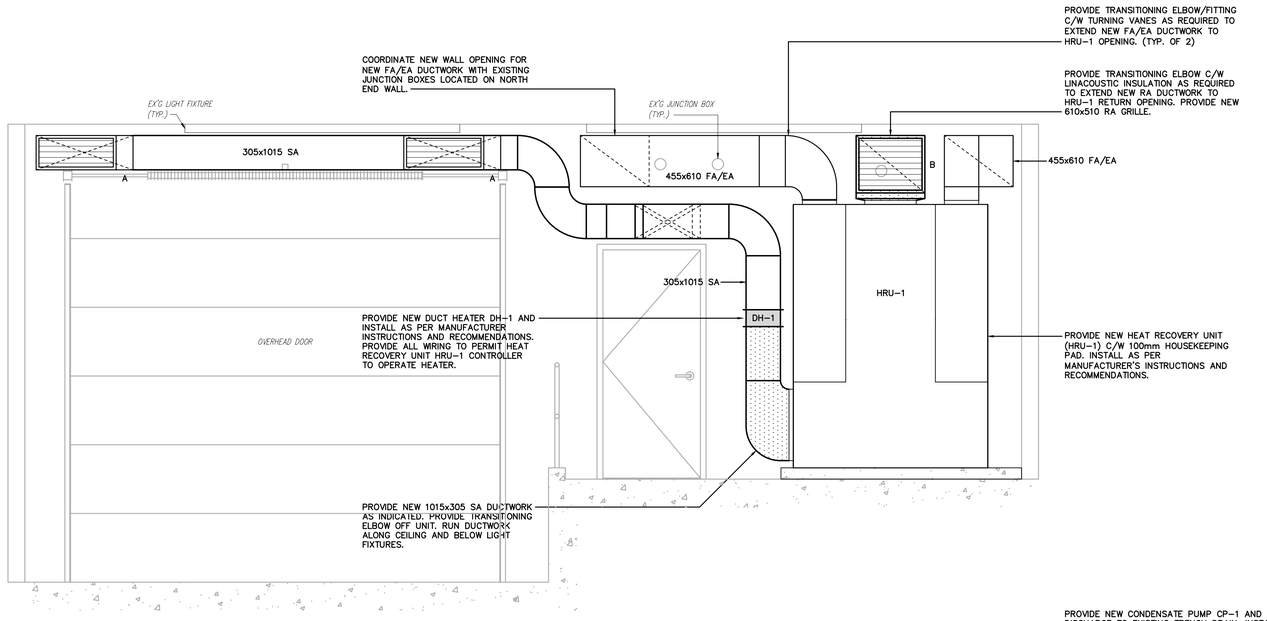
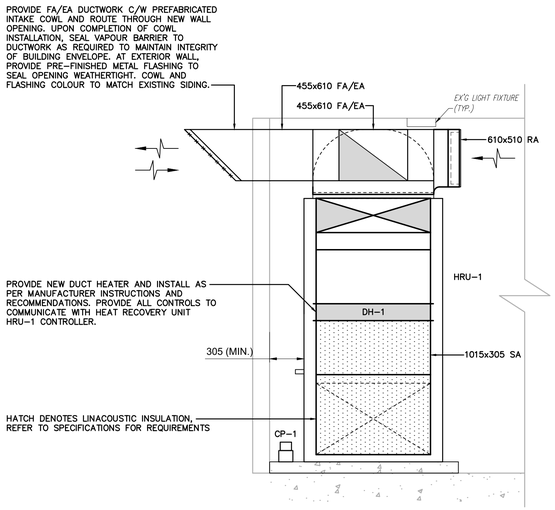
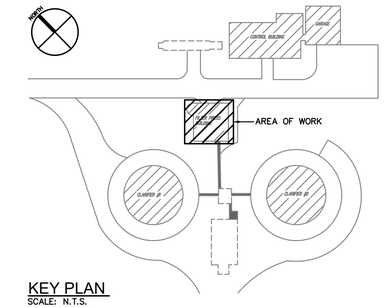


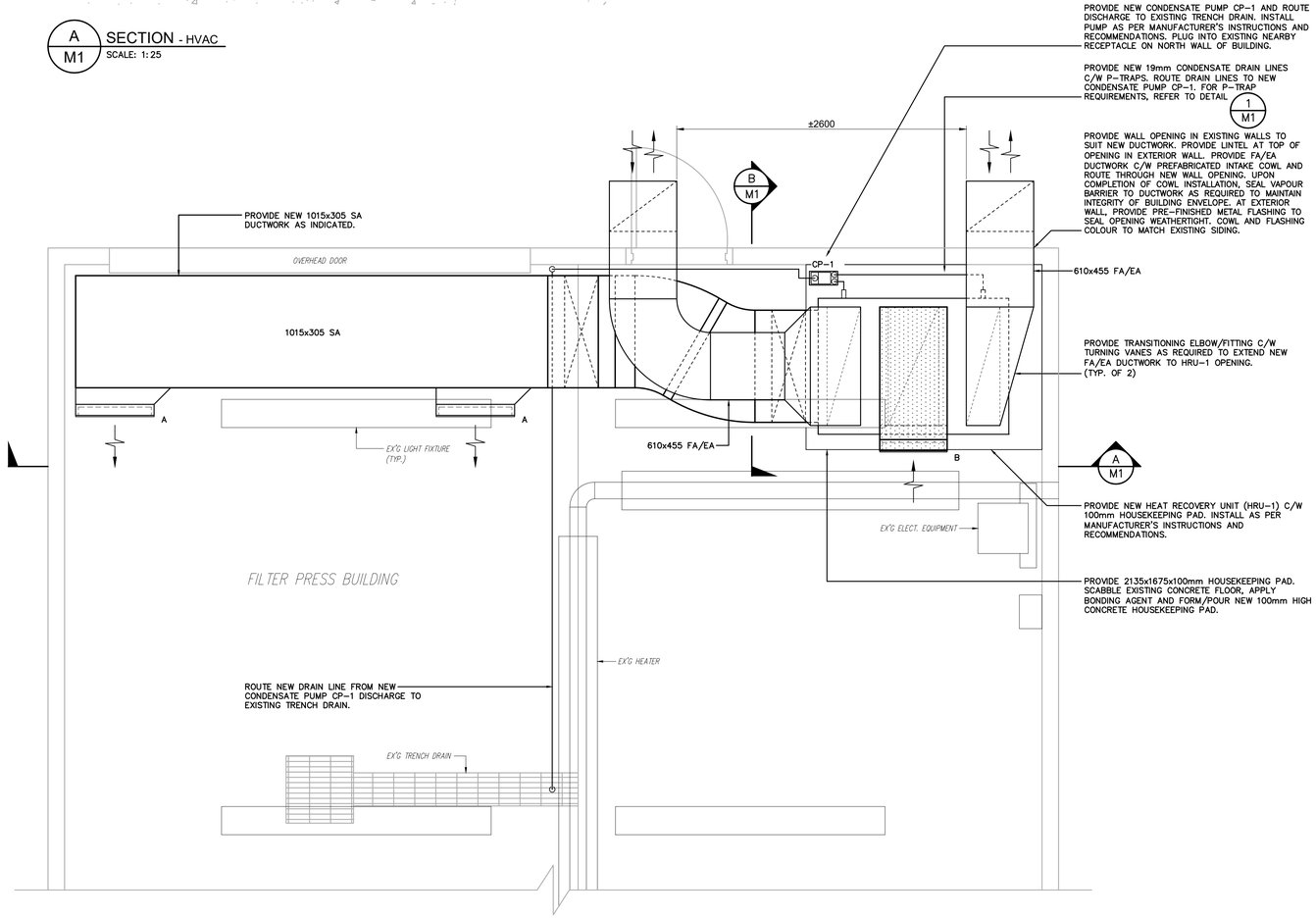
A / M1 SECTION - HVAC
SCALE: 1:25



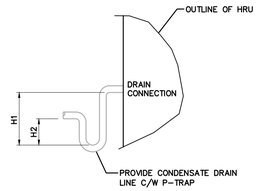
B / M1 SECTION - HVAC
SCALE: 1:25



KEY PLAN
SCALE: N.T.S.



PARTIAL MAIN FLOOR PLAN - MECHANICAL RENOVATION
SCALE: 1:25



CONDENSATE DRAIN SIZING

EQUIPMENT	SERVICE	DRAIN SIZE	DIMENSIONS H1	DIMENSIONS H2
HRU-1	HEAT EXCHANGER SECTION	19ø	*	*
	HEAT EXCHANGER SECTION	19ø	*	*

REMARKS:
* - SIZE/PROVIDE CONDENSATE DRAIN AS PER EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS

1 / M1 DETAIL - CONDENSATE DRAIN TRAP
SCALE: N.T.S.

MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ELECTRICAL DRAWINGS.

No.	Revision	Date	Initial
A	ISSUED FOR CLIENT REVIEW	03/12/2026	DS

Notes:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING DIMENSIONS AND EXISTING CONDITIONS AT THE OUTSET OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER. DO NOT PROCEED WITHOUT FURTHER WRITTEN DIRECTION FROM THE ENGINEER.
2. DRAWING SHOWS GENERAL ARRANGEMENT ONLY. DO NOT SCALE.

Approved	Approved

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WASTEWATER TREATMENT PLANT UPGRADES
MARATHON ONTARIO

FILTER PRESS BUILDING
HVAC UPGRGADES
PARTIAL MAIN FLOOR PLAN, SECTIONS & DETAIL

Scale:	Drawn By: DP	Date:
AS SHOWN	Ckd. By: DS	MARCH 2025
	Dwg. No.: 25-055-M1	Rev. A

MECHANICAL SPECIFICATIONS

GENERAL

1. PROVIDE ALL LABOUR, MATERIAL, EQUIPMENT, FEES, PERMITS AND INSPECTIONS BY OUTSIDE AGENCIES AND CHARGES TO PERFORM ALL OPERATIONS FOR THE COMPLETE INSTALLATION OF THE HVAC AND PLUMBING SYSTEMS AS INDICATED.
2. ALL MATERIALS AND INSTALLATION IS TO COMPLY WITH THE ONTARIO BUILDING CODE, NFPA REGULATIONS, ONTARIO ELECTRICAL SAFETY CODE AND THE CITY OF THUNDER BAY ENGINEERING STANDARDS.
3. MAINTAIN INSURANCE TO FULLY PROTECT OWNER, CONSULTANT AND SELF FROM ANY AND ALL CLAIMS DUE TO ACCIDENTS, MISFORTUNES, ETC., TO LIMITS SET DOWN BY THE OWNER.
4. REMOVE ALL WASTE MATERIALS AND CLEAN UP TO OWNER'S SATISFACTION. AT THE END OF THE JOB, CLEAN THE EQUIPMENT AND TOUCH UP FINISH TO RESTORE TO "AS NEW" CONDITION.
5. ONLY FIRST CLASS WORKMANSHIP AND GOOD INSTALLATION PRACTICES WILL BE ACCEPTED. USE QUALIFIED TRADESMEN FOR ALL TYPES OF WORK.
6. PROVIDE ALL NECESSARY HANGERS AND SUPPORT STEEL FOR YOUR WORK. TOUCH UP PAINT ALL CUT ENDS OF HANGER RODS AND UNISTRUT SUPPORTS WITH GALVANIZED PAINT.
7. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED BY YOUR WORK.
8. CONTRACTOR SHALL FULLY PROTECT EXISTING FLOOR SURFACES (IE. PLYWOOD) FROM DAMAGE AS A RESULT OF DEMOLITION/INSTALLATION OF EQUIPMENT OR ANY WORK REQUIRED UNDER THE CONTRACT.
9. PROVIDE SHOP DRAWINGS FOR MAJOR EQUIPMENT COMPONENTS FOR REVIEW BY THE ENGINEER.
10. PATCH AND REPAIR ALL OPENINGS, SURFACES, ETC., TO MAINTAIN INTEGRITY OF FIRE SEPARATIONS AND BUILDING ENVELOPE.

PLUMBING

1. HEAT RECOVERY UNIT HRU-X CONDENSATE DRAIN LINES TO BE CPVC TO CAN/CSA-B181.2-M90.

VENTILATION

1. ALL DUCTWORK IS TO BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE ERECTED IN AN APPROVED, SUBSTANTIAL AND WORKMANLIKE MANNER. DUCTWORK TO BE TO SMACNA STANDARD. REVIEW EXISTING SITE CONDITIONS PRIOR TO FABRICATION OF DUCTWORK SYSTEMS.
2. SEAL ALL TRANSVERSE JOINTS WITH WATER BASED HIGH PRESSURE DUCT SEALANT.
3. PROVIDE ALL CONTROLS FOR EQUIPMENT, INCLUDING THERMOSTATS. MOUNT CENTER LINE OF THERMOSTATS AT 1200mm ABOVE THE FINISHED FLOOR. WIRE ALL CONTROLS TO MAKE A COMPLETE AND WORKING SYSTEM.
4. ALL AIR SYSTEMS SHALL BE BALANCED BY TAB CONTRACTOR INDEPENDENT OF CONTRACTORS PERFORMING CONSTRUCTION WORK TO ±5% OF DESIGN VALUES SHOWN ON DRAWINGS. TAB CONTRACTOR SHALL SUBMIT AIR BALANCE REPORT IN ELECTRONIC FORMAT. SUBMIT AIR BALANCE REPORT FOR REVIEW BY THE DESIGN ENGINEER. THE REPORT SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
   - -FAN AND MOTOR SPEEDS
   - -FAN MOTOR OPERATING AMPERAGE
   - -AIR FLOWS IN MAIN BRANCH DUCTS
   - -AIR OUTLET FLOWS
   - -AIRFLOW TEMPERATURES
   - -PRESSURE DROPS ACROSS ALL EQUIPMENT FANS, COILS, FILTERS, ETC.
5. PROVIDE ALL NECESSARY HANGERS AND SUPPORT STEEL FOR EQUIPMENT AND DUCTWORK.
6. UPON COMPLETION OF CONSTRUCTION, CHANGE OUT ALL FILTERS AND PROVIDE ONE SPARE SET FOR ALL APPLICABLE EQUIPMENT.
7. ACOUSTICALLY LINE SUPPLY AND RETURN DUCTWORK: MINIMUM DISTANCE: 3050mm FROM EQUIPMENT INLET AND OUTLET OR TO EXTENTS SHOWN ON DRAWINGS. DUCT SIZE SHOWN ACCOMMODATES FOR 25mm THICK LINACOUSTIC INSULATION. DO NOT INCREASE SIZE.
8. INSULATE HEAT RECOVERY UNIT (HRU) EXHAUST AND FRESH AIR DUCTWORK FULL LENGTH WITH 38mm THICK RIGID MINERAL FIBRE BOARD INSULATION COMPLETE WITH VAPOUR BARRIER. PROVIDE CORNER BEADS TO FINISH INSULATION EDGES. SECURE INSULATION TO DUCTWORK WITH FIRE RESISTIVE ADHESIVE AND IMPALING PINS WITH SPEED CLIPS AT 305mm CENTERS. CUT OFF PROTRUDING ENDS OF PINS AND COVER SPEED CLIPS WITH SCRIM FOIL PRESSURE SENSITIVE TAPE.
9. DUCTWORK TO BE INSTALLED AS TIGHT TO STRUCTURE AS POSSIBLE.
10. PROVIDE TURNING VANES AT ALL 90° DUCTWORK ELBOWS WHERE INDICATED ON DESIGN DRAWINGS.
11. PROVIDE '0.5D' THROAT RADIUS AT ALL ELBOWS UNLESS SHOWN OTHERWISE.

COMMISSIONING

COMMISSION SYSTEM OPERATION TO ENSURE THE PROPER OPERATION OF ALL COMPONENTS. BALANCE AIR FLOWS TO THE QUANTITIES SHOWN ON DRAWINGS.

COMMISSION SYSTEM OPERATION TO VERIFY THE PROPER OPERATION OF ALL NEW EQUIPMENT. COMMISSIONING WORK TO BE PREFORMED IN CONJUNCTION WITH THE DESIGN CONSULTANT TO VERIFY THE PROPER FUNCTIONING OF THE MECHANICAL SYSTEMS IN ACCORDANCE WITH THE SEQUENCE OF OPERATION.

PROVIDE END USER TRAINING SESSION INCLUDING SYSTEM DEMOSTRATION, MAINTENANCE REQUIREMENTS AND CONTROL SYSTEM REVIEW.

DURING CONSTRUCTION KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK SHOWN ON THE DESIGN DRAWINGS AND THAT WHICH IS INSTALLED. PROVIDE AS-BUILT DRAWINGS TO REFLECT THE ACTUAL INSTALLED CONFIGURATION AND SUBMIT TO THE DESIGN ENGINEER.

PROVIDE OPERATION AND MAINTENANCE MANUALS FOR ALL EQUIPMENT. O&M MANUALS SHALL BE SUBMITTED IN ELECTRONIC FORMAT. ELECTRONIC FORMAT SHALL BE COLLATED COMPLETE WITH INDEX AND SECTION DIVIDERS IN THE SAME MANNER AS BOUND HARD COPY. SUBMIT O&M MANUALS TO THE DESIGN ENGINEER.

EQUIPMENT LIST

CP-1 CONDENSATE PUMP	LITTLE GIANT MODEL VCMA-20ULS, ITEM 554425 CONDENSATE LIFT PUMP SUPPLIED COMPLETE WITH 1/2 GAL. ABS TANK, GLASS FILLED POLYPROPYLENE IMPELLER, BUILT-IN ACETAL CHECK VALVE, THREE (3) 1-1/8" INLET OPENINGS, 3/8"ø BARBED OUTLET CONNECTION, 1/30HP HIGH PERFORMANCE MOTOR, ABS MOTOR COVER, ABS VOLUTE, STAINLESS STEEL MOTOR SHAFT, OVERFLOW SAFETY PROTECTION SWITCH, 6' THREE PRONG POWER CORD, 115/1/60 POWER.
DH-1 DUCT MOUNTED ELEC. HEATING COIL	NEPTRONIC MODEL DF CF00V DUCT MOUNTED ELECTRIC HEATING COIL SUPPLIED WITH GALVANIZED STEEL CASING, MODEL 'C' OPEN COIL, FLANGE TO DUCT TYPE CONNECTION, VERTICAL AIRFLOW, MAGNETIC CONTACTOR, DISCONNECT SWITCH, AUTOMATIC THERMAL CUTOUT, MANUAL THERMAL CUTOUT, TRANSFORMER, CONTROL FUSE, CURRENT TRANSDUCERS, SUPPLY AND DISCHARGE TEMPERATURE SENSORS, 24V CONTROL VOLTAGE, 0-10V MODULATING SIGNAL, NEPTRONIC CONTROLLER, ELECTRONIC AIRFLOW SENSORS, SOLID-STATE RELAY, 60% NICKEL/16% CHROME/24% IRON COIL GRADE, NEMA 1 CONTROL PANEL, CONTROL BOX WITH LEFT EXTENSION, 1015x305 FRAME SIZE, 660 L/S (1400 CFM) AIRFLOW, 1xSTAGE, 13.5 kW, 575/3/60 POWER.
HRU-1 HEAT RECOVERY UNIT	PRICE INDUSTRIES SOLUTION AIR MODEL PRCLC1500 ENERGY RECOVERY VENTILATOR SUPPLIED COMPLETE WITH CONSTANT AIR VOLUME APPLICATION, TYPE 'D' UNIT ORIENTATION, 12ga. FORMED ALUMINUM CHANNEL BASE WITH LIFTING LUGS, THERMALLY BROKEN EXTRUDED ALUMINUM POST CONSTRUCTION WITH 50mm THICK THERMALLY BROKEN 22ga. GALVANIZED STEEL DOUBLE WALL INSULATED POLYURETHANE FOAM INJECTED PANELS AND HERMETIC SEALS BETWEEN POSTS AND JOINTS, WEATHER RESISTANT PAINTED FINISH WITH ASTM B117 SALT SPRAY EXPOSURE RATING, 50mm THICK GALVANIZED STEEL DOUBLE WALL INSULATED POLYURETHANE FOAM INJECTED HINGED ACCESS DOORS WITH HANDLES EPDM RUBBER GASKETS, TOP FRESH/EXHAUST AIR INLET/OUTLET CONNECTIONS, TOP RETURN AIR CONNECTION, SIDE SUPPLY AIR CONNECTION, SWITCHOVER DAMPER SECTION WITH TAMCO 1500 LOW LEAKAGE DAMPERS, TAMCO 9000 EXTERNAL SHUT OFF DAMPERS COMPLETE WITH ACTUATORS, REGENCORE WITH 0.8128mm THICK TYPE 1100 ALUMINUM ALLOY PLATES WITH GALVANIZED STEEL FRAMES, 50mm THICK MERV 8 SUPPLY AND RETURN AIR PRE-FILTERS, 50mm THICK MERV 13 SUPPLY AIR FINAL FILTER, PHOTOHELIC FILTER GAUGES, TWO (2) 19ø REGENCORE DRAIN CONNECTIONS, DIRECT DRIVE DYNAMICALLY BALANCED AIRFOIL PLENUM SUPPLY AND RETURN FANS WITH STEEL BASE FRAME AND SPRING ISOLATION, 3.0 hp SUPPLY AND RETURN FAN MOTORS WITH FACTORY WIRED VARIABLE FREQUENCY DRIVES, BACnet IP CONTROL PROTOCOL, BACnet IP ENABLED CONTROLLER, 0-10V HEATING DEMAND SIGNAL, ELECTRIC HEATING MODE, SUPPLY AIR TEMPERATURE SENSOR, OUTDOOR AIR SENSOR, 575/3/60 POWER. AIR FLOW CAPACITY: SUPPLY AIR - 660 L/S (1400 CFM) @ 124.4 Pa (0.5 in.wc) ESP RETURN AIR - 660 L/S (1400 CFM) @ 124.4 Pa (0.5 in.wc) ESP

SEQUENCES OF OPERATION

HEAT RECOVERY UNIT (HRU-X)

HEAT RECOVERY UNIT (HRU-1) SHALL RUN CONTINUALLY PROVIDING A CONSTANT AIRFLOW. THE UNIT MOUNTED CONTROLLER SHALL ENERGIZE THE HEAT RECOVERY VENTILATOR VIA THE UNIT START/STOP CONTACT. THE HEAT RECOVERY UNIT CONTROLLER SHALL ENERGIZE THE DAMPER SECTION. UPON DETECTION OF DAMPER OPERATION THE BLOWER INTERLOCK IS ENERGIZED AND THE FRESH AIR AND EXHAUST AIR FANS ARE ENERGIZED. THE UNIT SHALL OPERATE TO PROVIDE 100% FRESH AIR. IF THE MOTORIZED DAMPERS AND/OR FRESH AIR AND EXHAUST AIR FANS FAIL TO START, THE HEAT RECOVERY UNIT INTERNAL CONTROLLER SHALL LOCKOUT THE HEAT RECOVERY UNIT OPERATION AND GENERATE AN ALARM AT THE CONTROLLER.

UPON SENSING A HIGH RETURN AIR TEMPERATURE OR LOW DISCHARGE AIR TEMPERATURE RESPECTIVELY INTERNAL CONTROLLER SHALL LOCKOUT THE HEAT RECOVERY UNIT OPERATION AND GENERATE AN ALARM AT THE CONTROLLER.

IF A HIGH FILTER DIFFERENTIAL PRESSURE IS DETECTED, THE HEAT RECOVERY UNIT INTERNAL CONTROL SHALL INDICATE FILTER SERVICE IS REQUIRED AT THE CONTROLLER.

HEATING MODE:
THE HEAT RECOVERY UNIT CONTROLLER SHALL ENERGIZE THE REHEAT COIL (DUCT HEATER DH-1). AND MODULATE THE REHEAT COIL CONTROLLER TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT SETPOINT (ADJUSTABLE). IF HEATING MODE IS TURNED OFF, THE HEAT RECOVERY UNIT CONTROLLER SHALL DE-ENERGIZE THE REHEAT COIL.

DIFFUSER / GRILLE SCHEDULE

	ROOM	EQUIP. No.	SUPPLY AIR TYPE	SUPPLY AIR QTY.	SUPPLY AIR l/s	SUPPLY AIR NECK SIZE	RETURN / EXHAUST AIR TYPE	RETURN / EXHAUST AIR QTY.	RETURN / EXHAUST AIR l/s	RETURN / EXHAUST AIR NECK SIZE
HRU-1	FILTER PRESS BUILDING	-	A	2	330	710x305	-	-	-	-
	FILTER PRESS BUILDING	-	-	-	-	-	B	1	660	610x510

REMARKS: TAB CONTRACTOR SHALL FIELD ADJUST ALL SUPPLY AIR GRILLE AIRFOIL BLADES AND DRUM LOUVRE SPREAD CONTROL MEMBERS AS REQUIRED TO PROVIDE SUITABLE AIR FLOW PATTERNS FOR THEIR RESPECTED ZONES

DIFFUSER / GRILLE TYPES

(BASED ON PRICE INDUSTRIES PRODUCTS)

TYPE	DESCRIPTION
A	(SIZE AS NOTED)/520D/F/L/A/B12
B	(SIZE AS NOTED)/530/F/L/A/B12

REMARKS:
* REFER TO DESIGN DRAWINGS FOR DUCT SIZE

MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ELECTRICAL DRAWINGS.

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A	ISSUED FOR CLIENT REVIEW	03/12/2026	DS

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WASTEWATER TREATMENT PLANT UPGRADES
MARATHON ONTARIO

FILTER PRESS BUILDING
HVAC UPGRADES
MECHANICAL SPECIFICATIONS, EQUIPMENT LIST & SEQUENCE OF OPERATION

Scale:	Drawn By: DP	Date:
N/A	Ckd. By: DS	MARCH 2025
	Dwg. No.: 25-055-M2	Rev. A