ADDENDUM NO. 4
Request for Tender No. 24-01-00517

Milton Town Hall & Fire Station No. 2
HVAC Equipment Replacement

Date: October 24, 2024

Please be advised of the following changes/clarifications to the above noted document. This addendum shall form part of the contract documents.

Item #1: Additional Site Meeting

An additional non-mandatory site meeting has been scheduled for the following date and time for the Milton Town Hall location only. This site meeting will allow for additional site investigation due to the revised specifications. During the site meeting, some floor panels will be opened for visual inspection.

Date: **October 30, 2024 at 3:00 pm**
Location: Meet in the lobby at Milton Town Hall, 150 Mary Street, Milton, ON

Item #2: Extension to the Bid Closing Date

The closing date for this Tender has been extended to **November 7, 2024**. The closing time remains unchanged.

Item #3: Extension to the Question Deadline Date

The question deadline date has been extended to **November 1, 2024**. The time remains unchanged.

Item #4: Amendments to Drawings

The attached Drawings have been revised and are to be incorporated as part of this Addendum.

Item #5: The following are REVISED ANSWERS to questions that were answered in ADDENDUM NO. 3

Addendum 3, Question 5:

Can you confirm whether there is a fire suppression system under the Data Centre raised flooring.

REVISED ANSWER:

There is fire suppression system under the flooring. Refer to "Mechanical Drawing M1.1 Rev. C - Revised note B" and "Mechanical Drawing M1.4 Rev. C Revised note 2".

Addendum 3, Question 6:

Can you confirm whether the raised floor can withstand the weight of wheeling the units in and out of the Data Centre?

REVISED ANSWER:

Refer to "Mechanical Drawing M1.1 Rev. C - Revised note B" and "Mechanical Drawing M1.4 Rev. C Revised note 2".

Addendum 3, Question 7:

Can you provide details on the new supports for the 20ton units on the roof?

REVISED ANSWER:

Refer to "Mechanical Drawing M0.5 Rev. C - Revised roof curb detail".

Item #6: The following question was received and the response is noted below:

Question 1:

Would we be able to review on site once more?

Answer 1: Refer to Item #1 for an additional site meeting.

All other terms and conditions remain the same.

Bidders shall acknowledge all addenda when submitting their bid through the Bidding System.

End of Addendum No. 4

Corporate Services - Purchasing
Town of Milton
Email: purchasing@milton.ca

CK ENGINEERING INC
2400 Industrial Street, Burlington, ON L7P 1A5 Email: info@ckengs.net Tel: (905) 631 1115

ADDENDUM No. 4

PROJECT:	H.V.A.C. Replacement at Town Hall & Fire Station #2	**DATE:**	23 Oct. 2024
PROJECT #:	24034	**FROM:**	Binayak Raj Maurya
TO:	Town of Milton	**ATTENTION:**	Daniele Santos

1. Mechanical

1.1 Refer to Mechanical Drawing M0.3 Rev. C

- Removed specification section “Aluminum Microchannel Coil - E-coat”.

1.2 Refer to Mechanical Drawing M0.4 Rev. C

- Revised airflow rate for C/R AC-1,2.

1.3 Refer to Mechanical Drawing M0.5 Rev. C

- Revised roof curb detail.

1.4 Refer to Mechanical Drawing M1.1 Rev. C

- Revised note ‘B’.

1.5 Refer to Mechanical Drawing M1.4 Rev. C

- Revised note ‘2’.

END OF ADDENDUM No.4

4.6 LIEBERT LIQUI–TECT SENSORS, MAXIMUM OF 2 PER UNIT

TWO SOLID STATE WATER SENSORS SHALL BE PROVIDED FOR INSTALLATION UNDER THE RAISED FLOOR.

4.7 FLOOR STAND

THE FLOOR STAND SHALL BE CONSTRUCTED OF A WELDED STEEL FRAME. THE FLOOR STAND SHALL HAVE ADJUSTABLE LEGS WITH VIBRATION ISOLATION PADS. THE FLOOR STAND SHALL BE 18 INCHES (MM) HIGH.

4.8 RETURN AIR PLENUM FOR DOWNFLOW UNITS––OPTIONAL

THE AIR PLENUM SHALL BE CONSTRUCTED OF 20–GAUGE STEEL, POWDER COATED TO MATCH UNIT COLOR. THE PLENUM SHALL BE 36 INCHES (MM) HIGH. A DOOR SHALL BE INCLUDED IN THE FRONT OF THE PLENUM TO ENABLE FRONT FILTER ACCESS. AIR SHALL ENTER THE PLENUM FROM THE TOP.

4.9 DAMPER RELAYS

FACTORY INSTALLED DAMPER RELAYS. DAMPER, DAMPER MOTOR, DAMPER MOTOR RELAY AND END SWITCH PROVIDED AND INSTALLED BY INSTALLING CONTRACTOR.

5.0 HEAT REJECTION

5.1 AIR COOLED LIEBERT MC CONDENSER

5.1.1 LIEBERT MC SUMMARY

THESE SPECIFICATIONS DESCRIBE REQUIREMENTS FOR A LIEBERT AIR COOLED CONDENSER FOR A LIEBERT THERMAL MANAGEMENT SYSTEM. THE CONDENSER SHALL BE DESIGNED TO REJECT WASTE HEAT TO OUTDOOR AIR AND TO CONTROL REFRIGERANT HEAD PRESSURE AS INDOOR EQUIPMENT LOADING AND OUTDOOR AMBIENT CONDITIONS CHANGE.

THE MANUFACTURER SHALL DESIGN AND FURNISH ALL EQUIPMENT IN THE QUANTITIES AND CONFIGURATIONS SHOWN ON THE PROJECT DRAWINGS.

STANDARD 60–HZ UNITS SHALL BE CSA–CERTIFIED TO THE HARMONIZED U.S. AND CANADIAN PRODUCT SAFETY STANDARD CSA C22.2 NO 236/UL 1995 FOR "HEATING AND COOLING EQUIPMENT" AND SHALL BE MARKED WITH THE CSA C–US LOGO.

5.1.2 LIEBERT MC DESIGN REQUIREMENTS

THE AIR COOLED CONDENSER SHALL BE A FACTORY ASSEMBLED UNIT, COMPLETE WITH INTEGRAL ELECTRICAL PANEL, DESIGNED FOR OUTDOOR INSTALLATION. THE CONDENSER SHALL BE A DRAW THROUGH DESIGN.

5.1.3 LIEBERT MC STANDARD FEATURES

CONDENSER SHALL CONSIST OF MICROCHANNEL CONDENSER COIL(S), PROPELLER FAN(S) DIRECT DRIVEN BY INDIVIDUAL FAN MOTOR(S), ELECTRICAL CONTROLS, HOUSING, AND MOUNTING LEGS. THE LIEBERT AIR COOLED CONDENSER SHALL PROVIDE POSITIVE REFRIGERANT HEAD PRESSURE CONTROL TO THE INDOOR COOLING UNIT BY ADJUSTING HEAT REJECTION CAPACITY.

MICROCHANNEL COILS SHALL PROVIDE SUPERIOR HEAT TRANSFER, REDUCE AIR SIDE PRESSURE DROP, INCREASE ENERGY EFFICIENCY AND SIGNIFICANTLY REDUCE THE SYSTEM REFRIGERANT VOLUME REQUIRED. EC FANS AND FAN OPERATING TECHNIQUES SHALL REDUCE SOUND LEVELS. VARIOUS METHODS SHALL BE AVAILABLE TO MATCH INDOOR UNIT TYPE, MAXIMUM OUTDOOR DESIGN AMBIENT AND MAXIMUM SOUND REQUIREMENTS.

5.1.4 LIEBERT MC COIL

LIEBERT^2 MC COILS SHALL BE CONSTRUCTED OF ALUMINUM MICROCHANNEL TUBES, FINS, AND MANIFOLDS. TUBES SHALL BE FLAT AND CONTAIN MULTIPLE, PARALLEL FLOW MICROCHANNELS AND SPAN BETWEEN ALUMINUM HEADERS. FULL DEPTH LOUVERED ALUMINUM FINS SHALL FILL SPACES BETWEEN THE TUBES. TUBES, FINS AND ALUMINUM HEADERS SHALL BE OVEN BRAZED TO FORM A COMPLETE REFRIGERANT TO AIR HEAT EXCHANGER COIL. COPPER STUB PIPES SHALL BE ELECTRIC RESISTANCE WELDED TO ALUMINUM COILS AND JOINTS PROTECTED WITH POLYOLEFIN TO SEAL JOINTS FROM CORROSIVE ENVIRONMENTAL ELEMENTS. COIL ASSEMBLIES SHALL BE FACTORY LEAK TESTED AT A MINIMUM OF 300 PSIG (2,068 KPAG). HOT GAS AND LIQUID LINES SHALL BE COPPER AND SHALL BE BRAZED USING NITROGEN GAS FLOW TO THE STUB PIPES WITH SPUN CLOSED ENDS FOR CUSTOMER PIPING CONNECTIONS. COMPLETE COIL/PIPING ASSEMBLY SHALL BE THEN FILLED AND SEALED WITH AN INERT GAS HOLDING CHARGE FOR SHIPMENT.

5.1.4.1 ALUMINIUM MICROCHANNEL COIL WITH E–COAT –– OPTIONAL (REMOVED)

C

5.1.5 LIEBERT MC FAN MOTOR/BLADE ASSEMBLY

THE FAN MOTOR/BLADE ASSEMBLY SHALL HAVE AN EXTERNAL ROTOR MOTOR, FAN BLADES AND FAN/FINGER GUARD. FAN BLADES SHALL BE CONSTRUCTED OF CAST ALUMINUM OR GLASS REINFORCED POLYMERIC MATERIAL. FAN GUARDS SHALL BE HEAVY GAUGE, CLOSE MESHED STEEL WIRE, COATED WITH A BLACK, CORROSION RESISTANT FINISH. FAN TERMINAL BLOCKS SHALL BE IN AN IP54 ENCLOSURE ON THE TOP OF THE FAN MOTOR. FAN ASSEMBLIES SHALL BE FACTORY BALANCED, TESTED BEFORE SHIPMENT, AND MOUNTED SECURELY TO THE CONDENSER STRUCTURE.

5.1.5.1 LIEBERT MC CONDENSER EC FAN MOTOR

THE EC FAN MOTORS SHALL BE ELECTRONICALLY COMMUTATED FOR VARIABLE SPEED OPERATION AND SHALL HAVE BALL BEARINGS. THE EC FANS SHALL PROVIDE INTERNAL OVERLOAD PROTECTION THROUGH BUILT–IN ELECTRONICS. EACH EC FAN MOTOR SHALL HAVE A BUILT–IN CONTROLLER AND COMMUNICATION MODULE LINKED VIA RS485 COMMUNICATION WIRE TO EACH FAN AND THE PREMIUM CONTROL BOARD, ALLOWING EACH FAN TO RECEIVE AND RESPOND TO PRECISE FAN SPEED INPUTS FROM THE PREMIUM CONTROL BOARD.

5.1.6 LIEBERT MC ELECTRICAL CONTROLS

ELECTRICAL CONTROLS AND SERVICE CONNECTION TERMINALS SHALL BE PROVIDED AND FACTORY WIRED INSIDE THE ATTACHED CONTROL PANEL SECTION. ONLY HIGH VOLTAGE SUPPLY WIRING AND LOW VOLTAGE INDOOR UNIT COMMUNICATION/INTERLOCK WIRING ARE REQUIRED AT CONDENSER INSTALLATION.

5.1.6.1 EC FAN SPEED AND PREMIUM CONTROL

THE EC FAN/PREMIUM CONTROL SYSTEM SHALL INCLUDE AN ELECTRONIC CONTROL BOARD, EC FAN MOTOR(S) WITH INTERNAL OVERLOAD PROTECTION, REFRIGERANT AND AMBIENT TEMPERATURE THERMISTORS AND REFRIGERANT PRESSURE TRANSDUCERS. THE PREMIUM CONTROL BOARD SHALL COMMUNICATE DIRECTLY WITH THE INDOOR UNIT'S LIEBERT ICOM CONTROL VIA FIELD SUPPLIED CANBUS COMMUNICATION WIRES AND VIA FIELD SUPPLIED LOW VOLTAGE INTERLOCK WIRES. THE CONTROL BOARD SHALL USE SENSOR AND COMMUNICATION INPUTS TO MAINTAIN REFRIGERANT PRESSURE BY CONTROLLING EACH EC FAN ON THE SAME REFRIGERANT CIRCUIT TO THE SAME SPEED. THE PREMIUM CONTROL BOARD SHALL BE RATED TO A TEMPERATURE OF –30°F TO 125°F (–34.4°C TO 51.7°C). THE PREMIUM CONTROL SHALL BE FACTORY SET FOR (FAN SPEED) (FAN SPEED WITH LIEBERT LEE–TEMP) CONTROL.

5.1.6.2 LOCKING DISCONNECT SWITCH

A LOCKING TYPE DISCONNECT SWITCH SHALL BE FACTORY MOUNTED AND WIRED TO THE ELECTRICAL PANEL AND BE CAPABLE OF DISRUPTING THE FLOW OF POWER TO THE UNIT AND CONTROLLED VIA AN EXTERNALLY MOUNTED LOCKING AND LOCKABLE DOOR HANDLE. THE LOCKING DISCONNECT SHALL BE LOCKABLE IN SUPPORT OF LOCKOUT/TAGOUT SAFETY PROGRAMS.

5.1.6.3 SHORT CIRCUIT CURRENT RATING

THE ELECTRICAL PANEL SHALL PROVIDE AT LEAST 65,000A SCCR.

5.1.6.4 LIEBERT MC 575 VOLT

THE CONDENSER CABINET SHALL INCLUDE A SECONDARY, FACTORY MOUNTED, NEMA 3R WEATHERPROOF ELECTRICAL ENCLOSURE. THE SECONDARY ENCLOSURE SHALL CONTAIN A 575 V TRANSFORMER AND PROTECTIVE FUSES. ALL WIRING BETWEEN MAIN AND SECONDARY ELECTRICAL ENCLOSURES SHALL BE FACTORY PROVIDED. ALL FIELD ELECTRICAL CONNECTIONS SHALL BE MADE IN THE MAIN ELECTRICAL ENCLOSURE.

5.1.7 CABINET

THE CONDENSER CABINET SHALL BE CONSTRUCTED OF BRIGHT ALUMINUM SHEET AND DIVIDED INTO INDIVIDUAL FAN SECTIONS BY FULL WIDTH BAFFLES. INTERNAL STRUCTURAL SUPPORT MEMBERS, INCLUDING COIL SUPPORT FRAME, SHALL BE GALVANIZED STEEL FOR STRENGTH AND CORROSION RESISTANCE. PANEL DOORS SHALL BE PROVIDED ON TWO SIDES OF EACH COIL/FAN SECTION TO PERMIT COIL CLEANING. AN ELECTRICAL PANEL SHALL BE CONTAINED INSIDE A FACTORY MOUNTED NEMA 3R WEATHERPROOF ELECTRICAL ENCLOSURE. UNITS WITH THE 575 V OPTION SHALL INCLUDE A SECOND, FACTORY MOUNTED, NEMA 3R WEATHERPROOF ELECTRICAL ENCLOSURE OPPOSITE THE MAIN ELECTRICAL ENCLOSURE.

5.1.8 LIEBERT MC MOUNTING LEGS STANDARD ALUMINUM LEGS

18" ALUMINUM LEGS SHALL BE PROVIDED TO MOUNT UNIT FOR VERTICAL AIR DISCHARGE WITH RIGGING HOLES FOR HOISTING THE UNIT INTO POSITION. FACTORY SUPPLIED, SHIPPED LOOSE AND FIELD INSTALLED BY CONTRACTOR.

5.1.9 LIEBERT MC CONDENSER ACCESSORIES

5.1.10 FUSIBLE PLUG KIT

A FUSIBLE PLUG KIT SHALL BE FIELD INSTALLED ON THE LIQUID LINE FOR COMPLIANCE WITH BUILDING CODES REQUIRING REFRIGERANT RELIEF DURING HIGH TEMPERATURE AND BUILDING FIRE CONDITIONS.

6.0 EXECUTION

6.1 INSTALLATION OF THERMAL MANAGEMENT UNITS

6.1.1 GENERAL

INSTALL THERMAL MANAGEMENT UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL UNITS PLUMB AND LEVEL, FIRMLY ANCHORED IN LOCATIONS INDICATED AND MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES.

6.1.2 ELECTRICAL WIRING

INSTALL AND CONNECT ELECTRICAL DEVICES FURNISHED BY MANUFACTURER BUT NOT SPECIFIED TO BE FACTORY MOUNTED. FURNISH COPY OF MANUFACTURER'S ELECTRICAL CONNECTION DIAGRAM SUBMITTAL TO ELECTRICAL CONTRACTOR.

6.1.3 PIPING CONNECTIONS

INSTALL AND CONNECT DEVICES FURNISHED BY MANUFACTURER BUT NOT SPECIFIED TO BE FACTORY MOUNTED. FURNISH COPY OF MANUFACTURER'S PIPING CONNECTION DIAGRAM SUBMITTAL TO PIPING CONTRACTOR.

6.1.3.1 SUPPLY AND DRAIN WATER PIPING

CONNECT WATER SUPPLY AND DRAINS TO AIR CONDITIONING UNIT. PROVIDE PITCH AND TRAP AS MANUFACTURER'S INSTRUCTIONS AND LOCAL CODES REQUIRE.

6.2 FIELD QUALITY CONTROL

START THE SYSTEM IN ACCORDANCE WITH MANUFACTURER'S START–UP INSTRUCTIONS. TEST CONTROLS AND DEMONSTRATE COMPLIANCE WITH REQUIREMENTS. THESE SPECIFICATIONS DESCRIBE REQUIREMENTS FOR A COMPUTER ROOM ENVIRONMENTAL CONTROL SYSTEM. THE SYSTEM SHALL BE DESIGNED TO MAINTAIN TEMPERATURE AND HUMIDITY CONDITIONS IN THE ROOMS CONTAINING ELECTRONIC EQUIPMENT.

THE MANUFACTURER SHALL DESIGN AND FURNISH ALL EQUIPMENT TO BE FULLY COMPATIBLE WITH HEAT DISSIPATION REQUIREMENTS.

6.3 WARRANTY START–UP AND CONTROL PROGRAMMING

ENGAGE MANUFACTURER'S FIELD SERVICE TECHNICIAN TO PROVIDE WARRANTY START–UP SUPERVISION AND ASSIST IN PROGRAMMING OF UNIT(S) CONTROLS AND ANCILLARY PANELS SUPPLIED BY THEM.

ONE YEAR WARRANTY COVERING LABOUR BY VERTIV CANADA.

TWO YEAR WARRANTY COVERING PARTS BY VERTIV CANADA.

FIVE YEAR COMPRESSOR WARRANTY BY VERTIV CANADA.

ALL WORK TO BE PERFORMED DURING REGULAR BUSINESS HOURS (M–F, 8AM–5PM)

K. THERMOSTAT CONTROL WIRING

1. ALL THERMOSTAT/CONTROL WIRING IS TO BE 18AWG SHIELDED PLENUM RATED FT6 MINIMUM.

a. SUPPORT ALL WIRING IN CEILING PLENUM USING WIRE TIES / BRIDLE RINGS.

b. MECHANICAL CONTRACTOR IS TO WIRE AND INSTALL THERMOSTATS AND CONTROL WIRING TO EACH MECHANICAL UNIT SHOWN ON HVAC PLAN.

L. COMPLETION OF CONTRACT

1. ALL SYSTEMS SHALL BE COMPLETE, CLEANED, TESTED AND READY FOR USE, WITH ALL EQUIPMENT AND CONTROLS FUNCTIONING CORRECTLY.

2. SUBMIT ALL CERTIFICATES OF INSPECTION AND TEST RESULTS TO THE CONSULTANT FOR REVIEW.
3. PRIOR TO CONTACTING THE CONSULTANT FOR FINAL INSPECTION, THE CONTRACTOR MUST CORRECT ALL DEFICIENCIES AS SPECIFIED ON THE DEFICIENCY LIST.

4. PROVIDE A WRITTEN WARRANTY FOR ONE YEAR COVERING ALL EQUIPMENT, MATERIALS AND WORKMANSHIP FROM THE DATE OF ACCEPTANCE OF THE INSTALLATION BY THE OWNER. INCLUDE IN THE OPERATION AND MAINTENANCE MANUAL.

5. ANY DEFECTS OR DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR CORRECTED AT NO COST TO THE OWNER.

M. AIR TESTING AND BALANCING

1. BALANCE AND ADJUST EACH FAN. SYSTEM VOLUMES SHALL BE WITHIN 5% OF REQUIREMENTS SHOWN. ADJUST AND SET BALANCE DAMPERS, FANS AND DRIVES TO GIVE THE SPECIFIED VOLUMES AT ALL OUTLETS. THE BALANCING OF AIR SYSTEMS IS TO BE DONE BY A BALANCING FIRM SPECIALIZING IN THIS WORK. CLEAN DUCT SYSTEMS, FILTERS, ETC., BEFORE TESTING IS DONE.

2. PROVIDE ELECTRONIC PDF COPIES OF THE AIR BALANCING REPORT. AIR QUANTITIES AT EACH OUTLET SHALL BE AS INDICATED IN THE DRAWINGS. THIS REPORT SHALL SHOW THE QUANTITIES, VELOCITIES AND AREA OF EACH OUTLET, TYPE AND MODEL. NUMBER OF FANS AND MOTOR INSTALLED, ACTUAL AIR DELIVERED BY THE FAN WITH TOTAL STATIC PRESSURE AND AMPS DRAWN BY THE MOTORS. ADJUST AND RETEST TO THE SATISFACTION OF THE PROJECT COORDINATOR. PROVIDE ADDITIONAL COPY OF THE AIR BALANCE REPORT TO THE MECHANICAL CONSULTANT.

3. UPON COMPLETION OF THE AIR BALANCE TEST, SUBMIT THE AIR BALANCE REPORT TO THE OWNER. THIS CONTRACTOR SHALL PROVIDE, IF CALLED FOR, A SPOT CHECK ON THE SYSTEM WITH THE CONSULTANT. IF ACTUAL AIR QUANTITIES DO NOT AGREE WITH THE AIR BALANCE REPORT DATA, THIS CONTRACTOR MAY BE CALLED UPON TO COMPLETELY RE–BALANCE THE SYSTEM UNTIL REQUIREMENTS ARE ACHIEVED AND ACCEPTED BY THE CONSULTANT.

N. SETTING OF EQUIPMENT AND PIPING

1.1. SETTING AND ALIGNMENT OF ALL EQUIPMENT WITH ROTATING ELEMENTS MUST BE CARRIED OUT BY CERTIFIED TRADESMEN OR BY MILLWRIGHTS.
INSTALL PIPING SO AS TO BE FREE FROM STRAIN AND DISTORTION DUE TO EXPANSION AND CONTRACTION.

REVISIONS

No.	ISSUE	DATE
A	ISSUED FOR CLIENT REVIEW	MAY 31, 2024
B	ISSUED FOR TENDER	SEP 05, 2024
C	ISSUED FOR ADDENDUM #4	OCT 23, 2024

Seal:

DO NOT SCALE DRAWINGS.
ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON THE JOB. ALL DRAWINGS REMAIN THE PROPERTY OF ENGINEERS. DRAWINGS SHOULD NOT BE READ IN ISOLATION.

CK ENGINEERING INC
MECHANICAL | ELECTRICAL
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PROJECT:

HVAC REPLACEMENT AT TOWN HALL & FIRE STATION 2
MILTON

DRAWING TITLE:

MECHANICAL SPECIFICATIONS - III

DRAWN BY:	SCALE:
VA	AS NOTED
CHECKED BY:	DATE:
BM	MAY 2024

PROJECT No.: 24034

DRAWING No.:

M 0.3

DUCTLESS AC UNIT SCHEDULE - MILTON FIRE STATION #2

						INDOOR UNIT								OUTDOOR UNIT								
INDOOR UNIT TAG	MITSUBISHI INDOOR UNIT MODEL No.	OUTDOOR UNIT TAG	MITSUBISHI OUTDOOR UNIT MODEL No.	OPERATING RANGE DB (°F)	REFRIGERANT	UNIT LOCATION	MOUNTING TYPE	MAX AIRFLOW (CFM)	COOLING CAPACITY (Btu/hr)	ELECTRICAL			WEIGHT (LBS)	UNIT LOCATION	MOUNTING TYPE	COOLING CAPACITY (Btu/hr)	ELECTRICAL			WEIGHT (LBS)	SOUND (dBa)	REMARKS
										V/PH/HZ	MCA	MOCP					V/PH/HZ	MCA	BREAKER SIZE			
AC-4	PKA-A36KA7	CU-4	PUY-A36NKA7	-40 TO 115	R410A	IT ROOM	WALL MOUNT	920	36,000	208/1/60	1	N/A	46	ROOF	ECOFOOT STAND	36,000	208/1/60	25	30	211	52	SEE NOTES BELOW

NOTES:
1. INDOOR UNIT POWERED BY OUTDOOR UNIT.
2. EACH UNIT C/W ULTRA LOW AMBIENT KIT, REAR SNOW GUARD (SG-1-RE), SIDE SNOW GUARD (SG-1-SD), FRONT WIND DEFLECTOR (2X MODEL: CM-S-FR-NKMU),
3. PROVIDE NEW MODEL PAR40MAA THERMOSTAT AND CONNECT TO EXISTING A/C AND NEW A/C FOR "BACKUP AND ROTATE" FUNCTIONALITY. ONE THERMOSTAT SHALL CONTROL BOTH A/Cs. CONFIRMING WIRING AND ADDRESSING OF UNITS ARE COMPLETED PRIOR TO ENERGIZING THE SYSTEM. REFER TO INSTALLATION MANUAL. DEMONSTRATE THIS FUNCTIONALITY TO OWNER PRIOR TO PROJECT CLOSEOUT.
4. ALL UNITS TO BE INSTALLED AS PER MANUFACTURER'S WRITTEN INSTRUCTION.
5. INDOOR UNIT C/W MOUNTING BRACKETS, OUTDOOR UNIT C/W ECOFOOT STAND (SHALL BE FACTORY SHIPPED/FIELD SUPPLIED-CONFIRM SIZE OF ECOFOOT FRAMES MODEL: AN-H305)
6. INSULATE BOTH REFRIGERANT LIQUID AND SUCTION LINE. REFER TO MECHANICAL SPECIFICATIONS.

DUCTLESS AC UNIT SCHEDULE - TOWN HALL

						INDOOR UNIT								OUTDOOR UNIT								
INDOOR UNIT TAG	MITSUBISHI INDOOR UNIT MODEL No.	OUTDOOR UNIT TAG	MITSUBISHI OUTDOOR UNIT MODEL No.	OPERATING RANGE DB (°F)	REFRIGERANT	UNIT LOCATION	MOUNTING TYPE	MAX AIRFLOW (CFM)	COOLING CAPACITY (Btu/hr)	ELECTRICAL			WEIGHT (LBS)	UNIT LOCATION	MOUNTING TYPE	COOLING CAPACITY (Btu/hr)	ELECTRICAL			WEIGHT (LBS)	SOUND (dBa)	REMARKS
										V/PH/HZ	MCA	MOCP					V/PH/HZ	MCA	BREAKER SIZE			
AC-3	PKA-A18LA-TH	CU-3	PUY-A18NKA7	-40 TO 115	R410A	NETWORK CLOSET	WALL MOUNT	450	18,000	208/1/60	1	N/A	28	ROOF	ECOFOOT STAND	18,000	208/1/60	11	15	99	44	SEE NOTES BELOW

NOTES:
1. INDOOR UNIT POWERED BY OUTDOOR UNIT.
2. EACH UNIT C/W ULTRA LOW AMBIENT KIT, REAR WIND GUARD (PRE-24-30), FRONT WIND GUARD (PFR-24-30), SIDE WIND GUARDS (MODEL: PSD-24-30),
3. EQUIVALENT LENGTH (FIELD VERIFY). CONTRACTOR MUST ACCOUNT FOR REFRIGERANT CHARGE FOR THE REQUIRED LENGTH. DO NOT EXCEED MAXIMUM LENGTH CONSIDERING EACH BEND AS 2 FEET EQUIVALENT LENGTH.
4. ALL UNITS TO BE INSTALLED AS PER MANUFACTURER'S WRITTEN INSTRUCTION.
5. INDOOR UNIT C/W MOUNTING BRACKETS, OUTDOOR UNIT C/W ECOFOOT STAND (SHALL BE FACTORY SHIPPED/FIELD SUPPLIED-CONFIRM SIZE OF ECOFOOT FRAMES MODEL: AN-H305.)
6. INSULATE BOTH REFRIGERANT LIQUID AND SUCTION LINE. REFER TO MECHANICAL SPECIFICATIONS.
7. NEW PROGRAMMABLE THERMOSTAT MODEL PAR-40MAA.

C/R AC UNIT SCHEDULE - TOWN HALL

						INDOOR UNIT									OUTDOOR UNIT								
INDOOR UNIT TAG	INDOOR UNIT MAKE AND MODEL No.	OUTDOOR UNIT TAG	OUTDOOR UNIT MAKE AND MODEL No.	OPERATING RANGE DB (°F)	REFRIGERANT	UNIT LOCATION	MOUNTING TYPE	MAX AIRFLOW (CFM)	ESP (IN. WC)	NET COOLING CAPACITY (kW)	SENSIBLE COOLING CAPACITY (kW)	ELECTRICAL			WEIGHT (LBS)	UNIT LOCATION	MOUNTING TYPE	COOLING CAPACITY (Btu/hr)	ELECTRICAL			WEIGHT (LBS)	SOUND (dBa)	REMARKS
												V/PH/HZ	FLA	BREAKER SIZE					V/PH/HZ	FLA	BREAKER SIZE			
C/R AC-1,2	LIEBERT DS070A	CU-1,2	LIEBERT MCM080E	50 TO 104	R407C	I.T. DATA CENTRE	FLOOR MOUNT ON 18" STANDS LEVEL WITH RAISED FLOOR	9,600	0.2	74.1	73.2	575/3/60	46.4	60	1970	ROOF	18" LEGS	N/A	575/3/60	2.4	15	906	N/A	SEE NOTES BELOW

NOTES:
1. MECH. CONTRACTOR TO FIELD SUPPLY AND INSTALL 80"x24" MOTORIZED DAMPER IN RETURN AIR PLENUM C/W 24VAC ACTUATOR SIEMENS GCA 126.1P WITH END SWITCH PLENUM CABLE OR EQUIVALENT, LOW VOLTAGE TRANSFORMER AND CONTROL WIRING UPTO UNIT RELAY. ELECTRICAL POWER BY DIV 26.
2. EACH INDOOR UNIT SHALL BE MOUNTED ON A FLOOR STAND WITH A HEIGHT OF 18".
3. EACH INDOOR UNIT C/W A RETURN PLENUM 36" HIGH. PROVIDE 4" MERV-8 FILTERS.
4. ALL INDOOR UNITS SHALL BE C/W TWO POINT LEAK SENSORS MODEL: LT410 FOR EACH UNIT AND WIRING TO INDOOR UNIT.
5. EACH C/R AC UNIT SHALL BE C/W AN INFRARED HUMIDIFIER WITH A CAPACITY OF 22 lbs/hr AND 150 PSI IN COMPLIANCE WITH ASME A112.1.2 SECTION 2.4.2 C/W VACUUM BREAKER.
6. EACH C/R AC UNIT SHALL BE C/W AN ELECTRIC REHEAT SECTION OF CAPACITY 25 kW.
7. SUPPLY AND FIELD-INSTALL 10 IT RACK TEMPERATURE SENSORS MODEL '2T' FOR EACH C/R AC, 40 FOOT CANBUS CABLE AND DAISY CHAIN SENSORS TOGETHER. PLACE SENSORS ON EVERY OTHER IT RACK AND INTERLACE WITH IT RACKS ON OPPOSITE SIDE FOR OPTIMUM TEMPERATURE MONITORING.
8. MECH. CONTRACTOR TO FIELD SUPPLY AND INSTALL 40 FOOT LONG CAT 6 NETWORK CABLE FOR COMMUNICATION BETWEEN TWO C/R AC UNITS.
9. FACTORY INSTALLED BAS COMMUNICATION CARD FOR EACH C/R AC UNIT.
10. C/R AC UNITS SHALL BE DOWNWARD SUPPLY AIRFLOW AND CEILING RETURN FROM TOP.
11. MECH. CONTRACTOR TO FIELD SUPPLY ADDITIONAL REFRIGERANT CHARGE, LEAK TESTING OF LINES.
12. CONNECT C/R AC UNITS TO EXISTING BUILDING BAS. MECH. CONTRACTOR TO ENGAGE AND PAY FOR SERVICES OF BAS VENDOR: JOHNSON CONTROLS, RAY KAMPEN (905) 730 9695 raymond.a.kampen@jci.com

MECHANICAL LEGEND

HVAC/PIPING/PLUMBING

	SANITARY LINE
	CONDENSATE
	VENT PIPE
	PIPE UP
	PIPE DOWN
REF	REFRIGERANT PIPING
CO	CLEAN OUT
	PIPE HEAT TRACING
AC–1	NEW EQUIPMENT TAG

ANNOTATION LEGEND

CTE	CONNECT TO EXISTING
FFD	FUNNEL FLOOR DRAIN
T/B	TO BELOW
T/A	TO ABOVE
F/B	FROM BELOW
F/A	FROM ABOVE
U/C	UNDERCUT DOOR
CBV	CIRCUIT BALANCING VALVE
AP	ACCESS PANEL
VTR	VENT THRU ROOF

SPECIAL NOTE APPLICABLE FOR ALL DRAWINGS

PROVIDE ALL DEMOLITION, CLEAN–UPS, STORAGE, LIFTING, FLASHING, DRILLING, CUTTING AND PATCHING AS REQUIRED. ALL CUTTING AND PATCHING REQUIRED TO THE EXISTING BUILDING STRUCTURE FOR THE WORK SHALL BE INCLUDED UNDER THIS CONTRACT, AND BE ACCEPTABLE TO THE OWNER. PROVIDE X–RAY OF SLAB PRIOR TO CORING AND CUTTING OF FLOOR, AND OBTAIN APPROVAL FROM BASE BUILDING STRUCTURAL ENGINEER PRIOR TO DRILLING. SUBMIT WRITTEN CONFIRMATION THAT X–RAY HAS BEEN PERFORMED, AND THAT RESULTS HAVE BEEN ACCEPTED BY BASE BUILDING STRUCTURAL ENGINEER. OBTAIN WRITTEN APPROVAL FROM THE OWNER BEFORE ANY CUTTING IS CARRIED OUT. AFTER COMPLETION OF WORK, THE CONTRACTOR TO RESTORE ALL AFFECTED CEILING/WALL AREAS TO ITS ORIGINAL CONDITION.

PROJECT ADDRESSES AND ASSOCIATED DRAWINGS

ADDRESS	ASSOCIATED PLANS
MILTON TOWN HALL, 150 MARY ST, MILTON, ON L9T 6Z5	M–1.1, 1.2, 1.3, 1.4, 1.5, 1.6
MILTON FIRE STATION #2, 2665 REID SIDEROAD, MILTON, ON	M–1.7, 1.8

MECHANICAL DRAWING LIST

M 0.1	MECHANICAL SPECIFICATIONS – I
M 0.2	MECHANICAL SPECIFICATIONS – II
M 0.3	MECHANICAL SPECIFICATIONS – III
M 0.4	MECHANICAL DETAILS AND SCHEMATICS
M 0.5	MECHANICAL DETAILS
M 0.6	TOWN HALL – KEY PLANS
M 0.7	FIRE STATION #2 – KEY PLANS
M 1.1	TOWN HALL GROUND FLOOR – MECHANICAL DEMOLITION PLAN
M 1.2	TOWN HALL SECOND FLOOR – MECHANICAL DEMOLITION PLAN
M 1.3	TOWN HALL ROOF – MECHANICAL DEMOLITION PLAN
M 1.4	TOWN HALL GROUND FLOOR – MECHANICAL NEW LAYOUT
M 1.5	TOWN HALL SECOND FLOOR – MECHANICAL NEW LAYOUT
M 1.6	TOWN HALL ROOF – MECHANICAL NEW LAYOUT
M 1.7	FIRE STATION #2 GROUND FLOOR – MECHANICAL LAYOUT
M 1.8	FIRE STATION #2 ROOF – MECHANICAL LAYOUT

REVISIONS

No.	ISSUE	DATE
A	ISSUED FOR CLIENT REVIEW	MAY 31, 2024
B	ISSUED FOR TENDER	SEP 05, 2024
C	ISSUED FOR ADDENDUM #4	OCT 23, 2024

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PROJECT:

HVAC REPLACEMENT AT TOWN HALL & FIRE STATION 2 MILTON

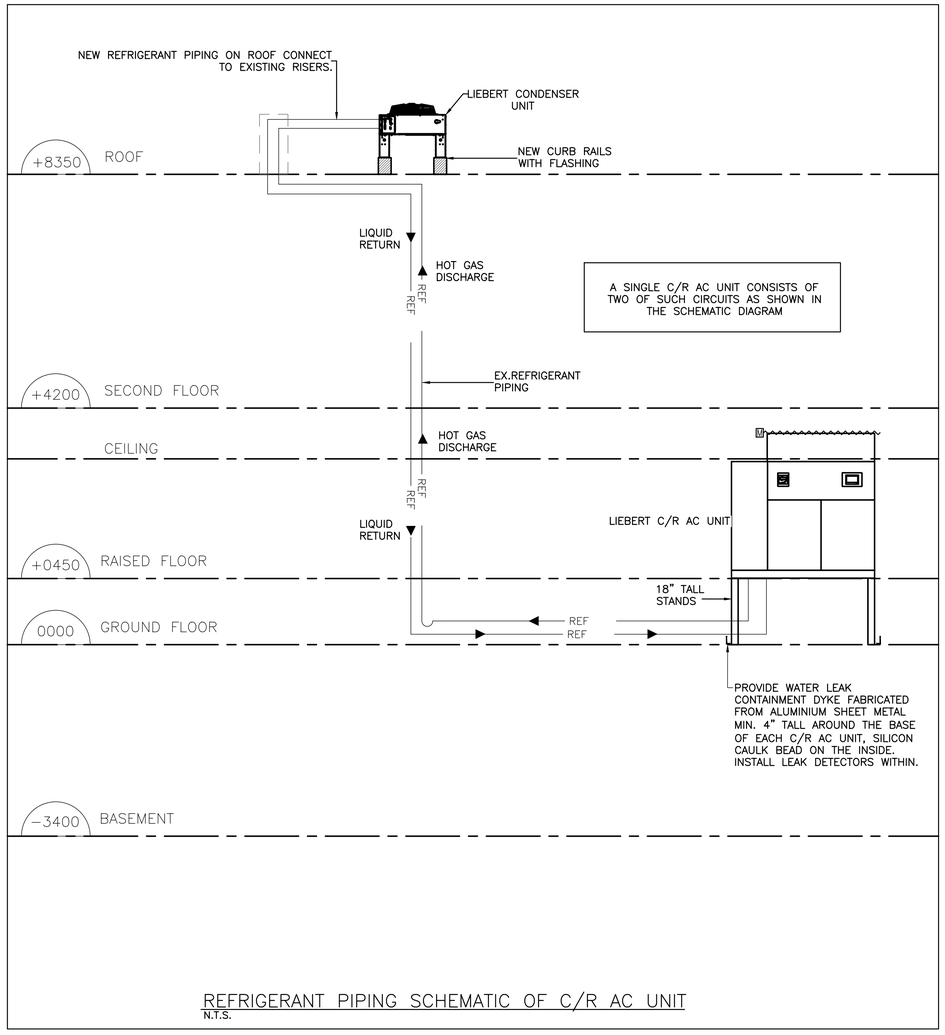
DRAWING TITLE:

MECHANICAL SCHEDULES, LEGEND AND DRAWING LISTS

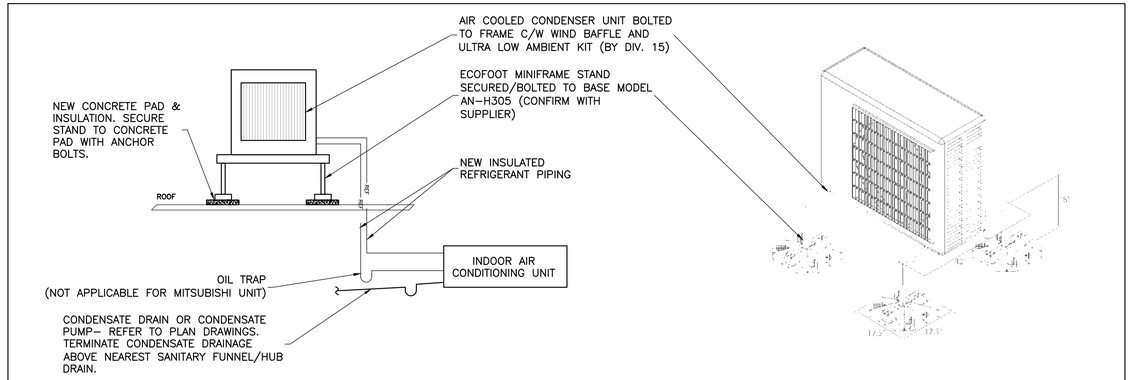
DRAWN BY:	SCALE:
VA	AS NOTED
CHECKED BY:	DATE:
BM	MAY 2024

PROJECT No.: 24034

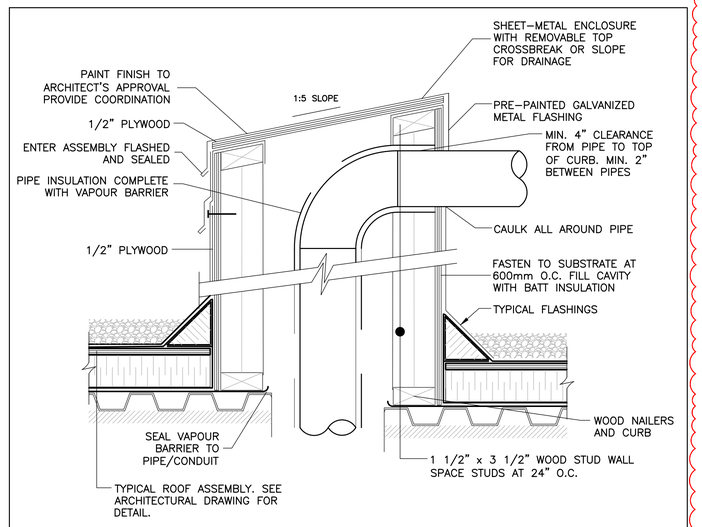
DRAWING No.: **M 0.4**



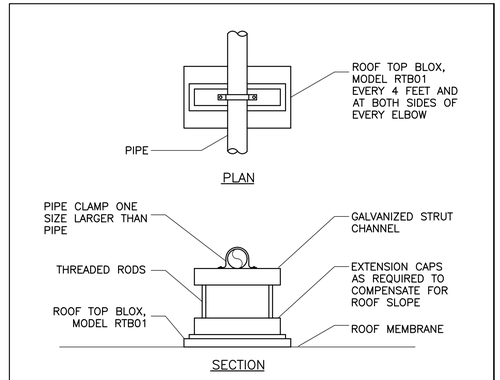
REFRIGERANT PIPING SCHEMATIC OF C/R AC UNIT
N.T.S.



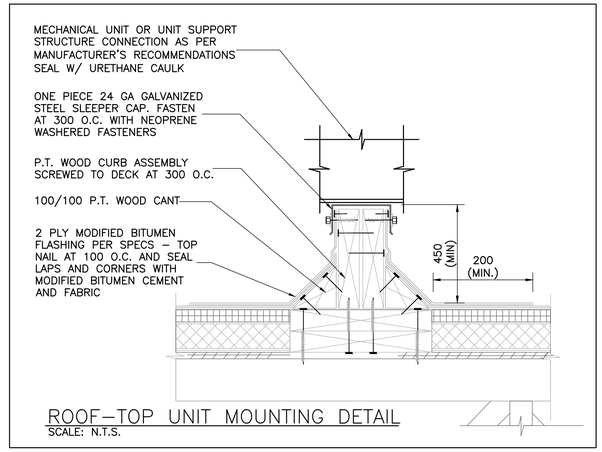
TYPICAL SPLIT AC UNIT SYSTEM INSTALLATION DETAIL
N.T.S



TYPICAL DOGHOUSE DETAIL – PIPE PENETRATIONS
SCALE: N.T.S.



REFRIGERANT PIPING SUPPORT DETAIL
N.T.S.



ROOF-TOP UNIT MOUNTING DETAIL
SCALE: N.T.S.

C

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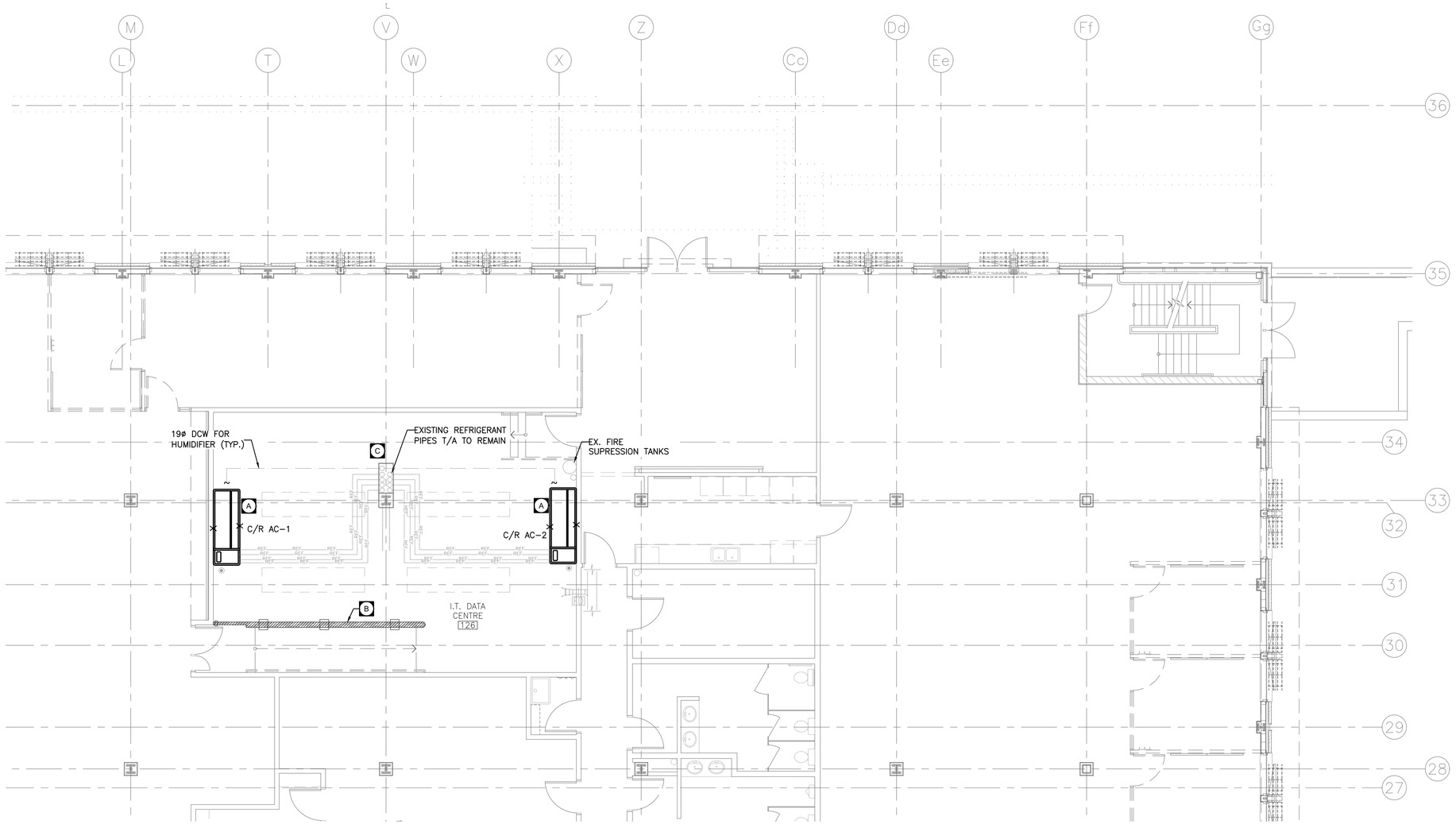
PROJECT:
HVAC REPLACEMENT AT TOWN HALL & FIRE STATION 2 MILTON

DRAWING TITLE:
MECHANICAL DETAILS AND SCHEMATICS

DRAWN BY:	SCALE:
VA	AS NOTED
CHECKED BY:	DATE:
BM	MAY 2024

PROJECT No.: 24034

DRAWING No.: **M 0.5**



1 / M1.1 TOWN HALL GROUND FLOOR – MECHANICAL DEMOLITION PLAN
SCALE: 1:75

MECHANICAL NOTES

GENERAL NOTES:

1. MECHANICAL CONTRACTOR SHALL CARRYOUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES, BEFORE THE COMMENCEMENT OF ANY WORK AND ADVISE CONSULTANT IF NEEDED.
2. THIS DRAWING DOES NOT SHOW ALL HIDDEN OR CONCEALED PIPING, DUCTS, PLUMBING AND EQUIPMENT. CONTRACTOR SHALL VISIT THE SITE AND MAKE THEIR OWN EVALUATION AND ESTIMATE OF THE EXTENT AND MAGNITUDE OF THE WORK INVOLVED PRIOR TO SUBMITTING PROPOSAL.
3. REMOVE ALL EQUIPMENT, PIPING, STEEL SUPPORTS, CONTROLS, PLUMBING MATERIAL, HOUSE KEEPING PAD, SHOWN APPROXIMATELY WITH 'X' THROUGHOUT (UNLESS OTHERWISE INDICATED).
4. FIRESTOP ALL RATED PENETRATIONS.

DEMOLITION DRAWING NOTES:

A. REMOVE EXISTING TWO LIEBERT CR A/C UNITS COMPLETE WITH ALL SUPPORTS, CONTROLS WIRING, DCW, REFRIGERANT PIPING AND DRAIN CONNECTIONS. REMOVAL OF OLD C/R AC UNIT AND INSTALLATION OF A NEW C/R AC UNIT SHALL BE PERFORMED IN TWO PHASES TO PREVENT INTERRUPTION IN COOLING OPERATION OF THE DATA CENTRE. ONE C/R AC UNIT SHALL BE READILY AVAILABLE FOR OPERATION AT ALL TIMES THROUGHOUT THE PROJECT.

B. TEMPORARILY DISMANTLE HAND RAILS, RAMP, RAISED FLOOR TILES, FLOOR GRID AND PEDESTALS, CEILING TILES FOR TRANSPORT AND INSTALLATION OF NEW OR EXISTING C/R AC UNITS. RESTORE TO ORIGINAL CONDITION. PROVIDE ALL NECESSARY SUPPORT BLOCKS, PLYWOOD, SHEET METAL, LIFTING MECHANISM ON CONCRETE SLAB AND EXISTING SERVICES SUCH AS ELECTRICAL & IT CONDUITS, MECHANICAL PIPING, FIRE SUPPRESSION LINES ETC. NEW AND EXISTING C/R AC UNITS SHALL NOT BE PLACED OR ROLLED OVER EXISTING SERVICES AND EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL SERVICES.

C. CONTRACTOR TO FIELD VERIFY THE REFRIGERANT PIPES SIZES ARE 1–1/8"ø FOR HOT GAS LINE AND 7/8"ø FOR LIQUID LINE FOR EACH CIRCUIT. EACH C/R AC UNIT HAS TWO CIRCUITS. IN CASE PIPE SIZES ARE DISCOVERED TO BE SMALLER, CONTRACTOR TO INFORM THE OWNER & CONSULTANT IMMEDIATELY.

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PROJECT:

HVAC REPLACEMENT AT TOWN HALL & FIRE STATION 2 MILTON

DRAWING TITLE:

TOWN HALL GROUND FLOOR MECHANICAL DEMOLITION

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VA	AS NOTED
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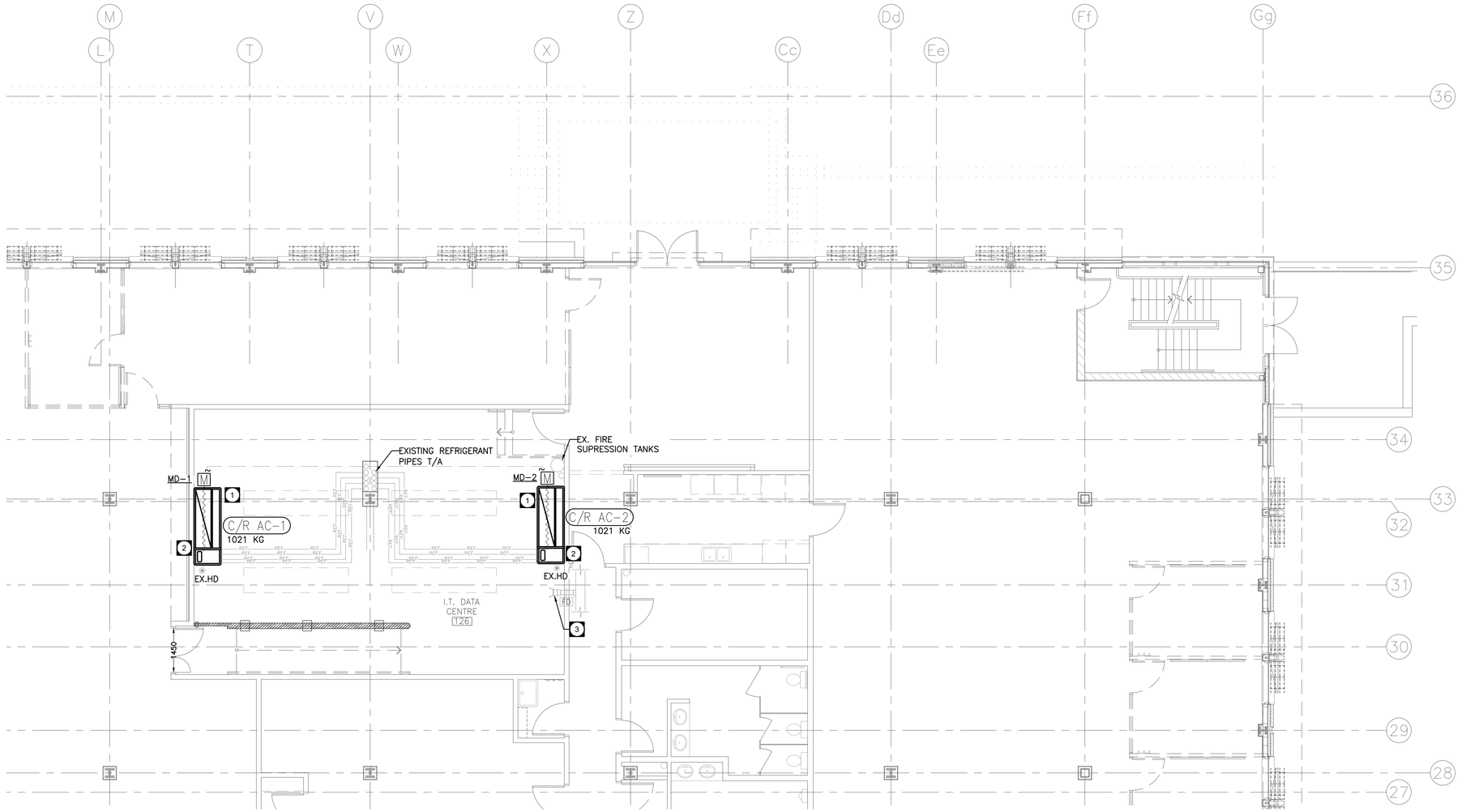
BM	MAY 2024

PROJECT No.: 24034

DRAWING No.: **M 1.1**



1 / M1.4 TOWN HALL GROUND FLOOR – MECHANICAL NEW PLAN
SCALE: 1:75

MECHANICAL NOTES

GENERAL NOTES:

1. MECHANICAL CONTRACTOR SHALL CARRYOUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES, BEFORE THE COMMENCEMENT OF ANY WORK AND ADVISE CONSULTANT IF NEEDED.
2. THIS DRAWING DOES NOT SHOW ALL HIDDEN OR CONCEALED PIPING, DUCTS, PLUMBING AND EQUIPMENT. CONTRACTOR SHALL VISIT THE SITE AND MAKE THEIR OWN EVALUATION AND ESTIMATE OF THE EXTENT AND MAGNITUDE OF THE WORK INVOLVED PRIOR TO SUBMITTING PROPOSAL.
3. FIRESTOP ALL RATED PENETRATIONS.

NEW DRAWING NOTES:

1. PROVIDE NEW LIEBERT C/R AC UNITS COMPLETE WITH NEW SUPPORTS, CONTROLS WIRING, MOTORIZED DAMPER IN RETURN PLENUM, CONDENSATE DRAIN AND CONNECT THE UNITS TO EXISTING REFRIGERANT LINES, DCW HUMIDIFIER LINE, HUB–DRAIN.
2. C/R AC UNITS SHALL BE TRANSPORTED INTO THE DATA CENTRE IN SECTIONS (IF REQUIRED) AND SHALL BE NO WIDER THAN THE WIDTH OF THE DOOR. CONTRACTOR TO DISASSEMBLE UNIT INTO THREE SECTIONS AS PER MANUFACTURER'S MANUAL, PERFORM INSPECTION OF UNIT SECTIONS PRIOR TO ASSEMBLY AND THEN PERFORM THE ASSEMBLY OF C/R AC UNITS INSIDE THE DATA CENTRE. ENGAGE SERVICES OF 'LIEBERT' FOR A POST–ASSEMBLY PRE–STARTUP INSPECTION.
3. RE–BALANCE EX. ROOM VENTILATION GRILLE TO 47 L/s (100 CFM).

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PROJECT:

HVAC REPLACEMENT AT TOWN HALL & FIRE STATION 2 MILTON

DRAWING TITLE:

TOWN HALL GROUND FLOOR MECHANICAL NEW LAYOUT

DRAWN BY:	SCALE:
VA	AS NOTED
CHECKED BY:	DATE:
BM	MAY 2024

PROJECT No.: 24034

DRAWING No.: **M 1.4**