

THE CITY OF WALTHAM
MASSACHUSETTS
PURCHASING DEPARTMENT

HVAC Renovations for Waltham Public Library, 2024

ADDENDUM NO. 3

MARCH 1, 2024

CHANGES, CORRECTIONS AND CLARIFICATIONS

The attention of bidders submitting proposals for the above subject project is called to the following addendum to the specifications. The items set forth herein, whether of omission, addition, substitution, or clarification are all to be included in and form a part of the proposal submitted.

THE NUMBER OF THIS ADDENDUM (NO. 3) MUST BE ACKNOWLEDGED IN THE BID FORM – SECTION 000600 AND/OR SECTION 000601.

ITEM 1: CHANGES TO DRAWINGS

1. Add the following attached Mechanical Drawings:

- M-3.1
- M-3.4
- M-5.0
- M-6.4
- M-6.5

ITEM 2: ANSWERS TO POSED QUESTIONS

Q1. Under Section 091220.91, Plastering, the specification for this work is stated to be “Filed Sub*Bid Required as Part of 090002 Lathing & Plastering Filed Sub”. Section 090002 is not part of the bid package.

A1. Delete reference to filed sub-bid.

End of Addendum 3

W:\BLD\Projects\2023\0220164 - Waltham Public Library HVAC System\500 Drawings\304 HVAC\0220164_M-3.1 MECHANICAL ROOM PLAN.dwg [1-3-1] February 28, 2024 - 10:28am Nolan, Gerie

KEYNOTES	
1	SECTION OF DUCTWORK SHALL BE REMOVABLE FOR COIL PULL ACCESS.
2	PROVIDE A NEW AHU-3 AND DUCTWORK (INCLUDING NEW FLEXIBLE DUCT CONNECTIONS), PROVIDE NEW HANGERS AND REFRIGERANT PIPING. PROVIDE 3/4" CONDENSATE PIPING AND TRAP AND ROUTE TO PREVIOUS LOCATION. PROVIDE NEW DDC CONTROLLER AND CONNECT TO THE NEW BAS.
3	PROVIDE A NEW AHU-4 AND DUCTWORK (INCLUDING NEW FLEXIBLE DUCT CONNECTIONS), PROVIDE NEW HANGERS AND REFRIGERANT PIPING. PROVIDE 3/4" CONDENSATE PIPING AND TRAP AND ROUTE TO PREVIOUS LOCATION. PROVIDE NEW DDC CONTROLLER AND CONNECT TO THE NEW BAS.
4	PROVIDE NEW 2" STEAM AND 3/4" CONDENSATE PIPING INCLUDING A NEW MODULATING DDC CONTROLLED STEAM VALVE, ISOLATION VALVES, STEAM TRAP, VACUUM BREAKER, UNIONS AND STRAINER.
5	PROVIDE NEW 1-1/2" STEAM AND 3/4" CONDENSATE PIPING INCLUDING A NEW MODULATING DDC CONTROLLED STEAM VALVE, ISOLATION VALVES, STEAM TRAP, VACUUM BREAKER, UNIONS AND STRAINER.

N|V|5

209 Brickstone Square
Andover, MA 01810-1488
T. 978-296-6200
F. 978-296-6201
W. www.nv5.com

CGKV Architects, Inc.

204A Hampshire Street
Cambridge, MA 02139
Tel. 617-504-8196
Fax. 617-812-6364
cgkvarchitects.com

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HVAC Replacement at:

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SCALE: 1/4" = 1'-0"

DATE: 2024-01-31

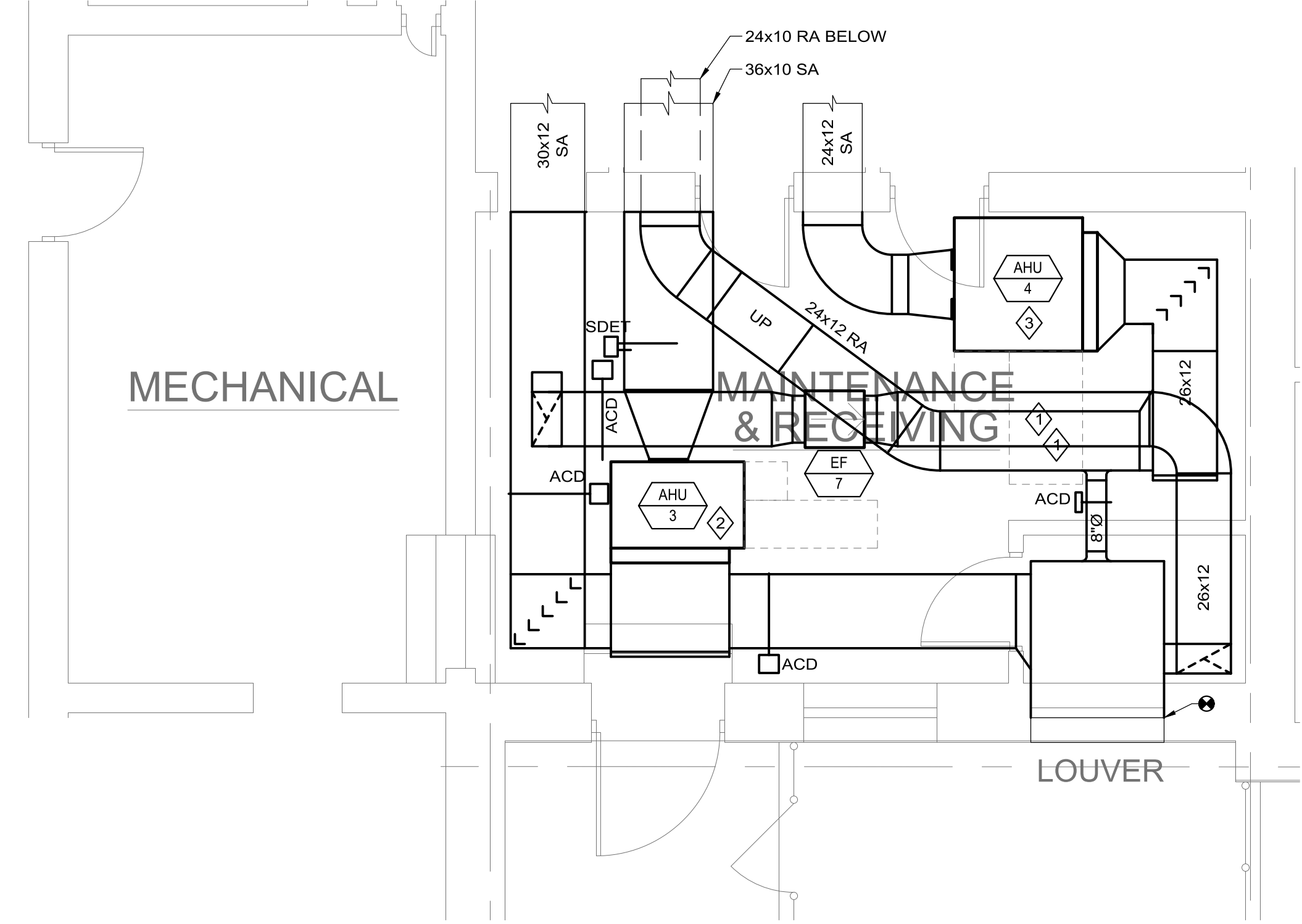
REVISIONS:

2024-02-16: ADDENDUM 1

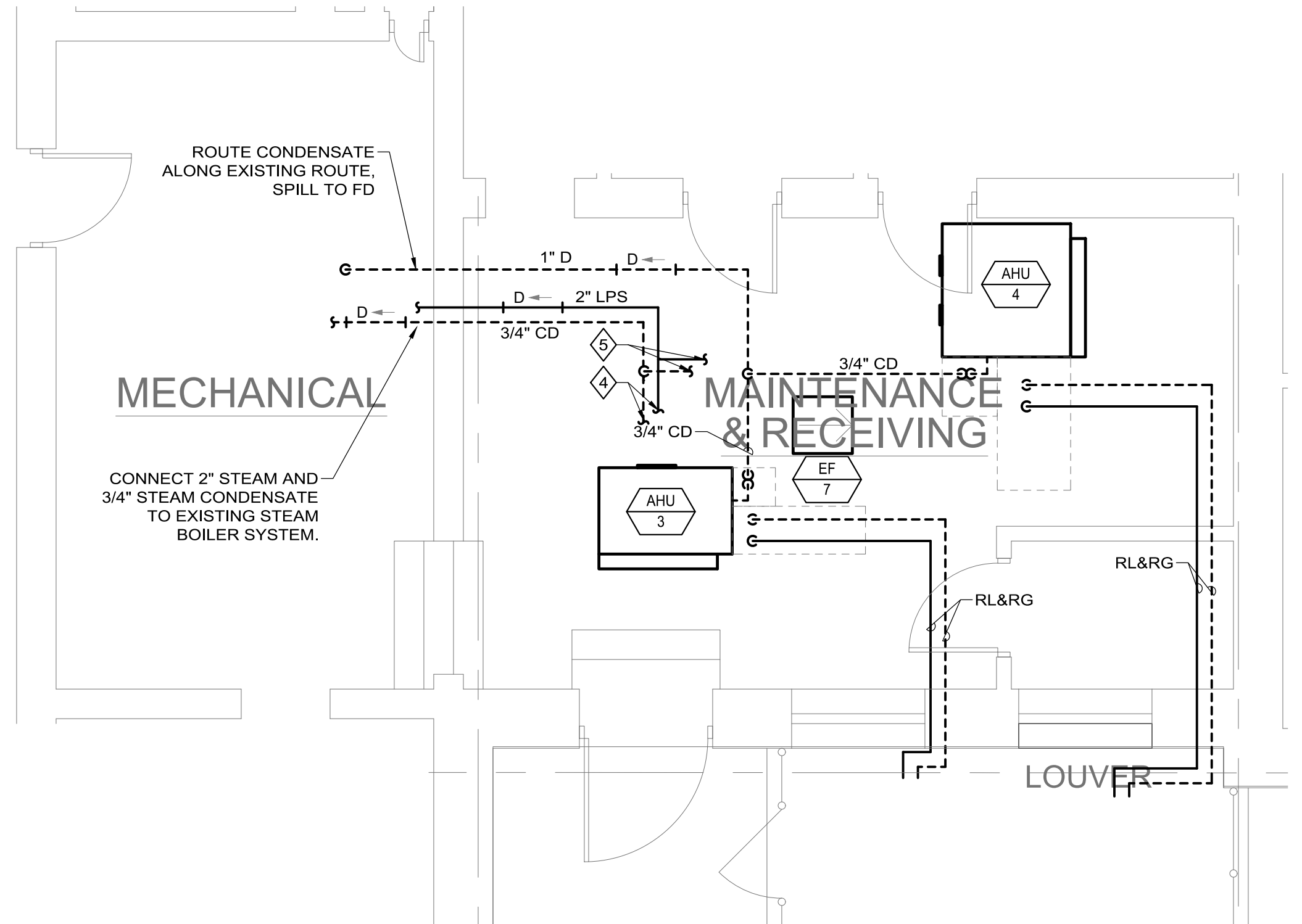
2024-02-28: ADDENDUM 3

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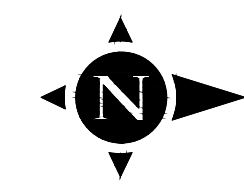
**MECHANICAL
GROUND FLOOR
ENLARGED NEW
WORK PLAN**



1 GROUND FLOOR ENLARGED MECHANICAL PLAN
1/4" = 1'-0"



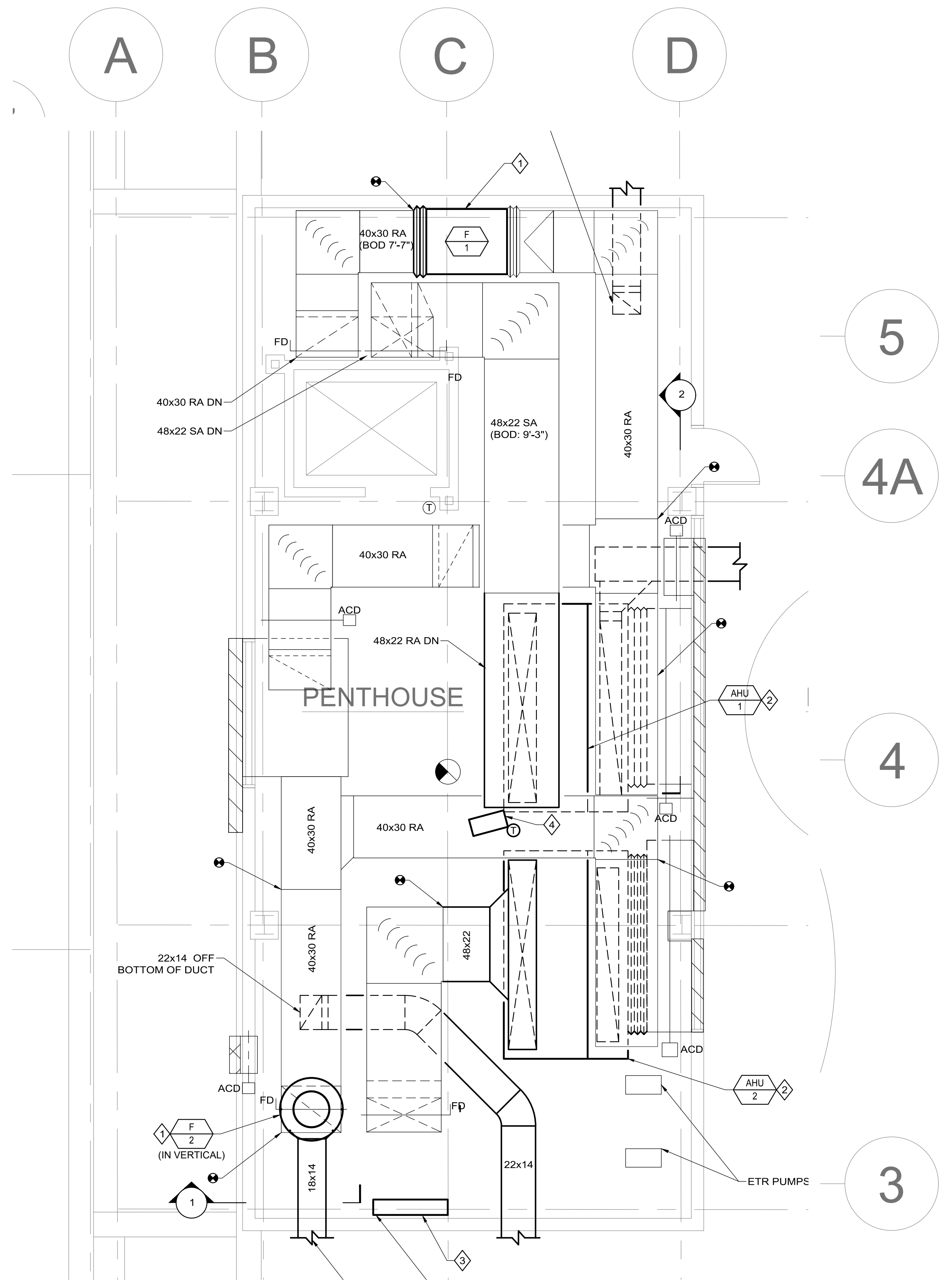
2 GROUND FLOOR ENLARGED MECHANICAL PIPING PLAN
1/4" = 1'-0"



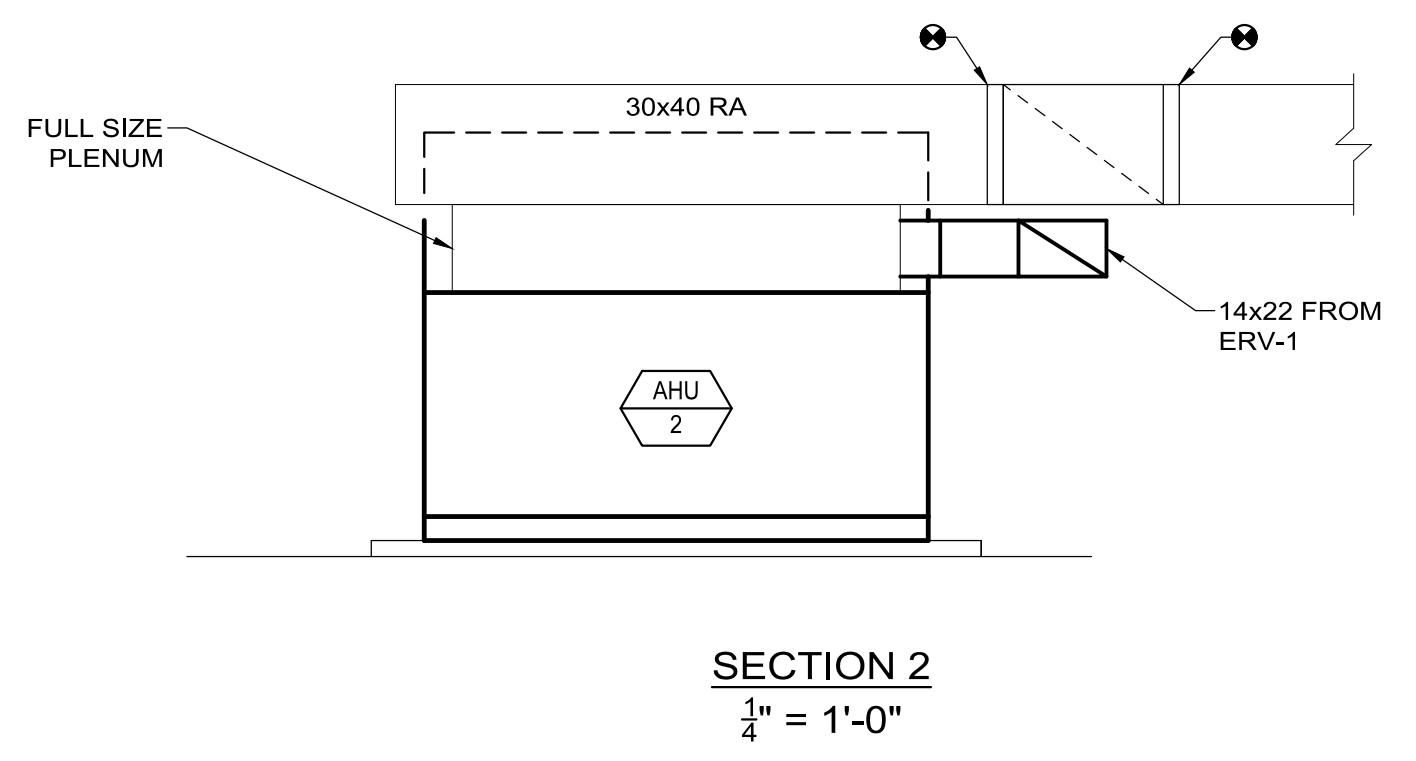
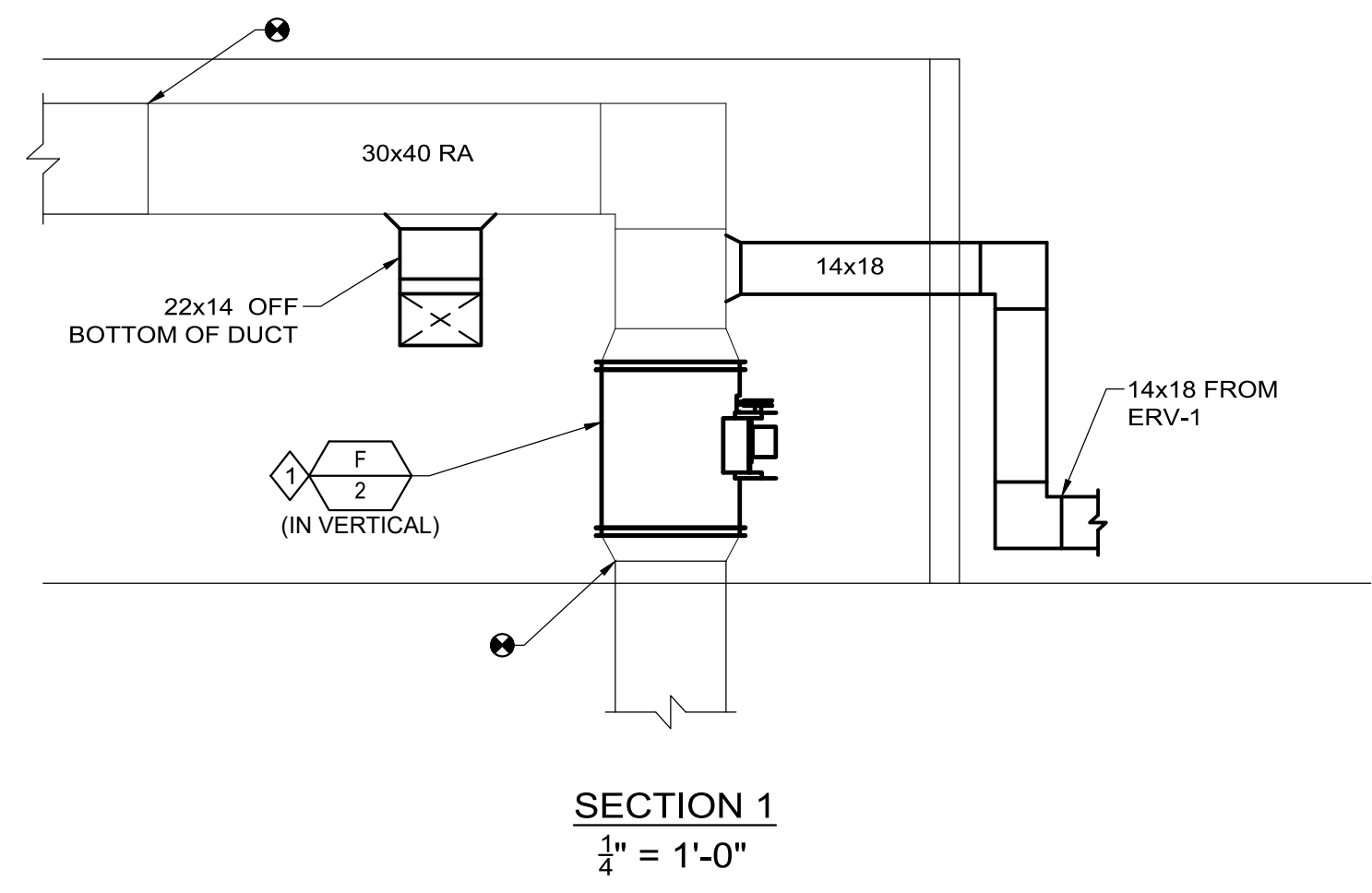
1/4" = 1'-0"
0 4' 8'

M-3.1

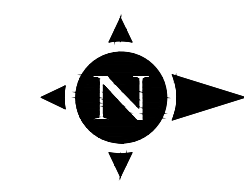
W:\BLD\Projects\2023\0220164 - Waltham Public Library HVAC System\500 Drawings\304 HVAC\0220164_M-3.4_MECHANICAL_ROOM_PLAN.dwg [1-3-4] February 28, 2024 - 10:28am Nolen, Gerise



KEYNOTES	
1	PROVIDE A NEW RETURN AIR FAN (F-1 & F-2) INCLUDING NEW HANGERS AND FLEXIBLE DUCT CONNECTIONS.
2	PROVIDE A NEW AIR HANDLER (AHU-1 & AHU-2). PROVIDE LABOR TO ASSEMBLE THE AIR HANDLER IN PLACE. PROVIDE NEW HOT WATER PIPING BACK TO THE HEADER INCLUDING NEW CONTROL & ISOLATION VALVES (REFER TO PIPING DETAIL). PROVIDE NEW REFRIGERANT PIPING TO THE OUTDOOR CONDENSER INCLUDING NEW HANGERS/STANDS. PROVIDE NEW 1" CONDENSATE PIPING TO NEAREST FLOOR DRAIN. PROVIDE NEW FLEXIBLE DUCT CONNECTIONS. PROVIDE NEW DDC CONTROL DAMPERS IN THE LOCATIONS SHOWN.
3	PROVIDE NEW CONTROLS CABINET AND CONTROLLERS FOR THE NEW MECHANICAL EQUIPMENT.
4	PROVIDE NEW HOT WATER UNIT HEATER AND DDC THERMOSTAT.



1 ROOF PLAN
1/4" = 1'-0"



1/4" = 1'-0"
0 4' 8'

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REVISIONS:

2024-02-16: ADDENDUM 1

2024-02-28: ADDENDUM 3

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**MECHANICAL
ROOF ENLARGED
NEW WORK PLAN**

M-3.4



PHOTOGRAPH NO. 1
EXISTING CONDENSING UNIT TO BE REMOVED.



PHOTOGRAPH NO. 2
EXISTING AIR HANDLER IN MECHANICAL MEZZANINE TO BE REMOVED.



PHOTOGRAPH NO. 3
EXISTING AIR COMPRESSOR FOR PNEUMATIC CONTROLS TO BE REMOVED.



PHOTOGRAPH NO. 4
EXISTING CONDENSING BOILERS TO REMAIN AND BE REUSED.



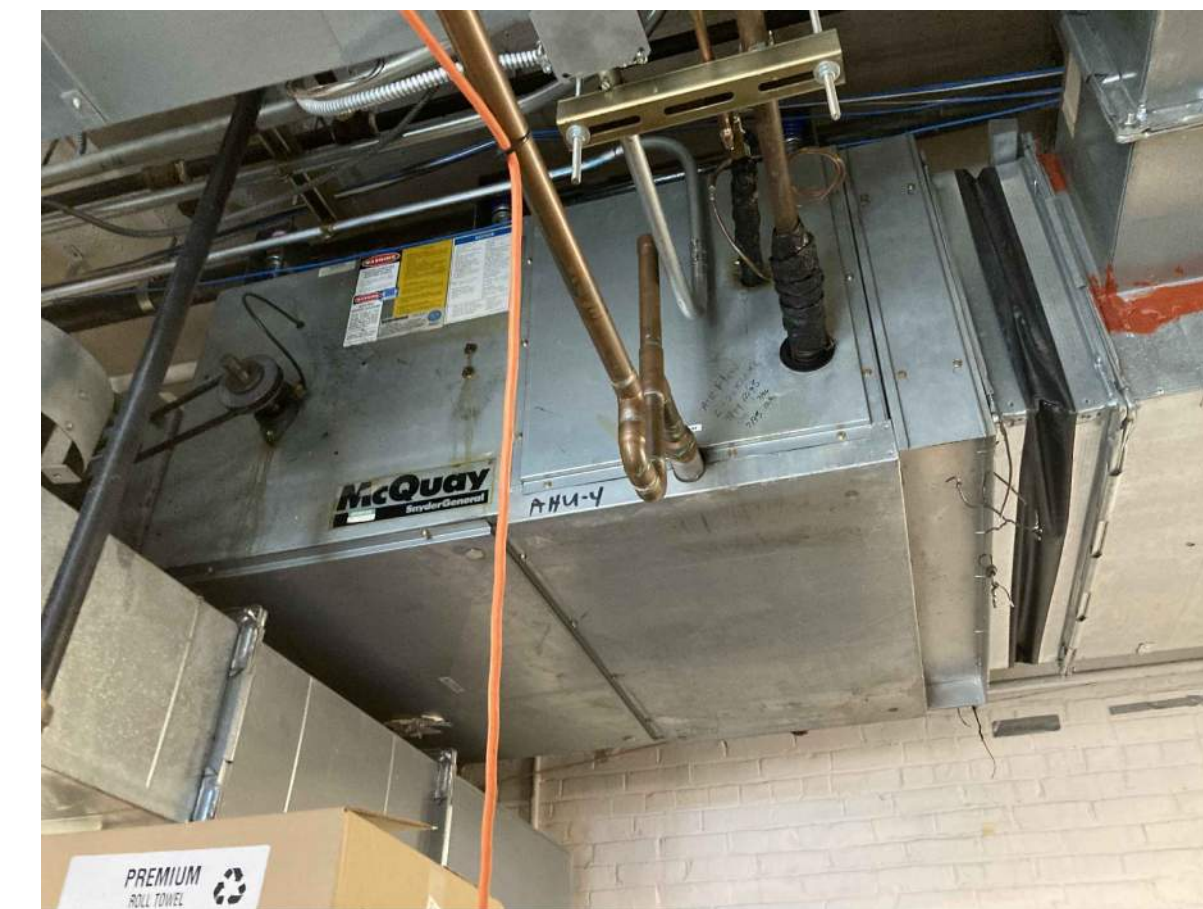
PHOTOGRAPH NO. 5
EXISTING ROOFTOP UNIT (RTU-5) TO BE REMOVED.



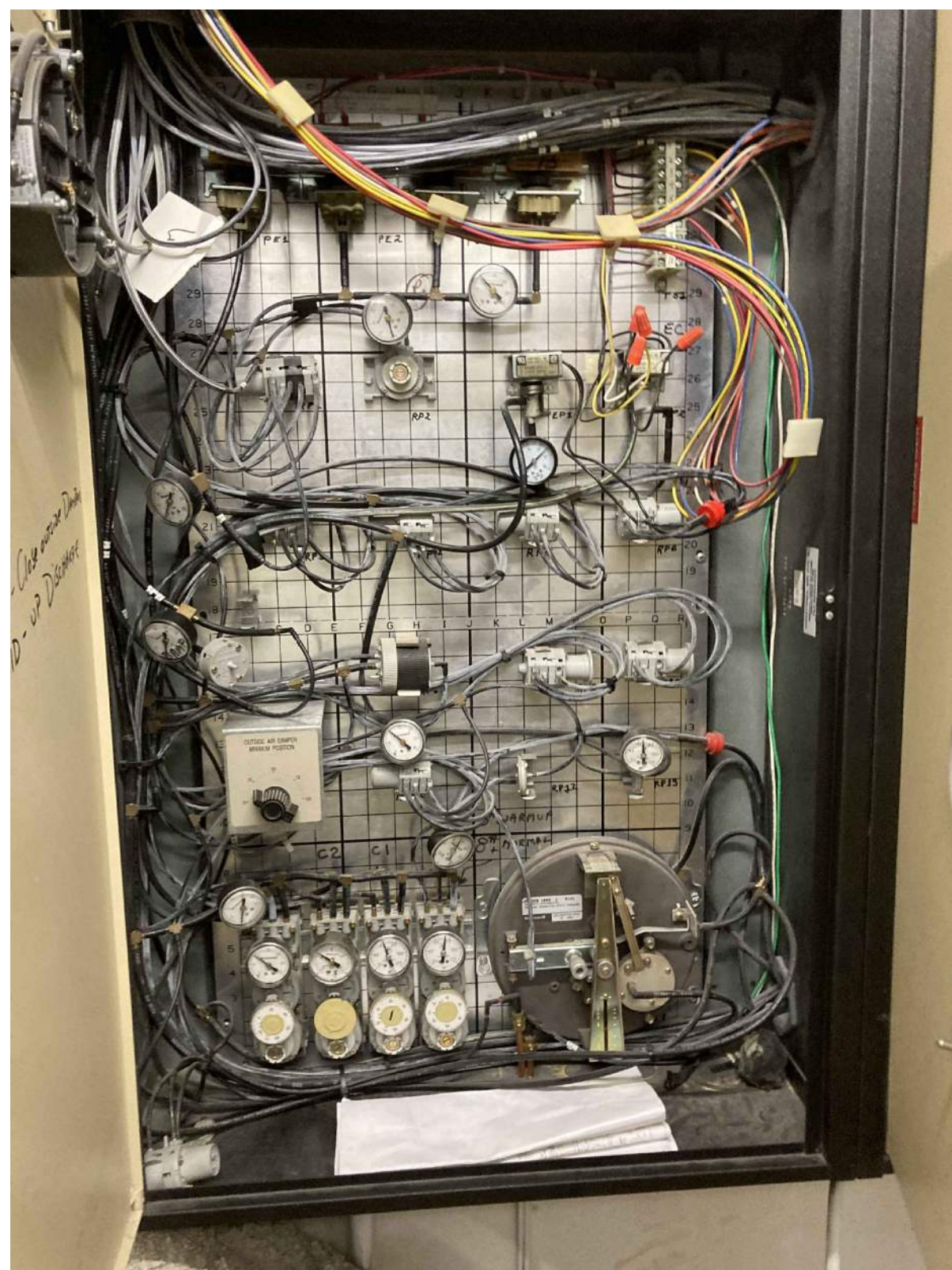
PHOTOGRAPH NO. 6
EXISTING ROOFTOP UNIT (RTU-6) TO BE REMOVED.



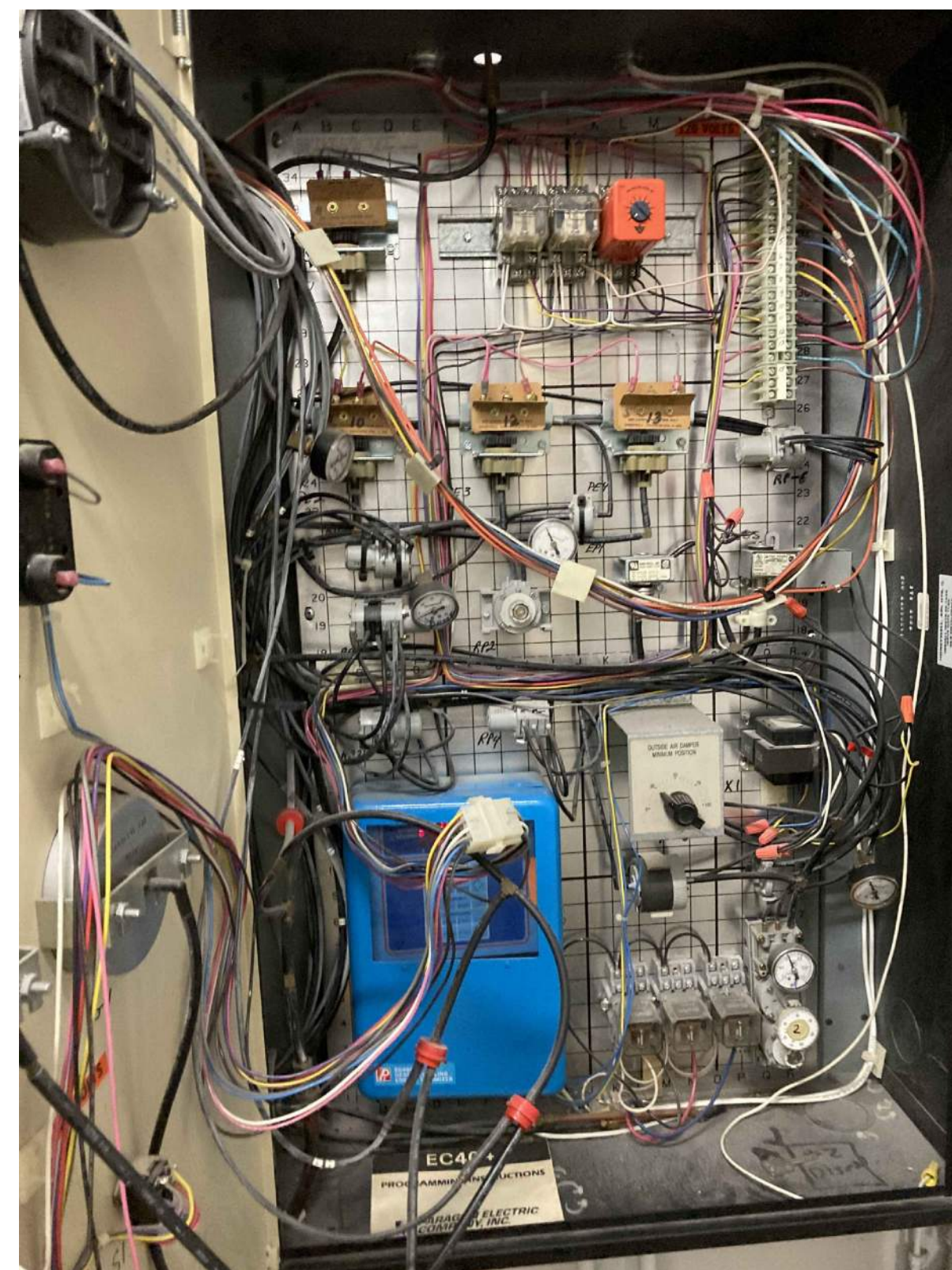
PHOTOGRAPH NO. 7
EXISTING GRADE MOUNTED CONDENSING UNITS TO BE REMOVED.



PHOTOGRAPH NO. 8
EXISTING AIR HANDLER (AHU-4) TO BE REMOVED.



PHOTOGRAPH NO. 9
EXISTING PNEUMATIC CONTROLS CABINET TO BE REMOVED



PHOTOGRAPH NO. 10
EXISTING PNEUMATIC CONTROLS CABINET TO BE REMOVED

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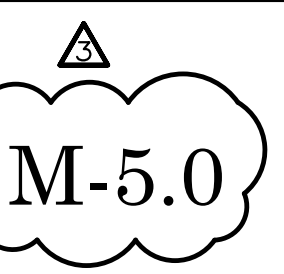
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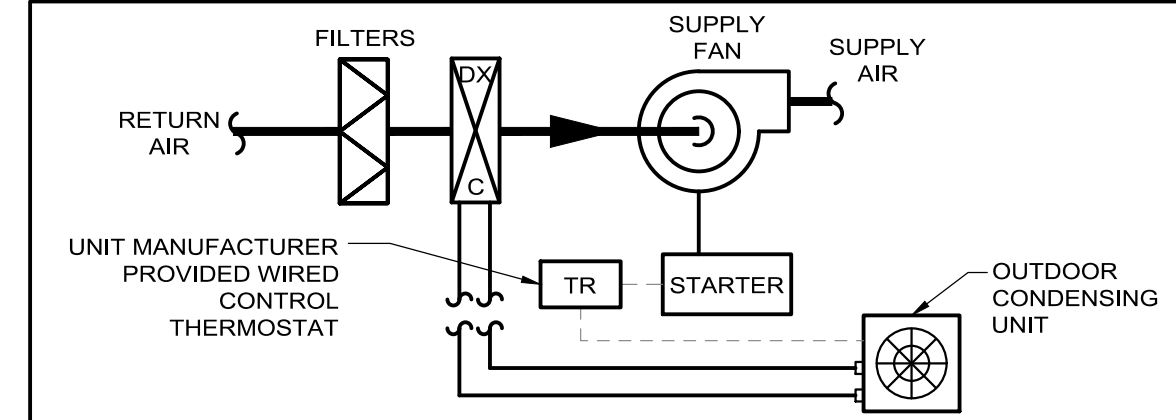
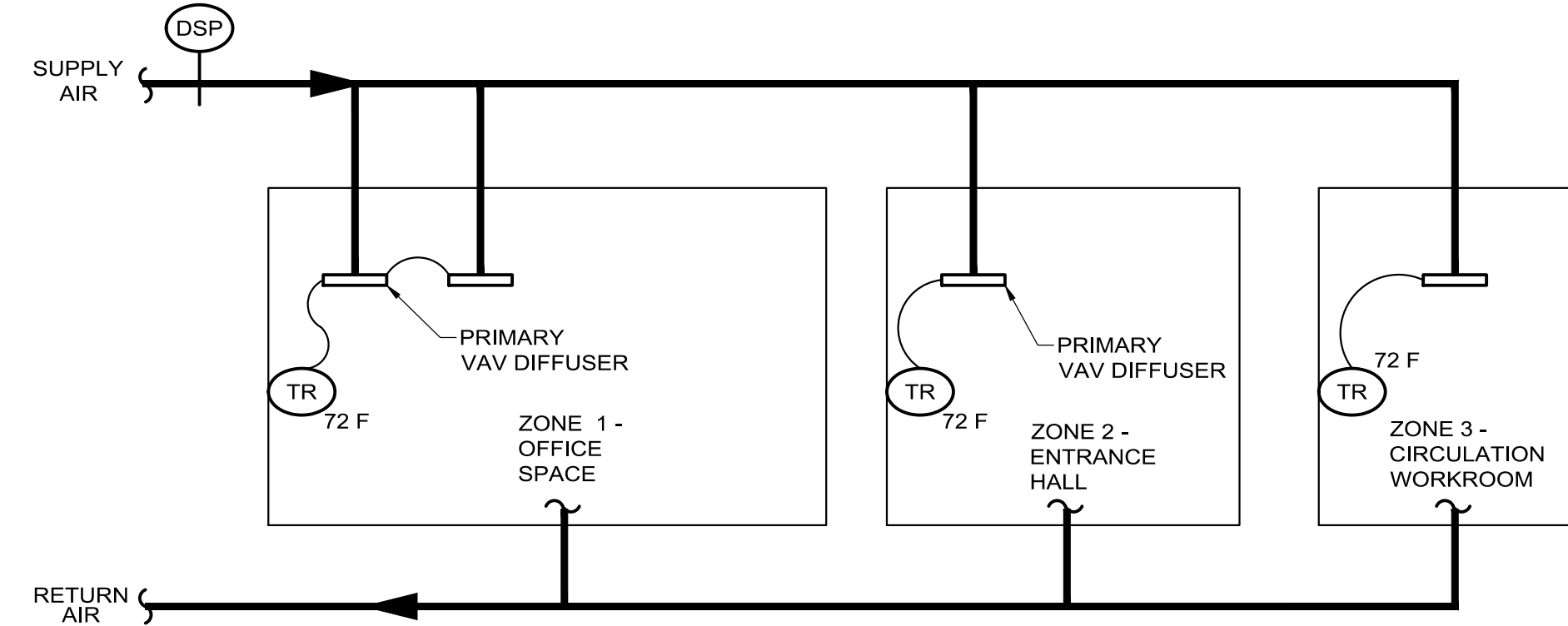
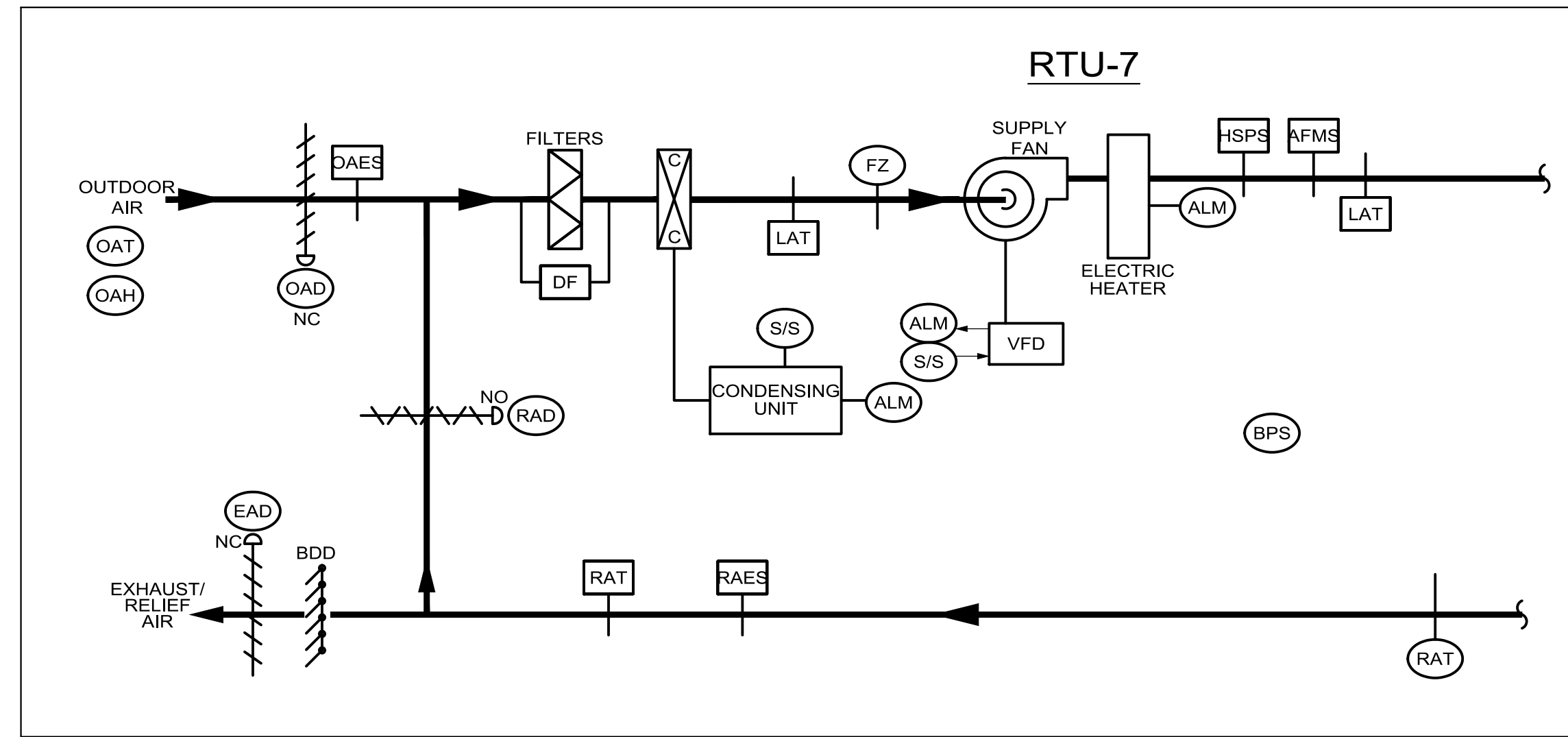
2024-02-16: ADDENDUM 1

2024-02-28: ADDENDUM 3

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**MECHANICAL
PHOTOGRAPHS**





DUCTLESS SPLIT SYSTEM AIR CONDITIONING CONTROLS:

GENERAL:

1. UNIT SHALL BE CONTROLLED VIA THE MANUFACTURER'S PACKAGED CONTROL SYSTEM.
2. WIRE AND TEST UNIT MANUFACTURER'S CONTROLS.
3. THE NEW DUCTLESS SPLIT SHALL BE CONNECTED TO THE NEW BAS.

COOLING/HEATING CONTROL:

1. UPON A RISE IN ROOM TEMPERATURE ABOVE THE ROOM COOLING SETPOINT OF 75°F (ADJ), OR BELOW THE ROOM HEATING SETPOINT OF 70°F (ADJ), THE DUCTLESS SPLIT HEAT PUMP UNIT SHALL BE ENERGIZED TO MAINTAIN THE SET POINT.

DUCTLESS SPLIT SYSTEM HEAT PUMP CONTROL SEQUENCE

HC402

ROOF TOP UNIT CONTROLS

GENERAL

1. ROOF TOP UNIT (RTU) SHALL BE STARTED, STOPPED BY THE RTU SHALL BE CONTROLLED VIA DEDICATED RTU PACKAGED PROGRAMMABLE CONTROLLER. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC. NO = NORMALLY (FAIL) OPEN ON LOSS OF POWER. NC = NORMALLY (FAIL) CLOSED ON LOSS OF POWER.
2. LOCAL HAND-OFF-AUTOMATIC SWITCH (H-O-A) FOR FANS SHALL OVERRIDE DDC START/STOP (S/S) COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
3. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
4. ALL TEMPERATURE SENSORS IN THE UNIT AND DUCTWORK SHALL BE AVERAGING TYPE.
5. PROVIDE APPROPRIATE ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSOR AND GAS HEATER STAGING.

FAN CONTROL

1. WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) THE SUPPLY FAN SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) CLOSED, THE CONDENSING UNIT AND GAS HEATER OFF, AND THE RETURN AIR DAMPER (RAD) OPEN.
2. WHEN STARTED IN OCCUPIED MODE, THE SUPPLY FAN SHALL START IN RECIRCULATION MODE, THEN THE OAD AND RAD SHALL OPEN TO THE MINIMUM OUTDOOR AIR POSITION. THE SUPPLY FAN SHALL OPERATE AT CONSTANT VOLUME.
3. THE EXHAUST FAN SHALL BE ENERGIZED VIA STARTER BASED ON OAD POSITION THROUGH THE MANUFACTURER'S PACKAGED CONTROLS TO MAINTAIN SETPOINT OF BUILDING PRESSURE (BPS). INITIAL SETPOINT SHALL BE POSITIVE 0.01" W.C.

OCCUPIED HEATING CONTROL

1. ELECTRIC HEATING COIL LEAVING AIR TEMPERATURE SENSOR (HCLT) ALWAYS CONTROLS HEATER TO MAINTAIN A MINIMUM TEMPERATURE OF 50°F (ADJ).
2. UPON A DROP IN THE RETURN AIR TEMPERATURE AS SENSED BY THE RETURN AIR TEMPERATURE SENSOR (RAT) BELOW 70°F, THE DISCHARGE AIR TEMPERATURE SENSOR (DAT) SHALL RESET (HCLT) BETWEEN 70°F AND 90°F AS REQUIRED TO MAINTAIN 70°F (ADJ). THE REVERSE SHALL OCCUR ON A RISE IN DAT ABOVE HEATING SETPOINT.

OCCUPIED COOLING CONTROL

1. UPON A RISE IN THE RETURN AIR TEMPERATURE AS SENSED BY THE RETURN AIR TEMPERATURE SENSOR (RAT) ABOVE 72°F, THE DISCHARGE AIR TEMPERATURE SENSOR (DAT) SHALL RESET (HCLT) BETWEEN 55°F AND 60°F AS REQUIRED TO MAINTAIN 70°F (ADJ). THE REVERSE SHALL OCCUR ON A RISE IN DAT ABOVE HEATING SETPOINT.
2. THE FIRST MEANS OF COOLING SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE AIR ENTHALPY IS BELOW THE RETURN ENTHALPY, THE OUTSIDE AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN SPACE TEMPERATURE SETPOINT. DAT SHALL OVERRIDE, IF REQUIRED, TO LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING ECONOMIZER COOLING (LIMIT SHALL NOT RESULT IN REDUCTION OF THE MINIMUM OUTDOOR AIRFLOW). IF ADDITIONAL COOLING IS REQUIRED, THE CONDENSING UNIT'S COMPRESSORS SHALL BE STAGED ON AS REQUIRED. THE REVERSE SHALL OCCUR ON A DROP IN SPACE TEMPERATURE BELOW COOLING SETPOINT.
3. IF THE OUTSIDE AIR ENTHALPY RISES ABOVE THE RETURN AIR ENTHALPY THE ECONOMIZER SHALL BE POSITIONED TO PROVIDE MINIMUM OUTDOOR AIRFLOW AND THE CONDENSING UNIT STAGED TO MAINTAIN ROOM COOLING SETPOINT TEMPERATURE.

UNOCCUPIED CONTROL

1. IF, WHEN THE UNIT IS OFF, THE ROOM TEMPERATURE FALLS BELOW 56°F, THE UNIT SHALL START WITH RAD OPEN AND OAD CLOSED AND GAS HEATER SHALL BE CONTROLLED BY DAT TO SUPPLY 85°F-90°F AIR. WHEN ROOM TEMPERATURE RISES ABOVE 60°F, THE UNIT SHALL SHUT DOWN.
2. PROVIDE 2 HOUR UNOCCUPIED OVERRIDE TO START UNIT IN OCCUPIED MODE BASED ON A SIGNAL FROM THE MANUAL SWITCH.

BY-PASS DAMPER OPERATION

1. ON AN INCREASE IN DUCT STATIC PRESSURE AS SENSED BY THE DUCT STATIC PRESSURE SENSOR (DSP) THE BY-PASS DAMPER (BYD) SHALL OPEN TO INCREASE THE AMOUNT OF BY-PASS AIR. ON A DECREASE IN DUCT STAIC THE REVERSE SHALL OCCUR.

SAFETIES

1. THE FOLLOWING SAFETIES EACH WITH ITS OWN MANUAL RESET BUTTON, SHALL SHUT DOWN THE UNIT VIA HARDWARE BEFORE H-O-A.
 - 1.1. WHEN ANY SMOKE DETECTOR (SDET) IS ACTIVATED THE UNIT SHALL SHUT DOWN.
 - 1.2. WHEN THE TEMPERATURE IS LESS THAN 37°F AT ANY FREEZESTAT (FZ), THIS ALARM SHALL ALSO ENABLE THE ELECTRIC HEATER.

ALARMS

1. IF THE SUPPLY OR EXHAUST FAN FAILS OR IF ANY UNIT SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE AN ALARM.
2. IF THE FILTER PRESSURE DROP EXCEEDS SETPOINT (INITIALLY 0.6") FOR 10 MINUTES, THE UNIT CONTROLLER SHALL INITIATE A LOCAL ALARM.

POWER INTERRUPTION

1. UNIT AND CONTROLS SHALL NOT BE WIRED TO STAND-BY POWER. PROVIDE AUTOMATIC RE-START AFTER NORMAL POWER FAILURE AND UPON RESUMPTION OF NORMAL POWER.

ZONE CONTROL

ROOM LEVEL

1. THE ROOM VAV DIFFUSERS SHALL MODULATE THE AIR FLOW (BETWEEN MAX AND MIN) IN UNISON AS REQUIRED TO MAINTAIN THE ROOM TEMPERATURE SETPOINT BASED ON THE ENTERING AIR TEMPERATURE TO THE DIFFUSERS.

ROOFTUP UNIT (HEAT PUMP) CONTROL SEQUENCES - RTU-7

HC009

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2024-02-16: ADDENDUM 1

2024-02-28: ADDENDUM 3

DRAWN BY:NG

**MECHANICAL
CONTROLS**

M-6.4

