SECTION 00 91 02
ADDENDUM NO. 2

DATE:	**NOVEMBER 13, 2026**
PROJECT:	**PUBLIC SAFETY CENTER HVAC REPLACEMENT** **17950 DIXIE HIGHWAY** **HOMEWOOD, ILLINOIS 60430**
PROJECT NO:	**26-347-1698**
OWNER:	**VILLAGE OF HOMEWOOD** **17755 ASHLAND AVENUE** **HOMEWOOD, ILLINOIS 60430**
TO:	**PROSPECTIVE BIDDERS / PLAN HOLDERS OF RECORD**

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND MODIFIES THE BIDDING DOCUMENTS DATED OCTOBER 27, 2026, WITH AMENDMENTS AND ADDITIONS NOTED BELOW. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE SPACE PROVIDED IN THE BID FORM. FAILURE TO DO SO MAY SUBJECT THE BIDDER TO DISQUALIFICATION.

THIS ADDENDUM SECTION IS TWO (2) PAGES AND INCLUDES THE FOLLOWING ATTACHMENTS:

Drawings M320, M510, M512, E050, E320 (five (5) pages).

Total Seven (7) Pages

CHANGES TO FRONT END DOCUMENTS

1.01 CHANGES TO ADDENDA

A. **ADDENDUM NO. 1 - Issued November 10, 2026**
   1. Under Item Number 1698 – 004 - 14. Commissioning – Section 01 91 13 & 01 91 14 of the PRE-BID MEETING MINUTES:
      a. Revise Paragraph two (2) to read as follows: "The Commissioning Authority is employed by Owner".

Copyright 2026 by KLUBER, INC.; All Rights Reserved

CHANGES TO THE DRAWINGS

2.01 MECHANICAL

A. **DRAWING M320 - SECOND FLOOR MECHANICAL PLAN**

1. Delete this Drawing in its entirety and replace with revised Drawing M320 - SECOND FLOOR PLAN : Revision Cloud 2 (attached).

B. **DRAWING M510 - PIPING SCHEMATIC**

1. Delete this Drawing in its entirety and replace with revised Drawing M510 - PIPING SCHEMATIC : Revision Cloud 2 (attached).

C. **DRAWING M512 - TEMPERATURE CONTROLS**

1. Delete this Drawing in its entirety and replace with revised Drawing M512 - TEMPERATURE CONTROLS : Revision Cloud 2 (attached).

2.02 ELECTRICAL

A. **DRAWING E050 - ELECTRICAL SYMBOLS LIST, ABBREVIATIONS & DETAILS**

1. Delete this Drawing in its entirety and replace with revised Drawing E050 - Electrical Symbols List, Abbreviations & Details : Revision Cloud 2 (attached).

B. **DRAWING E320 - SECOND FLOOR ELECTRICAL POWER PLAN**

1. Delete this Drawing in its entirety and replace with revised Drawing E320 - Second Floor Electrical Power Plan : Revision Cloud 2 (attached).

BIDDER QUESTIONS AND RESPONSES

3.01 QUESTION 1:

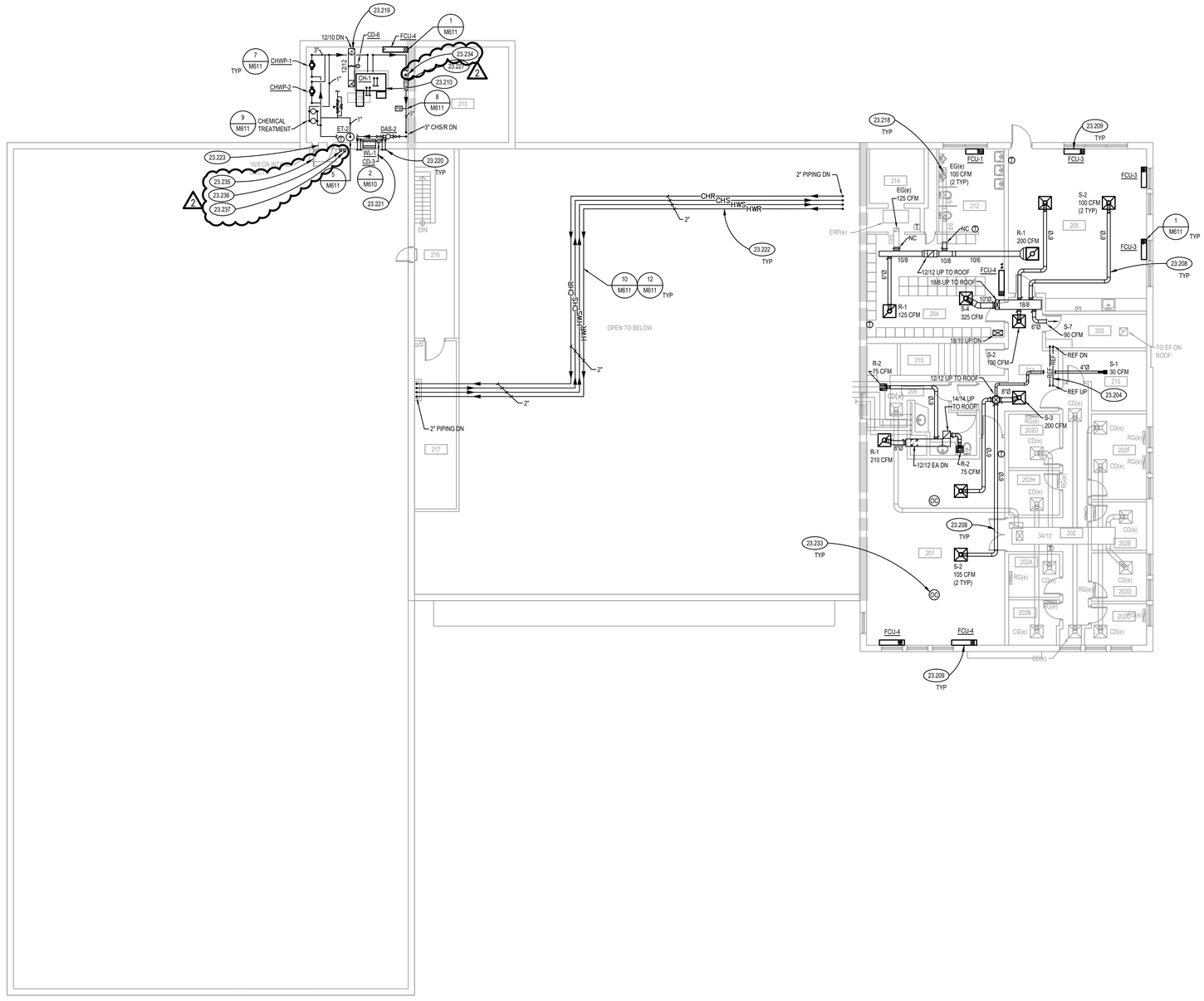
Question: In Pre-Bid Meeting Agenda Item Number 1698-004-14 Topic: Commissioning – Section 01 91 13 & 01 91 14 #2 It states Contractor will retain Consultant to perform the code required commissioning services. In Section 01 91 13-1.01-D & 01 91 14-1.01-D it states The Commissioning Authority is employed by Owner. Please clarify. if the contractor should include costs for commissioning in their bids.

Response: The Owner will hire a commissioning agent.

END OF DOCUMENT

Copyright 2026 by KLUBER, INC.; All Rights Reserved

Copyright © 2025 KLUBER, INC.



KEYNOTES

KEYNOTES ARE TYPICALLY NOT DUPLICATED WITHIN A GIVEN DETAIL. AN UN-KEYNOTED ITEM IN A DETAIL IS THE SAME AS A KEYNOTED ITEM HAVING THE SAME APPEARANCE WITHIN THE SAME DETAIL.

23.204 PROVIDE REFRIGERANT PIPING, SIZED AND CONFIGURED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, BETWEEN OUTDOOR HEAT PUMP AND INDOOR EVAPORATOR COIL. REFER TO ARCHITECTURAL DRAWINGS FOR INSTALLATION OF ROOFING RAILS.

23.208 ROUTE DUCTWORK THROUGH WEBBING OF EXISTING ROOF JOISTS.

23.209 PROVIDE NEW FAN COIL UNIT, ASSOCIATED HOT WATER, CHILLED WATER, AND CONDENSATE PIPING.

23.210 PROVIDE NEW CHILLER MOUNTED ON NEOPRENE ISOLATORS.

23.218 BALANCE EXISTING DIFFUSERS / GRILLES TO AIRFLOW AS SHOWN.

23.219 PROVIDE EXHAUST DOWN TO 12-INCHES ABOVE FINISHED FLOOR AND TERMINATE WITH SCREENED OPENING.

23.220 PROVIDE REFRIGERANT PIPING. SIZED AND CONFIGURED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS BETWEEN INDOOR CHILLER AND OUTDOOR CONDENSER. PROVIDE ENGINEERED WALL SEAL AT EXTERIOR WALL PENETRATIONS. REFER TO SPECIFICATIONS.

23.221 FIELD VERIFY EXISTING WALL OPENING PRIOR TO ORDERING WALL LOUVER. MODIFY OPENING AS REQUIRED TO INSTALL NEW WALL LOUVER.

23.222 ROUTE PIPING ABOVE BOTTOM CHORD OF JOISTS.

23.223 PROVIDE 2-INCH DOUBLE WALL INSULATED BLANKOFF PANEL ON EXISTING WALL LOUVER ABOVE DOOR.

23.227 PROVIDE REFRIGERANT DETECTION SYSTEM FOR CHILLER ROOM. REFER TO SEQUENCE OF OPERATION.

23.233 PROVIDE CEILING OCCUPANCY SENSORS TIED INTO THE BUILDING AUTOMATION SYSTEM WHERE SHOWN. REFER TO

23.234 PROVIDE REFRIGERANT DETECTION SYSTEM WITH HORN/STROBE. PROVIDE SIGNAGE TO EVACUATE ROOM WHEN HORN/STROBE ACTIVATES.

23.235 PROVIDE SIGNAGE ON THE DOOR STATING "AUTHORIZED PERSONNEL ONLY. DO NOT ENTER IF LIGHT IS FLASHING" ON DOOR.

23.236 PROVIDE PUSH-BUTTON EMERGENCY SHUTDOWN SWITCH IN WEATHERPROOF COVER AT ENTRANCE TO THE ROOM. INTERFACE OPERATION OF SWITCH INTO OPERATION OF THE CHILLER. PROVIDE RED NAMEPLATE IDENTIFYING SWITCH.

23.237 PROVIDE REMOTE WEATHERPROOF HORN/STROBE FOR REFRIGERANT DETECTION SYSTEM OUTSIDE OF ROOM.

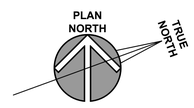
2

ROOM SCHEDULE

RM. NO.	ROOM NAME	RM. NO.	ROOM NAME
201	EXISTING DAY ROOM		
202	EXISTING DORMITORY		
203	EXISTING LAUNDRY ROOM		
204	EXISTING LOCKER ROOM		
205	EXISTING KITCHEN AND DINING AREA		
209	EXISTING CAPTAIN'S LOCKER ROOM		
210	EXISTING STAIR		
211	EXISTING CORRIDOR		
212	EXISTING MENS TOILET		
213	EXISTING UPPER PART OF HOSE TOWER		
214	EXISTING SHOWERS		
215	NOT USED		
216	EXISTING MEZZANINE		
217	EXISTING STORAGE		
218	EXISTING MECHANICAL ROOM		

GENERAL NOTES

1. REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES.
2. PIPING, DUCTWORK AND RACEWAYS ARE SHOWN DIAGRAMMATICALLY AND DO NOT SHOW EVERY REQUIRED FITTING, OFFSET, DROP AND RISE. PROVIDE MATERIAL AND LABOR FOR A COMPLETE AND WORKING SYSTEM. COORDINATE WITH OTHER TRADES FOR SPACE AVAILABLE AND RELATIVE LOCATIONS OF EQUIPMENT, PIPING, DUCTWORK, ETC.
3. FIELD VERIFY EXACT LOCATIONS, QUANTITIES AND SIZES OF EXISTING PIPING, DUCTWORK AND RACEWAYS INDICATED ON THESE DRAWINGS.
4. PROVIDE TAPES AND MASTICS LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND MARKED ACCORDINGLY TO SEAL DUCTWORK. PROVIDE TAPES AND MASTICS COMPLIANT WITH UL 181B AND MARKED ACCORDINGLY TO SEAL FLEXIBLE DUCTS AND AIR CONNECTORS.
5. PROVIDE EQUIPMENT THERMOSTATIC CONTROLS HAVING A 5° F DEADBAND.
6. GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS, CONDENSATE PANS AND OTHER SERVICES ARE NOT SHOWN BUT MUST BE PROVIDED. CONFIGURE CONDENSATE DRAINS WITH FITTINGS AND/OR UNIONS TO PERMIT CLEARING OF BLOCKAGES AND PERFORMANCE OF MAINTENANCE WITHOUT CUTTING OF THE LINES.
7. SPACE ALLOCATION, COORDINATION WITH ELECTRICAL, ARCHITECTURAL AND OTHER MECHANICAL COMPONENTS HAVE BEEN MADE WITH RESPECT TO THE FIRST NAMED MANUFACTURER ONLY OF EQUIPMENT SCHEDULED ON THESE DRAWINGS AND LISTED IN THE SPECIFICATIONS. OTHER SPECIFIED MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY MEET PERFORMANCE REQUIREMENTS AND AFOREMENTIONED COORDINATION.
8. DO NOT CUT THROUGH THE STRUCTURAL ELEMENTS WHEN INSTALLING OPENINGS REQUIRED FOR DUCTWORK, PIPING, CONDUITS OR OTHER WORK. CUTTING THROUGH OR OTHERWISE DAMAGING THESE ELEMENTS FINANCIALLY OBLIGATES THE CUTTER FOR ASSOCIATED ENGINEERING FEES AND SUBSEQUENT RETRO-FITTING/REINFORCING DEEMED NECESSARY TO RESTORE THE CONTINUITY AND STRUCTURAL INTEGRITY OF THE DAMAGED ELEMENTS.
9. ATTACH ROOFTOP EQUIPMENT (ARCHITECTURAL, MECHANICAL, ELECTRICAL, ETC.) AND THEIR CORRESPONDING CURBS TO STRUCTURAL FRAMING AS REQUIRED TO RESIST WIND AND SEISMIC FORCES IDENTIFIED ON DRAWING S010. ANCHORAGE TO METAL ROOF DECKING IS NOT ACCEPTABLE. CONSULT AN INDEPENDENT STRUCTURAL ENGINEER TO REVIEW, DESIGN AND DETAIL REQUIRED CONNECTIONS.
10. HEATING AND COOLING DESIGN LOADS FOR THE BUILDING HAVE BEEN CALCULATED WITH ELITE SOFTWARE, COMMERCIAL HVAC LOADS PROGRAM, VERSION 8.02.103, IN ACCORDANCE WITH ASHRAE STANDARDS. INTERIOR DESIGN TEMPERATURES ARE MAXIMUM 72 DEGREES F FOR HEATING AND A MINIMUM OF 75 DEGREES F FOR COOLING.
11. OBTAIN AND PAY COSTS FOR PERMITS, LICENSES, CERTIFICATE FILING AND INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.



SECOND FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

1

Kluber Architects + Engineers
an Aeterna Group® Company
Aurora, Illinois 60506
Bloomington, Illinois 61704
tel 630.844.3600

PUBLIC SAFETY CENTER HVAC REPLACEMENT

17950 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

ISSUED - CONTINUED

ISSUED

2	11/13/26	ADDENDUM NO. 2
	10/27/26	BID & PERMIT DOCUMENTS

JOB NO.	26-347-1698
DRAWN	RGH
CHECKED	BWG
APPROVED	BWG

SHEET TITLE

SECOND FLOOR MECHANICAL PLAN

SHEET NUMBER

M320

NOTE: SCALES DEPICTED ON THIS DRAWING ARE NOT CORRECT UNLESS PLOTTED SHEET SIZE IS 30 X 42 INCHES.

P:\1698 - Village of Homewood - Public Safety Center HVAC Replacement\30_Design\Dwgs\DD-CD\50_Mech\1698M0320 - Vert.dwg, 11/13/2026 1:55:48 PM, RichardMennesley

Copyright © 2025 KLUBER, INC.

BOILER AND CHILLER CONTROL SCHEMATIC

POINTS LIST

AIR-COOLED CHILLER (CH-1)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
CHILLER ENABLE / DISABLE				X		X		X
CHILLER STATUS			X			X		X
CHILLER ALARM			X				X	X
COOLING STAGES	X					X		X
COOLING CAPACITY	X					X		X
CHILLER FLOW SWITCH STATUS			X			X		X
AIR-COOLED CONDENSER STATUS (ACC-1)			X			X		X
PUMP START/STOP (CHWP-1, CHWP-2)				X		X		
PUMP STATUS (CHWP-1, CHWP-2)			X				X	X
PUMP SPEED (CHWP-1, CHWP-2,)	X					X		X
PUMP ALARM (CHWP-1, CHWP-2)			X				X	X
CHILLED WATER SUPPLY TEMPERATURE	X					X		X
BUILDING CHILLED WATER RETURN TEMPERATURE	X					X		X
CHILLED WATER SUPPLY SETPOINT		X				X		X
OUTSIDE AIR TEMPERATURE (GLOBAL POINT)	X					X		X
CHILLED WATER FLOW RATE (FLOW METER)	X					X		X
CHILLER DIFFERENTIAL PRESSURE	X					X		X
CHILLED WATER BYPASS VALVE (BV-3)		X				X		X
CHILLED WATER BYPASS VALVE FEEDBACK (BV-3)	X					X	X	X
OA INTAKE LOUVER DAMPER STATUS				X		X		X
EF-2 FAN START/STOP				X		X		X
EF-2 FAN STATUS			X			X	X	X
WALL LOUVER CONTROL DAMPER STATUS				X		X		X
REFRIGERANT CONCENTRATION SENSOR 1	X					X		X
CHILLER EMERGENCY SHUTDOWN SWITCH STATUS			X				X	X

NOTES: ANY ADDITIONAL POINTS AVAILABLE FROM THE CHILLER CONTROL PANEL AND PUMP CONTROLLER SHALL BE INTERFACED IN A TABLE FORMAT.

SEQUENCE OF OPERATIONS

CHILLED WATER SYSTEM:

THE CHILLER SHALL BE ENABLED / DISABLED THROUGH THE BUILDING AUTOMATION SYSTEM.

THE CHILLED WATER SYSTEM SHALL BE ENABLED WHENEVER THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F DEGREES F (ADJ.), AND THE BUILDING ENGINEER HAS ENABLED COOLING.

THE CHILLER PUMPS SHALL BE ENABLED WHENEVER THE CHILLER IS ENABLED. ONCE FLOW HAS BEEN PROVEN THROUGH THE CHILLER, THE CHILLER SHALL OPERATE UNDER IT'S OWN CONTROLS TO MAINTAIN A CHILLED WATER SUPPLY TEMPERATURE OF 44 DEGREES F (ADJ). THE CHILLER'S LEAD COMPRESSOR SHALL SWITCH EVERY 24-HOURS TO MAINTAIN EQUAL RUN TIME.

THE CHILLED WATER SUPPLY TEMPERATURE SHALL BE RESET BASED ON OUTSIDE AIR TEMPERATURE. IF THE OUTSIDE AIR IS 80°F (ADJ.) OR HIGHER, THE CHILLED WATER SUPPLY TEMPERATURE SHALL BE 44°F, IF THE OUTSIDE AIR TEMPERATURE IS 60°F (ADJ.) OR LOWER, THE CHILLED WATER TEMPERATURE SHALL BE 52°F (ADJ.).

IF THE BUILDING IS IN UNOCCUPIED MODE AND THERE IS NO CALL FOR COOLING, THE CHILLER AND CHILLED WATER PUMPS SHALL BE DISABLED UNTIL THERE IS A CALL FOR COOLING. IN OCCUPIED MODE, THE CHILLED WATER PUMPS SHALL RUN CONTINUOUSLY.

AN ALARM SHALL BE GENERATED IN THE BUILDING AUTOMATION SYSTEM IF THERE IS A CHILLER ALARM.

CHILLED WATER SYSTEM BYPASS VALVE (BV-3): THE CHILLED WATER SYSTEM BYPASS VALVE SHALL MODULATE OPEN AS REQUIRE TO MAINTAIN THE MINIMUM DIFFERENTIAL PRESSURE ACROSS THE CHILLER. THE CHILLED WATER BYPASS VALVE SHALL BE A PRESSURE DEPENDENT VALVE WITH A MAXIMUM STROKE TIME OF 30 SECONDS.

PRIMARY CHILLED WATER PUMPS (CHWP-1, CHWP-2)

THE CHILLED WATER PUMPS SHALL OPERATE IN DUTY STANDBY SEQUENCE. THE LEAD PUMP SPEED SHALL MODULATE BASED ON SENSORLESS SPEED CONTROL BASED ON SYSTEM DEMAND. IF ONE PUMP FAILS, THE SECOND PUMP SHALL BE ENERGIZED AND AN ALARM SHALL BE CREATED IN THE BUILDING AUTOMATION SYSTEM. THE LEAD PUMP SHALL ROTATE ON A WEEKLY BASIS (ADJUSTABLE).

CHILLER ROOM GAS DETECTION SYSTEM:

WHEN ANY REFRIGERANT DETECTOR SENSES 850 PPM OR GREATER OF REFRIGERANT CONCENTRATION, THE FOLLOWING ACTIONS SHOULD OCCUR:

1. THE ROOM EXHAUST FAN (EF-2) SHALL BE ENERGIZED AND ITS ASSOCIATED CONTROL DAMPER SHALL OPEN.
2. THE ROOM MAKEUP AIR DAMPER SHALL OPEN.
3. THE CHILLER SHALL BE DISABLED.
4. VISUAL AND AUDIBLE ALARMS SIGNALS SHALL BE GENERATED INSIDE AND OUTSIDE THE ROOM.
5. AN ALARM SHALL BE SENT TO THE BUILDING AUTOMATION SYSTEM.

2 IF THE CHILLER EMERGENCY SHUTDOWN SWITCH IS ACTIVATED. THE CHILLER IN THE SPACE SHALL BE IMMEDIATELY DE-ENERGIZED AND AN ALARM SHALL BE GENERATED.

POINTS LIST

BOILER (B-1, B-2)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
BOILER ENABLE (B-1, B-2)				X	X			X
BOILER STATUS (B-1, B-2)			X				X	X
BOILER ALARM (B-1, B-2)			X				X	X
BOILER FIRING RATE (B-1, B-2)	X					X		X
HOT WATER PUMP START/STOP (HWP-1, HWP-2)				X				X
HOT WATER PUMP STATUS (HWP-1, HWP-2)			X				X	X
HOT WATER PUMP VFD SPEED (HWP-1, HWP-2)		X				X		X
HOT WATER PUMP VFD FAULT (HWP-1, HWP-2)			X				X	X
BUILDING SUPPLY WATER TEMPERATURE	X					X		X
BUILDING RETURN WATER TEMPERATURE	X					X		X
BOILER (B-1) SUPPLY WATER TEMPERATURE	X					X		X
BOILER (B-2) SUPPLY WATER TEMPERATURE	X					X		X
BUILDING HOT WATER SETPOINT		X				X	X	X
BOILER ISOLATION VALVE (BIV-1)			X			X	X	X
BOILER ISOLATION VALVE (BIV-2)			X			X	X	X
SYSTEM HOT WATER FLOW RATE (GM)	X					X	X	X
SYSTEM BYPASS VALVE (BV-1 & BV-2)		X				X		X
BOILER EMERGENCY SHUTDOWN SWITCH STATUS			X				X	X
OUTSIDE AIR TEMPERATURE	X					X		X

NOTE: ALL ADDITIONAL POINTS AVAILBLE FROM BOILER AND PUMP CONTROLLERS SHALL BE INTERFACED IN A TABLE FORMAT.

SEQUENCE OF OPERATIONS

BOILER (B-1, B-2):

THE BOILER CONTROLLER SHALL CONTROL THE OPERATION OF THE TWO BOILERS. THE LEAD BOILER SHALL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW 70 DEGREES F (ADJ). THE BOILER CONTROL PANEL SHALL EQUALIZE THE RUN TIME OF THE BOILERS AUTOMATICALLY AT SET INTERVALS.

THE BOILER CONTROL PANEL SHALL ENERGIZE THE BOILERS IN A ENERGY OPTIMIZATION SEQUENCE. SPECIFIC FIRING RATES NOTED BELOW SHALL BE DETERMINED BY THE BOILER MANUFACTURER'S FACTORY PROGRAMMED SEQUENCE. ON A CALL FOR HEAT THE FIRST BOILER MOTORIZED ISOLATION VALVE BIV-X SHALL OPEN. THE FIRST BOILER SHALL MODULATE IT'S FIRING RATE TO MAINTAIN THE HEATING WATER TEMPERATURE SETPOINT. ONCE THE FIRST BOILER REACHES 50% OF ITS FIRING RATE AND THERE IS A CALL FOR ADDITIONAL HEAT, THE SECOND BOILER MOTORIZED ISOLATION VALVE BIV-X SHALL OPEN. THE BOILER CONTROLLER SHALL CALCULATE THE RATE AT WHICH THE FIRST AND SECOND BOILER SHOULD FIRE TO MEET THE BUILDING LOAD. THE BOILERS SHALL THEN MODULATE THEIR FIRING RATE TOGETHER TO MAINTAIN THE HEATING WATER TEMPERATURE SETPOINT. THIS SEQUENCE SHALL CONTINUE UNTIL ALL THREE BOILERS ARE OPERATING.

AS THE HEATING DEMAND DECREASES, THE BOILERS FIRING RATE SHALL MODULATE DOWN TOGETHER UNTIL THEY REACH A MINIMUM OF 10% OF THEIR FIRING RATE AT WHICH TIME THE SECOND BOILER SHALL BE DE-ENERGIZED AND THE ASSOCIATED BOILER MOTORIZED ISOLATION VALVE BIV-X SHALL CLOSE. THE LEAD BOILER FIRING RATE SHALL THEN MODULATE TO MEET THE HEATING LOAD. THE SPECIFIC FIRING RATES FOR WHICH EACH BOILER TURNS ON OR OFF MAY VARY BASED ON THE BOILER MANUFACTURER'S SPECIFIC SEQUENCES.

AS SYSTEM 2-WAY VALVES CLOSE REDUCING THE SYSTEM FLOW RATE, THE SYSTEM BYPASS VALVES (BV-1,2) SHALL OPEN IN UNISON AND MODULATE AS REQUIRED TO MAINTAIN THE MINIMUM FLOW RATE THROUGH THE BOILERS AS MEASURED BY THE SYSTEM FLOW METER. WHEN ONE BOILER IS OPERATING, THE SYSTEM MINIMUM FLOW SHALL BE 25 GPM,. WHEN TWO BOILERS ARE ENERGIZED, THE SYSTEM MINIMUM FLOW SHALL BE 50 GPM. AS THE SYSTEM 2-WAY VALVES OPEN AND FLOW INCREASES, BV-1 AND BV-2 SHALL CLOSE.

THE HEATING WATER TEMPERATURE SHALL BE RESET BASED ON OUTDOOR AIR TEMPERATURE. THE WATER TEMPERATURE SHALL BE 140 DEGREES F WHEN THE OUTDOOR AIR TEMPERATURE IS 0 DEGREES F. THE WATER TEMPERATURE SHALL BE 110 DEGREES F WHEN THE OUTDOOR AIR TEMPERATURE IS 60 DEGREES F. TEMPERATURE RESET CURVES AND SETPOINTS SHALL BE ADJUSTABLE.

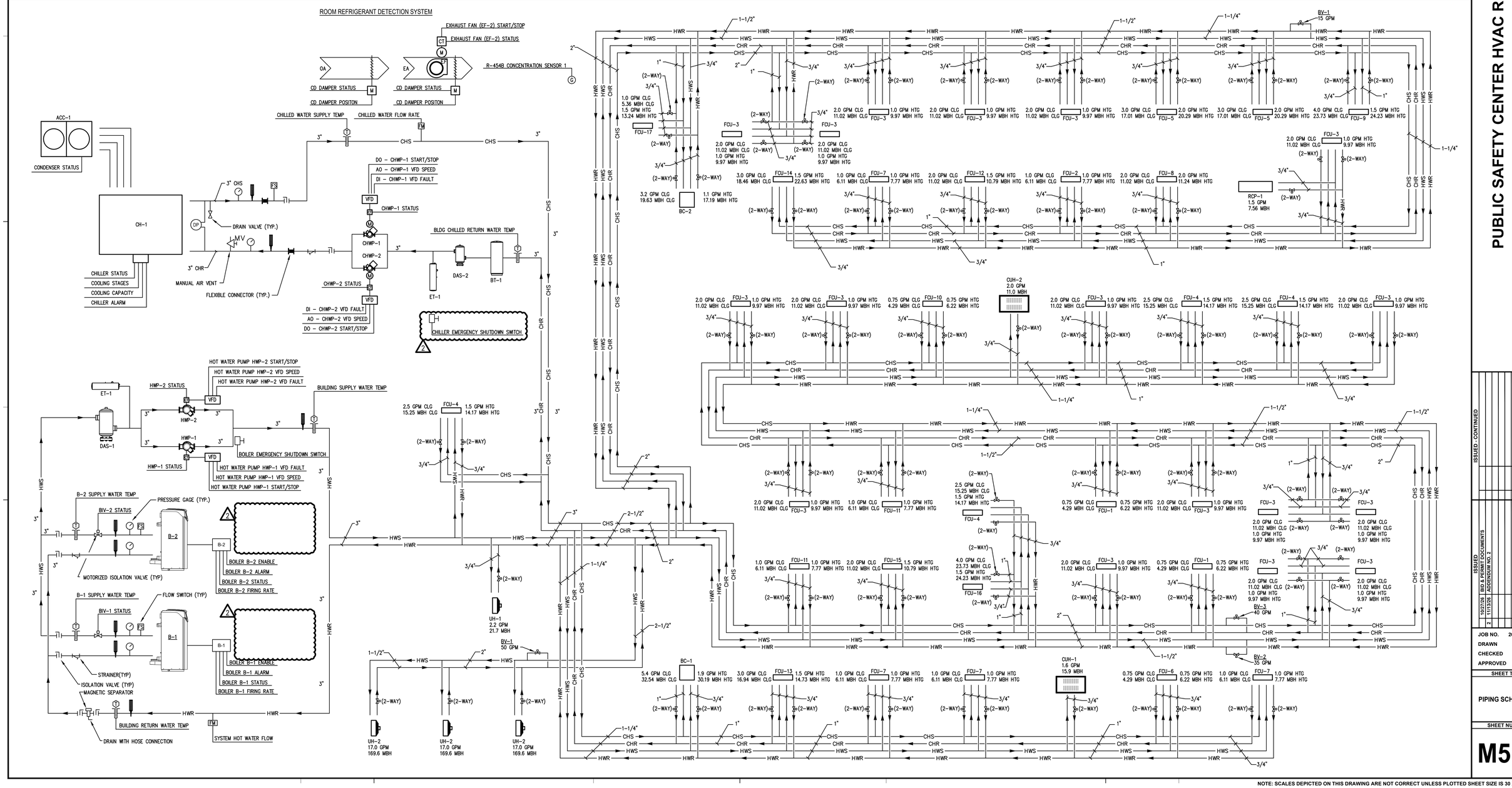
AN ALARM SHALL BE GENERATED IF THERE IS A BOILER ALARM OR A LOW WATER LEVEL ALARM.

IF THE BOILER EMERGENCY SHUTDOWN SWITCH IS ACTIVATED. ALL OF THE BOILERS IN THE SPACE SHALL BE IMMEDIATELY DE-ENERGIZED AND AN ALARM SHALL BE GENERATED.

PUMP (HWP-1, HWP-2)

THE HEATING WATER PUMPS SHALL OPERATE IN A DUTY STANDBY SEQUENCE. IF ONE PUMP FAILS, THE SECOND PUMP SHALL CONTINUE TO OPERATE. THE PUMPS VARIABLE FREQUENCY DRIVE SHALL MODULATE THE SPEED OF THE PUMPS TO MEET SYSTEM DEMAND BASED ON SENSORLESS SYSTEM PRESSURE CONTROL.

AN ALARM SHALL BE GENERATED UPON A PUMP OR A VFD FAULT STATUS.



Kluber
Architects + Engineers
an Aeterna Group Company
Aurora, Illinois 60506
Bloomington, Illinois 61704
tel 630.547.5613

PUBLIC SAFETY CENTER HVAC REPLACEMENT
17950 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

ISSUED - CONTINUED

ISSUED	
10/27/25	BID & PERMIT DOCUMENTS
2 11/13/26	ADDENDUM NO. 2

JOB NO.	26-347-1698
DRAWN	JNB/KJD
CHECKED	BWG
APPROVED	BWG

SHEET TITLE

PIPING SCHEMATIC

SHEET NUMBER

M510

P:\1698 - Village of Homewood - Public Safety Center HVAC Replacement\30_Design\Dwgs\DD-CD\50_Mech\1698M510.dwg, 11/13/2026 1:57:48 PM, RichardHennessy

NOTE: SCALES DEPICTED ON THIS DRAWING ARE NOT CORRECT UNLESS PLOTTED SHEET SIZE IS 30 X 42 INCHES.

Copyright © 2025 KLUBER, INC.

MISCELLANEOUS EQUIP CONTROLS (STAND ALONE)

UNIT HEATERS

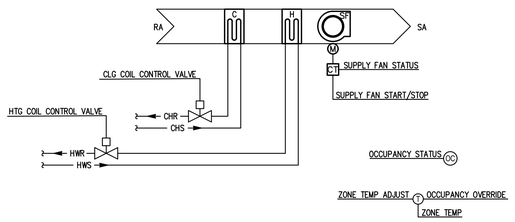
THE UNIT HEATER SHALL MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 65° F (ADJ.).

IF THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE UNIT HEATER AND ASSOCIATED HEATING CONTROL VALVE SHALL BE ENABLED. THE HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE SUPPLY FAN SHALL OPERATE IN CONJUNCTION WITH THE CONTROL VALVE. IF THE CONTROL VALVE BECOMES FULLY CLOSED, THE FAN SHALL BE DISABLED.

SPLIT SYSTEM HEAT PUMPS (HP-X / AC-X)

THE HEAT PUMP CONTROLLER SHALL CONTROL THE OPERATION OF THE HEAT PUMP AND ASSOCIATED INFOOR UNIT AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINTS.. THE SPACE SETPOINTS SHALL BE 72°F (ADJ.) FOR COOLING AND 68°F (ADJ) FOR HEATING.

4-PIPE FAN COIL UNIT CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

FAN COIL UNITS SHALL MAINTAIN ZONE TEMPERATURE HEAT/COOL SETPOINTS OF 72/75 DEGREES F (ADJ) AND UNOCCUPIED COOL/HEAT SETPOINTS OF 80/65 DEGREES F. ALL SETPOINTS SHALL BE ADJUSTABLE.

THE COOLING OR HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE SUPPLY FAN SHALL OPERATE IN CONJUNCTION WITH THE CONTROL VALVE. IF THE CONTROL VALVE BECOMES FULLY CLOSED, THE FAN SHALL BE DISABLED. IF THE SPACE TEMPERATURE DROPS 10 DEGREES F BELOW SETPOINT THE HEATING CONTROL VALVE SHALL OPEN FULLY AND AN ALARM SHALL BE GENERATED AT THE BAS.

OCCUPIED STANDBY (FOR SPACES SHOWN WITH OCCUPANCY SENSORS): FIVE MINUTES (ADJ.) AFTER THE CEILING OCCUPANCY SENSOR HAS SENSED THE ROOM HAVE BECOME VACANT, THE FAN COIL UNIT SHALL ENTER OCCUPIED STANDBY MODE. THE OCCUPIED HEATING SETPOINT SHALL BE DECREASED BY 1°F (A.D.) AND COOLING SETPOINT INCREASED BY 1°F (ADJ.). IF THE SPACE IS BETWEEN THE ACTIVE HEATING AND COOLING SETPOINTS, THE FAN COIL UNIT SHALL BE OFF.

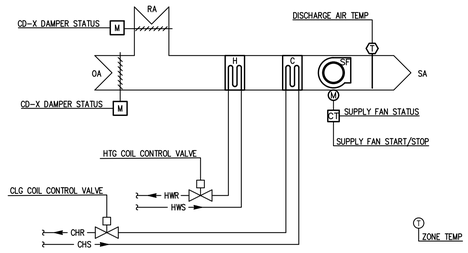
DEMAND RESPONSE OVERRIDE – THE BUILDING AUTOMATION SYSTEM SHALL HAVE A GLOBAL DEMAND RESPONSE OVERRIDE. IF THE BUILDING ENGINEER ENABLES DEMAND RESPONSE, ALL OF THE FAN COIL UNIT'S COOLING SETPOINTS SHALL BE INCREASED AND HEATING SETPOINTS DECREASED BY 1°F (ADJ.) THIS DEMAND RESPONSE SIGNAL SHALL REMAIN ACTIVE FOR A PERIOD OF 4 HOURS (ADJ.)

POINTS LIST

FAN COIL UNIT (FCU-X)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
OCCUPIED / UNOCCUPIED MODE				X	X			X
FAN START/STOP				X				X
FAN STATUS			X			X	X	X
SPACE TEMPERATURE	X					X	X	X
SPACE TEMPERATURE SETPOINT		X				X		X
HOT WATER CONTROL VALVE		X				X		X
CHILLED WATER CONTROL VALVE		X				X		X
OUTSIDE AIR TEMPERATURE (GLOBAL POINT)	X					X		X
UNOCCUPIED MODE OVERRIDE				X				X
FAN COIL UNIT ALARM			X				X	X
CONDENSATE OVERFLOW ALARM			X				X	X
DEMAND RESPONSE OVERRIDE				X		X		X
SPACE OCCUPANCY STATUS			X			X		X

NOTE:
1) FAN COIL UNITS ARE SPECIFIED WITH FACTORY INSTALLED PIPING PACKAGE. TEMPERATURE CONTROLS CONTRACTOR TO PROVIDE FIELD INSTALLED CONTROLS FOR FAN COIL UNITS AND INTERFACE OPERATION OF FACTORY INSTALLED CONTROL VALVES. PROVIDE WITH WIRED WALL MOUNTED SPACE TEMPERATURE SENSOR.

BLOWER COIL (BC-2) UNIT CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

BC-2 (BLOWER COIL UNIT) SHALL MAINTAIN ZONE TEMPERATURE HEAT/COOL SETPOINTS OF 72/75 DEGREES F (ADJ) AND UNOCCUPIED COOL/HEAT SETPOINTS OF 80/65 DEGREES F. ALL SETPOINTS SHALL BE ADJUSTABLE.

THE OCCUPIED/UNOCCUPIED MODE SHALL BE SCHEDULED IN THE BUILDING AUTOMATION SYSTEM. INITIAL SETUP SHALL BE FOR THE UNIT TO RUN IN OCCUPIED MODE 24/7. THE SUPPLY FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE AND INTERMITTENTLY IN UNOCCUPIED MODE. IN OCCUPIED MODE THE OUTSIDE AIR DAMPER SHALL OPEN AND RETURN AIR DAMPER SHALL CLOSE. IN UNOCCUPIED MODE, THE OUTSIDE AIR SHALL BE CLOSED AND RETURN AIR DAMPER SHALL OPEN. THE BUILDING AUTOMATION SYSTEM SHALL MONITOR THE STATUS OF THE DOAS UNIT (DOAS-1). IF THE DOAS UNIT IS OFF, THE RETURN AIR DAMPER OF BC-2 SHALL OPEN AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

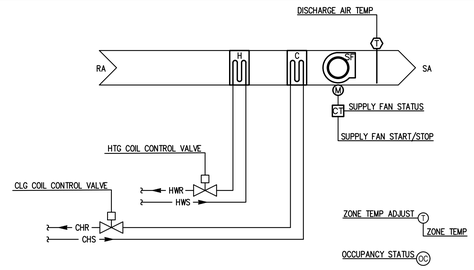
THE COOLING OR HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
IF THE SPACE TEMPERATURE DROPS 10 DEGREES F BELOW SETPOINT THE HEATING CONTROL VALVE SHALL OPEN FULLY AND AN ALARM SHALL BE GENERATED AT THE BAS.

DEMAND RESPONSE OVERRIDE – THE BUILDING AUTOMATION SYSTEM SHALL HAVE A GLOBAL DEMAND RESPONSE OVERRIDE. IF THE BUILDING ENGINEER ENABLES DEMAND RESPONSE, THE BLOWER COIL UNIT'S COOLING SETPOINTS SHALL BE INCREASED AND HEATING SETPOINTS DECREASED BY 1°F (ADJ.) THIS DEMAND RESPONSE SIGNAL SHALL REMAIN ACTIVE FOR A PERIOD OF 4 HOURS (ADJ.)

POINTS LIST

BLOWER COIL UNIT (AHU-4)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
OCCUPIED / UNOCCUPIED MODE				X	X			X
FAN START/STOP				X				X
FAN STATUS			X			X	X	X
SPACE TEMPERATURE	X					X	X	X
SPACE TEMPERATURE SETPOINT		X				X		X
HOT WATER CONTROL VALVE		X				X		X
CHILLED WATER CONTROL VALVE		X				X		X
OUTSIDE AIR TEMPERATURE (GLOBAL POINT)	X					X		X
UNOCCUPIED MODE OVERRIDE				X				X
AHU ALARM			X				X	X
CONDENSATE OVERFLOW ALARM			X				X	X
OUTSIDE AIR DAMPER				X		X		X
RETURN AIR DAMPER				X		X		X
DEMAND RESPONSE OVERRIDE				X		X		X

BLOWER COIL (BC-1) UNIT CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

BC-1 (BLOWER COIL UNIT) SHALL MAINTAIN ZONE TEMPERATURE HEAT/COOL SETPOINTS OF 72/75 DEGREES F (ADJ) AND UNOCCUPIED COOL/HEAT SETPOINTS OF 80/65 DEGREES F. ALL SETPOINTS SHALL BE ADJUSTABLE.

THE OCCUPIED/UNOCCUPIED MODE SHALL BE SCHEDULED IN THE BUILDING AUTOMATION SYSTEM. THE SUPPLY FAN SHALL RUN INTER INTERMITTENTLY AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINTS.

OCCUPIED STANDBY: FIVE MINUTES (ADJ.) AFTER THE CEILING OCCUPANCY SENSOR HAS SENSED THE ROOM HAVE BECOME VACANT, THE BLOWER COIL UNIT SHALL ENTER OCCUPIED STANDBY MODE. THE OCCUPIED HEATING SETPOINT SHALL BE DECREASED BY 1°F (A.D.) AND COOLING SETPOINT INCREASED BY 1°F (ADJ.). IF THE SPACE IS BETWEEN THE ACTIVE HEATING AND COOLING SETPOINTS, THE BLOWER COIL SHALL BE OFF.

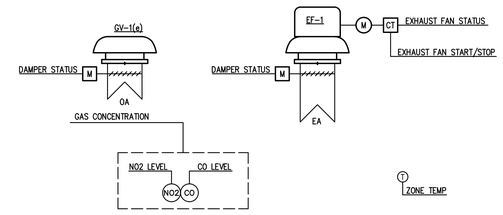
THE COOLING OR HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
IF THE SPACE TEMPERATURE DROPS 10 DEGREES F BELOW SETPOINT THE HEATING CONTROL VALVE SHALL OPEN FULLY AND AN ALARM SHALL BE GENERATED AT THE BAS.

DEMAND RESPONSE OVERRIDE – THE BUILDING AUTOMATION SYSTEM SHALL HAVE A GLOBAL DEMAND RESPONSE OVERRIDE. IF THE BUILDING ENGINEER ENABLES DEMAND RESPONSE, THE BLOWER COIL UNIT'S COOLING SETPOINTS SHALL BE INCREASED AND HEATING SETPOINTS DECREASED BY 1°F (ADJ.) THIS DEMAND RESPONSE SIGNAL SHALL REMAIN ACTIVE FOR A PERIOD OF 4 HOURS (ADJ.)

POINTS LIST

BLOWER COIL UNIT (BC-1)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
OCCUPIED / UNOCCUPIED MODE				X	X			X
FAN START/STOP				X				X
FAN STATUS			X			X	X	X
SPACE TEMPERATURE	X					X	X	X
SPACE TEMPERATURE SETPOINT		X				X		X
HOT WATER CONTROL VALVE		X				X		X
CHILLED WATER CONTROL VALVE		X				X		X
OUTSIDE AIR TEMPERATURE (GLOBAL POINT)	X					X		X
AHU ALARM				X			X	X
CONDENSATE OVERFLOW ALARM			X				X	X
DEMAND RESPONSE OVERRIDE				X		X		X
OCCUPANCY STATUS			X			X		X

SALLY PORT CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

TOXIC GAS DETECTION SYSTEM: SALLYPORT RM 136

THE TOXIC GAS DETECTION SYSTEM SHALL MONITOR THE SPACE CO & NO2 GAS CONCENTRATIONS.

1ST STAGE ALARM:

UPON DETECTION OF A GAS CONCENTRATION OF 25 PPM CARBON MONOXIDE (CO) OR 0.7 PPM NITROGEN DIOXIDE (NO2), THE ASSOCIATED ZONE SHALL GO INTO 1ST STAGE ALARM. THE FOLLOWING ALARM SEQUENCE SHALL OCCUR:

1. THE ASSOCIATED EXHAUST FANS (EF-1) SHALL BE ENERGIZED.
2. THE MOTORIZED DAMPER IN THE GRAVITY VENTILATOR (GV-1) SHALL OPEN.
3. A VISUAL ALARM SHALL BE INDICATED ON THE GAS DETECTION CONTROLLER.

THE FIRST STAGE ALARM SHALL REMAIN ACTIVE UNTIL THE ZONE GAS CONCENTRATION IS BELOW THE FIRST STAGE ALARM.
2ND STAGE ALARM:

UPON DETECTION OF A GAS CONCENTRATION OF 100 PPM CARBON MONOXIDE (CO) OR 1.5 PPM NITROGEN DIOXIDE (NO2), THE FOLLOWING ALARM SEQUENCE SHALL OCCUR:

1. THE ASSOCIATED EXHAUST FANS (EF-1) SHALL BE ENERGIZED.
2. THE MOTORIZED DAMPER IN THE GRAVITY VENTILATOR (GV-1) SHALL OPEN.
3. A VISUAL ALARM SHALL BE INDICATED ON THE GAS DETECTION CONTROLLER.
4. THE CONTROLLER MOUNTED HORN/STROBES SHALL BE ENERGIZED.
5. AN ALARM SHALL BE GENERATED BY THE BUILDING AUTOMATION SYSTEM.

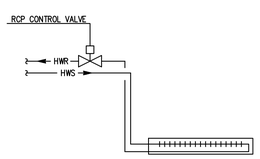
THE SECOND STAGE ALARM SHALL REMAIN ACTIVE UNTIL GAS CONCENTRATION LEVELS ARE BELOW THE FIRST STAGE ALARM LEVEL.

SPACE TEMPERATURE CONTROL: THE EXHAUST FAN AND GRAVITY VENTILATOR SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 85°F (ADJ.). THE TOXC GAS DETECTION SYSTEM SHALL OVERRIDE THE SPACE TEMPERATURE REQUIREMENTS IF THE SYSTEM GOES INTO GAS DETECTION ALARM.

POINTS LIST

UNIT HEATER	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
EXHAUST FAN START/STOP				X		X		X
EXHAUST FAN STATUS			X			X	X	X
GRAVITY VENTILATOR DAMPER STATUS				X		X		X
SPACE CO CONCENTRATION	X					X	X	X
SPACE NO2 CONCENTRATION	X					X	X	X
SPACE TEMPERATURE	X					X	X	X

RADIANT CEILING PANEL CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

RADIANT CEILING PANEL (RM 103)

THE RADIANT CEILING PANEL CONTROL SHALL BE TIED INTO THE FAN COIL THERMOSTAT OF ROOM 103.

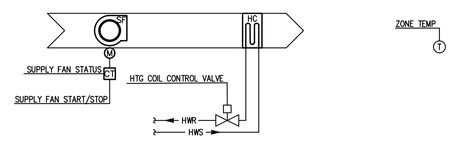
THE RADIANT CEILING PANEL SHALL ACT AS THE FIRST STAGE OF HEAT. THE RADIANT CEILING PANEL CONTROL VALVE SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. IF THE RADIANT CEILING PANEL CONTROL VALVE IS 100% OPEN AND THE ROOM FALLS BELOW SETPOINT, THE FAN COIL UNITS SHALL BE ENERGIZED.

THE RADIANT CEILING PANEL SHALL BE ENABLED WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 55°F (ADJ.). 2

POINTS LIST

RADIANT CEILING PANEL	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
SPACE TEMPERATURE	X					X	X	X
SPACE TEMPERATURE SETPOINT		X				X		X
FIN TUBE HOT WATER CONTROL VALVE		X				X		X

CABINET UNIT HEATER CONTROL SCHEMATIC



SEQUENCE OF OPERATIONS

CABINET UNIT HEATERS (CUH-1, CUH-2)

CUH-1 ONLY: THE CABINET UNIT HEATER SHALL MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 70° F (ADJ.).

CUH-2: THE CABINET UNIT HEATER SHALL AND ASSOCIATED HEATING CONTROL VALVE BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE IS 45°F (ADJ.) OR BELOW. THE CABINET UNIT HEATER SHALL MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 60°F (ADJ.) IF THE OUTSIDE AIR TEMPERATURE RISES ABOVE 45°F (ADJ.), THE CABINET UNIT HEATER AND ASSOCIATED HEATING CONTROL VALVE SHALL BE DISABLED.

THE HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE SUPPLY FAN SHALL OPERATE IN CONJUNCTION WITH THE CONTROL VALVE. IF THE CONTROL VALVE BECOMES FULLY CLOSED, THE FAN SHALL BE DISABLED.
IF THE SPACE TEMPERATURE DROPS 10 DEGREES F BELOW SETPOINT THE HEATING CONTROL VALVE SHALL OPEN FULLY AND AN ALARM SHALL BE GENERATED AT THE BAS.

POINTS LIST

CABINET UNIT HEATER (CUH-X)	HARDWARE				SOFTWARE			
	AI	AO	DI	DO	SCHED	TREND	ALARM	GRAPHIC
FAN START/STOP				X				X
FAN STATUS			X			X	X	X
SPACE TEMPERATURE	X					X	X	X
SPACE TEMPERATURE SETPOINT		X				X		X
CUH HOT WATER CONTROL VALVE		X				X		X
OUTSIDE AIR TEMPERATURE (GLOBAL POINT)	X					X		X

Kluber
Architects + Engineers
an Aeterna Group Company
Aurora, Illinois 60506
Bloomington, Illinois 61704
tel 630.585.4545
fax 630.585.4573

PUBLIC SAFETY CENTER HVAC REPLACEMENT

17950 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

ISSUED - CONTINUED

ISSUED		
1	10/27/26	BID & PERMIT DOCUMENTS
2	11/13/26	ADDENDUM NO. 2

JOB NO.	26-347-1698
DRAWN	BWG
CHECKED	RGH
APPROVED	BWG

SHEET TITLE

TEMPERATURE CONTROLS

SHEET NUMBER

M512

NOTE: SCALES DEPICTED ON THIS DRAWING ARE NOT CORRECT UNLESS PLOTTED SHEET SIZE IS 30 X 42 INCHES.

P:\11698 - Village of Homewood - Public Safety Center HVAC Replacement\30_Design\Dwgs\DDI-CD\50_Mech\11698M0512.dwg, 11/13/2026 2:01:41 PM, RichardHennessey

Copyright © 2025 KLUBER, INC.

ABBREVIATIONS

SYMBOL	DESCRIPTION
A	
A	AMPS
AC	ABOVE COUNTER
AF	AMPERE FRAME/AMPERE FUSE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CURRENT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAGE
B	
BKR	BREAKER
BOL	BUILT-IN OVERLOAD
BWE	BAKED WHITE ENAMEL
BTU	BRITISH THERMAL UNIT
C	
C	CONDUIT
CATV	CABLE TELEVISION SYSTEM
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CU	COPPER
D	
DPDT	DOUBLE-POLE, DOUBLE-THROW
DPST	DOUBLE-POLE, SINGLE-THROW
DS	DOWNSPOUT
E	
EBH	ELECTRIC BASEBOARD HEATER
EC, E.C.	ELECTRICAL CONTRACTOR
ECH	ELECTRIC CABINET HEATER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
F	
F	FUSED
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FC	FUSE CLIP SIZE
FPB	FAN POWERED BOX
FBO	FURNISHED BY OTHERS
FLA	FULL LOAD AMPS
FLR	FLOOR
FPC	FIRE PROTECTION CONTRACTOR
FS	FLOAT SWITCH
FVNR	FULL-VOLTAGE, NON-REVERSING
G	
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
H	
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING AND VENTILATING CONTRACTOR
HWGC	HEAVY WALL GALVANIZED CONDUIT

SYMBOL	DESCRIPTION
I	
IDF	INTERMEDIATE DISTRIBUTION FRAME
IG	ISOLATED GROUND
INC	INCANDESCENT
INT	INTEGRAL
IR	IN ROOM
IU	IN UNIT
J	
JB	JUNCTION BOX
K	
Kcmil	1000 CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPS
KVAR	KILOVOLT-AMPS REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	
LP	LOW PRESSURE
LV	LOW-VOLTAGE
LVT	LOW-VOLTAGE THERMOSTAT
M	
MAG	MAGNETIC MOTOR STARTER
MAN	MANUAL MOTOR STARTER W/THERMAL OVERLOAD PROTECTION
MC	MECHANICAL CONTRACTOR
MCA	MAXIMUM CURRENT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	METAL HALIDE
MLO	MAIN LUG ONLY
MNS	MASS NOTIFICATION SYSTEM
MOCP	MINIMUM OVERCURRENT PROTECTION
MS	MANUAL SWITCH
MSBD	MAIN SWITCH BOARD
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
N	
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NF	NON-FUSED
N.I.C.	NOT IN CONTRACT
NL	NIGHT LIGHT
N.O.	NORMALLY OPEN
N.T.S., NTS	NOT TO SCALE
NU	NEAR UNIT
O	
O.H.	OVERHEAD
OU	ON UNIT
OCPD	OVERCURRENT PROTECTION DEVICE

SYMBOL	DESCRIPTION
P	
PB	PUSH BUTTON
PC	PLUMBING CONTRACTOR
PDU	POWER DISTRIBUTION UNIT
PH	PHASE
PNL	PANEL
PROVIDE	FURNISHED, INSTALLED, WIRED AND CONNECTED COMPLETE BY CONTRACTOR
PVC	POLYVINYL CONDUIT
PW	PRE-WIRED
Q	
QTY.	QUANTITY
R	
REQ'D	REQUIRED
RTU	ROOF TOP UNIT
S	
SC	SEPARATE CIRCUIT
SD	SMOKE DETECTOR
SF	SQUARE FEET
SPDT	SINGLE-POLE, DOUBLE-THROW
SPST	SINGLE-POLE, SINGLE-THROW
SS	STAINLESS STEEL
SW	SWITCH
SWBD	SWITCHBOARD
T	
T	THERMOSTAT
TELE	TELEPHONE
TC	TIME CLOCK
TCP	TEMPERATURE CONTROL PANEL
TS	TOGGLE SWITCH
TTB	TELEPHONE TERMINAL BOARD
TTC	TELEPHONE TERMINAL CABINET
TWU	THRU WALL AIR CONDITIONING UNIT
TYP.	TYPICAL
U	
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
U.N.O.	UNLESS NOTED OTHERWISE
UM	UNIT MANUFACTURER
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	
V	VOLT
VA	VOLT-AMPERES
VAC	VOLT ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
W	
W	WATT
W/	WITH
W/O	WITHOUT
WG	WIRE GUARD
WP	WEATHER PROOF
X	
X	EXISTING EQUIPMENT
XFMR	TRANSFORMER
XP	EXPLOSION-PROOF

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ABBREVIATIONS, ETC., ARE NECESSARILY USED IN THIS PROJECT.

ELECTRICAL SYMBOLS LIST

SYMBOL CEILING	SYMBOL WALL	SYMBOL FLOOR	DESCRIPTION
			2X4 RECESSED TROFFER FIXTURE TYPE. SEE LIGHTING FIXTURE SCHEDULE. SHADING=NIGHT LIGHT
			DOWN LIGHT FIXTURE TYPE. SEE LIGHTING FIXTURE SCHEDULE.
			EMERGENCY LIGHT FIXTURE TYPE. SEE LIGHTING FIXTURE SCHEDULE.
	^{C}		SINGLE POLE TOGGLE SWITCH. 15A OR 20A AS REQUIRED. 120/277V c=SWITCHING CONTROL, P=PILOT LIGHT, K=KEYED SW., LV=LOW VOLTAGE, F=FAN SPEED CTRL
	$_{3}$		3-WAY TOGGLE SWITCH. 15A OR 20A AS REQUIRED. 120/277V 3D=3 WAY DIMMER
			DUPLEX RECEPTACLE. 20A 125V 2P 3W GRD. NEMA5-20R. @18"AFF. TR = TAMPER RESISTANT. D=DEDICATED CIRCUIT. 'I' =MTD. C=CONTROLLED @48"AFF, OR @6" ABOVE COUNTER.
			DOUBLE DUPLEX RECEPTACLE. @18"AFF 20A 125V 2P 3W GRD. NEMA5-20R. PO=POP UP RECEPTACLE
	▽ OR ▼		COMMUNICATIONS OUTLET. FILLED IN IS TELE. @18"AFF. REFER TO COMMUNICATION OUTLET DETAIL. B = BLANK JACK, AV= AUDIO/VISUAL JACK, MIC= MICROPHONE JACK. ▽ = 6" ABOVE COUNTER, AUX = AUX. CONNECT. PO=POP UP LOW VOLTAGE SECTION. PD=PEDESTAL MOUNTED.
	OR	TS	JUNCTION BOX TS = TOMBSTONE TYPE. IN WALL, OR SURFACE TYPE.
			WIRING IN CONDUIT CONCEALED ABOVE CEILING, IN WALL AND UNDER FLOOR OR UNDERGROUND.
			WIRING IN CONDUIT EXPOSED ON CEILING OR WALL.
			BRANCH CIRCUIT WIRING IN CONDUIT HOMERUN TO PANEL. ONE ARROW PER HOMERUN. SLASHES INDICATE NUMBER OF CONDUCTORS.
			INDICATES GROUND CONDUCTOR.
			INDICATES ISOLATED GROUND CONDUCTOR.
			FIRE ALARM HORN/STROBE COMBINATION. @80"AFF NUMBER INDICATES CANDELA LEVEL (110cd UNLESS NOTED OTHERWISE)
			MOTOR. HP= HORSE-POWER RATING.
			PANEL 240V & BELOW.
			PANEL ABOVE 240V.

MOUNTING HEIGHT

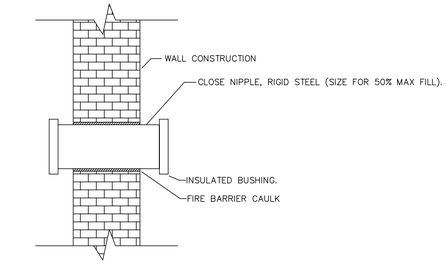
FIRE ALARM PULL STATION STROBES	48" 80"
FIRE ALARM BELLS(EXTERIOR) FACP & FAAP	12'-0" 48"
EXIT SIGNS(BOTTOM) TV OUTLET	80" 18"
INTERCOM PHOTOCELL	48" 12'-0"
RECEPTACLE(CENTERLINE) RECEPTACLE(EXTERIOR)	18" 24"
RECEPTACLE(WAREHOUSE) TELEPHONE OUTLET(PUBLIC)	30" 54"
TELEPHONE OUTLET SWITCH	18" 48"
SAFETY SWITCHES PANELS(TOP)	48" 72"
CLOCK(CENTERLINE) VIDEO OUTLET	96" 96"

MISCELLANEOUS

RTU 1	HVAC EQUIPMENT IDENTIFICATION
6.0	KEYNOTE IDENTIFICATION
1 E7.1 DETAIL NUMBER DRAWING NUMBER	DETAIL IDENTIFICATION

ELECTRICAL SYMBOLS LIST CONT.

SYMBOL CEILING	SYMBOL WALL	SYMBOL FLOOR	DESCRIPTION
	HO		TV OUTLET WITH CONDUIT STUBBED TO ACCESSIBLE CEILING SPACE WITH PULL STRING. REFER TO TELE/DATA OUTLET DETAIL.
	PR		PROXIMITY READER. DOUBLE GANG JUNCTION BOX WITH SINGLE GANG PLASTER RING AND 3/4"C TO INDOOR ACCESSIBLE CEILING SPACE.
	DC		MAGNETIC DOOR CONTACT SWITCH.
	DS		ELECTRIC DOOR STRIKE.
OS	$_{OS}$		OCCUPANCY/VACANCY SENSOR SWITCH. VACANCY SENSOR = VS
	▼	▽	TELEPHONE OUTLET @18"AFF, REFER TO COMMUNICATION OUTLET DETAIL. W=PUBLIC WALL PHONE @54"AFF. 2V= 2 PHONE JACKS. ▼ =6" ABOVE COUNTER
	WP		GFCI(GROUND FAULT CIRCUIT INTERRUPTER) PROTECTED RECEPTACLE. WP=WEATHER PROOF. 20A 125V 2P 3W GRD. NEMA5-20R. @18"AFF
			GFCI(GROUND FAULT CIRCUIT INTERRUPTER) PROTECTED RECEPTACLE MTD. @48"AFF, OR @6" ABOVE COUNTER.
SD	SD		SMOKE DETECTOR. E=ELEVATOR RECALL.
HD 135°	HD 135°		HEAT DETECTOR. NUMBER=TEMP. RATING, RR=RATE OF RISE.
			FREE STANDING LOW VOLTAGE RACK
SD CO			SMOKE DETECTOR MULTISTATION - CO DETECTOR E=ELEVATOR RECALL.
	$_{4}$		4-WAY TOGGLE SWITCH. 15A OR 20A AS REQUIRED. 120/277V 4D=4 WAY DIMMER
		PD	SPECIAL PURPOSE OUTLET. NEMA SIZE AS NOTED. PD = PEDESTAL MOUNTED, STAINLESS STEEL ENCLOSURE
	V		FIRE ALARM STROBE LIGHT. NUMBER INDICATES CANDELA LEVEL. (110cd UNLESS NOTED OTHERWISE) @80"AFF
	F		FIRE ALARM PULL STATION. @48"AFF
	FACP		FIRE ALARM CONTROL PANEL.
			POLE. BASIS OF DESIGN:RNTA-125-250-RBC-BEB-STD FINISH, 12' POLE 5" OD STRAIGHT ROUND POLE WITH RBC STYLE BASE.
			GROUND BAR.
			ELECTRICAL DISCONNECT
			SURFACE MOUNTED GFCI(GROUND FAULT CIRCUIT INTERRUPTER) PROTECTED RECEPTACLE WITH TAMPER
			PUSH BUTTON SWITCH 2



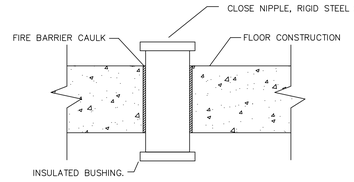
TYPICAL WALL PENETRATION

NOTES:

1. NEATLY CORE ALL MASONRY AND BLOCK WALLS.
2. RIGIDLY SUPPORT ALL RACEWAYS.
3. PROVIDE FIRE BARRIER CAULK AT FLOOR, CORRIDOR AND FIRE SEPARATION WALLS.

TYP. WALL PENETRATION DETAIL (2)

SCALE: N.TS.



TYPICAL FLOOR PENETRATION

NOTES:

1. NEATLY CORE ALL MASONRY AND BLOCK WALLS.
2. RIGIDLY SUPPORT ALL RACEWAYS.
3. PROVIDE FIRE BARRIER CAULK AT FLOOR, CORRIDOR AND FIRE SEPARATION WALLS.

TYP. FLOOR PENETRATION DETAIL (1)

SCALE: N.TS.

Kluber Architects + Engineers
an Aeterna Group Company
Aurora, Illinois 60506
Bloomington, Illinois 61704
tel 630.820.8100

PUBLIC SAFETY CENTER HVAC REPLACEMENT

17950 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

ISSUED - CONTINUED

ISSUED		
2	11/7/2025	BID & PERMIT DOCUMENTS ADDENDUM NO. 2
	10/27/26	

JOB NO.	26-347-1698
DRAWN	JWK
CHECKED	ATR
APPROVED	MTK

SHEET TITLE

ELECTRICAL SYMBOLS LIST, ABBREVIATIONS & DETAILS

SHEET NUMBER

E050

NOTE: SCALES DEPICTED ON THIS DRAWING ARE NOT CORRECT UNLESS PLOTTED SHEET SIZE IS 30 X 42 INCHES.

Copyright © 2025 KLUBER, INC.

COORDINATION NOTE: GENERATOR REPLACEMENT PROJECT
1. THIS PROJECT IS INTERDEPENDENT WITH THE GENERATOR REPLACEMENT PROJECT. BOTH PROJECTS ARE INTENDED TO RUN CONCURRENTLY TO DELIVER A COMPLETE AND OPERATIONAL SYSTEM.

2. THE CONTRACTOR SHALL NOT COMMENCE WORK WITHOUT A FULL UNDERSTANDING OF THE INTERDEPENDENCIES BETWEEN BOTH PROJECTS, AND SHALL MAKE ALL NECESSARY CONTINGENT PLANS TO EXECUTE THIS WORK IN COOPERATION WITH THE GENERATOR REPLACEMENT PROJECT GOALS.

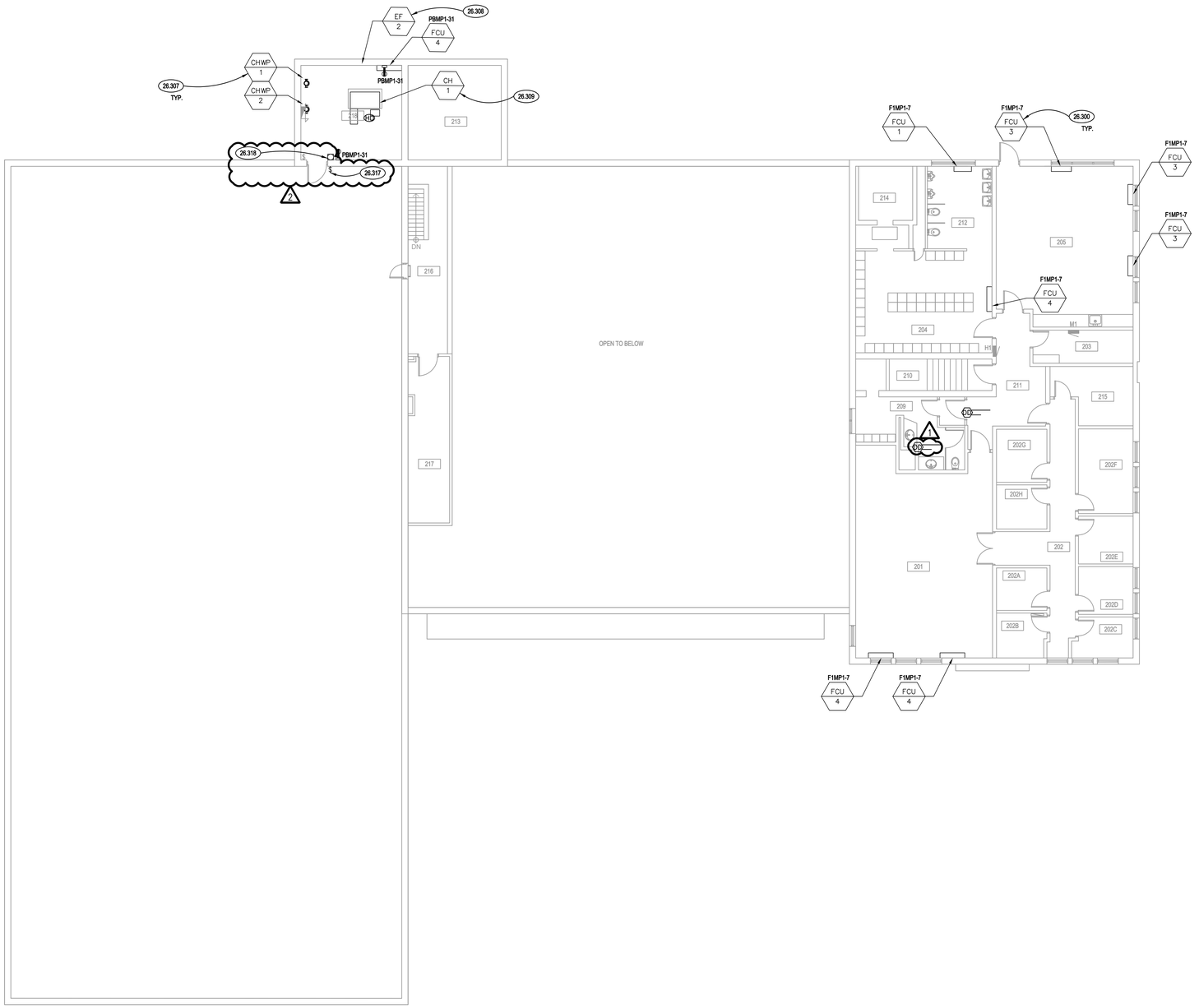
3. THE GENERATOR REPLACEMENT PROJECT INTENDS TO SEPARATE THE MAIN SERVICE FOR THIS BUILDING INTO TWO SEPARATE SERVICES. THE CONTRACTOR SHALL COORDINATE NEW BREAKERS AT THE MAIN SWITCHBOARD WITH THE GENERATOR REPLACEMENT PROJECT.

4. DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT (E.G., THE EXISTING GENERATOR) IS NECESSARY PRIOR TO COMPLETION OF THIS PROJECT'S SCOPE

GENERAL NOTE:
REFEED EXISTING LIGHTING IN MACHINERY ROOM 218 FROM CIRCUIT PBMP1-33. EXISTING LIGHT SWITCH IS TO REMAIN.

GENERAL NOTE:
ALL ITEMS ASSOCIATED WITH THE REFRIGERANT LEAK DETECTION SYSTEM IN THE MACHINERY ROOM MUST BE FED FROM EMERGENCY POWER. COORDINATE ACCESSORIES FOR THIS SYSTEM THAT WILL REQUIRE A POWER CONNECTION IN THE FIELD

1



PLAN NORTH
TRUE NORTH

SECOND FLOOR ELECTRICAL POWER PLAN (1)
SCALE: 1/8" = 1'-0"

KEYNOTES

KEYNOTES ARE TYPICALLY NOT DUPLICATED WITHIN A GIVEN DETAIL. AN UN-KEYNOTED ITEM IN A DETAIL IS THE SAME AS A KEYNOTED ITEM HAVING THE SAME APPEARANCE WITHIN THE SAME DETAIL.

26.300 FAN COIL UNIT (FCU-X). PROVIDE CONDUIT AND CABLING FOR FAN COIL UNIT CONNECTION. REFER TO HVAC EQUIPMENT SCHEDULE FOR MORE INFORMATION.
26.307 CHILLED WATER PUMP (CHWP-X). PROVIDE CONDUIT AND CABLING FOR CHILLED WATER PUMPS. REFER TO HVAC EQUIPMENT SCHEDULE FOR MORE INFORMATION. CHWP-1 & CHWP-2 ARE NON-COINCIDENTAL LOADS AND ARE FULLY REDUNDANT.
26.308 EXHAUST FAN (EF-X). PROVIDE CONDUIT AND CABLING FOR EXHAUST FAN. REFER TO HVAC EQUIPMENT SCHEDULE FOR MORE INFORMATION.
26.309 CHILLER (CH-1). PROVIDE CONDUIT AND CABLING FOR CHILLER. REFER TO HVAC EQUIPMENT SCHEDULE FOR MORE INFORMATION.
26.317 PROVIDE CLEARLY LABELED SINGLE POLE SWITCH OUTSIDE MACHINERY ROOM FOR EMERGENCY MANUAL ON-ONLY VENTILATION FAN CONTROL. PROVIDE WEATHERPROOF COVER AND BREAK GLASS COVER AS REQUIRED BY MECHANICAL CODE.
26.318 PROVIDE CLEARLY LABELED PUSH BUTTON SWITCH INSIDE MACHINERY ROOM FOR MANUAL OFF-ONLY VENTILATION FAN CONTROL. COORDINATE LOCATION OF SWITCH WITH MECHANICAL CONTRACTOR.

2

ROOM SCHEDULE

RM. NO.	ROOM NAME	RM. NO.	ROOM NAME
201	EXISTING DAY ROOM		
202	EXISTING DORMITORY		
203	EXISTING LAUNDRY ROOM		
204	EXISTING LOCKER ROOM		
205	EXISTING KITCHEN AND DINING AREA		
209	EXISTING CAPTAIN'S LOCKER ROOM		
210	EXISTING STAIR		
211	EXISTING CORRIDOR		
212	EXISTING MENS TOILET		
213	EXISTING UPPER PART OF HOSE TOWER		
214	EXISTING SHOWERS		
215	NOT USED		
216	EXISTING MEZZANINE		
217	EXISTING STORAGE		
218	EXISTING MECHANICAL ROOM		

Kluber Architects + Engineers an Aeterna Group Company

PUBLIC SAFETY CENTER HVAC REPLACEMENT

17950 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

ISSUED - CONTINUED

ISSUED

10/27/25	BID & PERMIT DOCUMENTS
1 11/10/25	ADDENDUM NO. 1
2 11/13/25	ADDENDUM NO. 2

JOB NO.	26-347-1698
DRAWN	JWK
CHECKED	ATR
APPROVED	MTK

SHEET TITLE

SECOND FLOOR ELECTRICAL POWER PLAN

SHEET NUMBER

E320

NOTE: SCALES DEPICTED ON THIS DRAWING ARE NOT CORRECT UNLESS PLOTTED SHEET SIZE IS 30 X 42 INCHES.