

## **RCSC Middle School** **HVAC Replacement**

**Project # 2025.0008**  
**January 12, 2026**

### **ADDENDUM NO. A-2**

This addendum is issued as a supplement to the plans and specifications and shall be considered an integral part of the same. Acknowledgement of receipt of this addendum is required on the Bid Form.

#### **ARCHITECTURAL**

**Item: A-2.1**

Location: Specifications.

Description: Delete current specification section 004110 Bid Form and replace with revised Bid Form.

**Item: A-2.2**

Location: Specifications.

Description: Delete current specification section 012300 - Alternates and replace with revised Alternate section.

**Item: A-2.3**

Location: Specifications.

Description: Delete current specification section 007300 – Supplementary Conditions and replace with revised Supplementary Conditions section.

**Item: A-2.4**

Location: Replace drawing sheet A1.1 dated 12-22-2025 with revised drawing sheet A1.1 with revision date 1-12-2026.

Description: Revised the following:

- Added notes and plan views with pictures of heating cabinets in vestibules.
- Added notes to include patching / repair of masonry wall and carpets in vestibules, as needed to complete unit heater cabinet work.
- Deducted heating cabinet work in Unit B under Alternate 3 in the locker room area.  
See mechanical drawings for additional information.

**Item: A-2.5**

Location: Replace drawing sheet A9.1 dated 12-22-2025 with revised drawing sheet A1.1 with revision date 1-12-2026.

Description: Added Notes for Contractor to purchase new ceiling panels to replace those removed near VAV box locations, indicated by gray box shaded areas. It is not intended to require the contractor to replace all the panels in the room: only those near the VAV locations.

**Item: A-2.6**

Location: Replace drawing sheet G.0.0 dated 12-22-2025 with revised drawing sheet A1.1 with revision date 1-12-2026.

Description: Added Alternate 5.

**Item: A-2.7**

Location: Replace drawing sheet G.1.0 dated 12-22-2025 with revised drawing sheet A1.1 with revision date 1-12-2026.

Description: Revised phasing legend to accommodate Alternate 5.

**MECHANICAL**

**Item: M-2.1**

Location: Specification section 230519 – Meters and Gauges for HVAC Piping.

Description: Revise paragraph 2.1 to read the following:

**2.1 BIMETALLIC-ACTUATED THERMOMETERS**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Miljoco Corporation.
2. Trerice, H. O. Co.
3. Weiss Instruments, Inc.

B. Standard: ASME B40.200.

C. Case: Sealed type(s); stainless steel with 3-inch nominal diameter.

D. Dial: Nonreflective aluminum with permanently etched scale markings and scales in deg F.

E. Connector Type(s): Union joint, adjustable angle, with unified-inch screw threads.

F. Connector Size: 1/2 inch, with ASME B1.1 screw threads.

G. Stem: 0.25 or 0.375 inch in diameter; stainless steel.

H. Window: Plain glass or plastic.

I. Ring: Stainless steel.

J. Element: Bimetal coil.

K. Pointer: Dark-colored metal.

**Item: M-2.2**

Location: Specification: Section 230593 - Testing, Adjusting, and Balancing for HVAC.

Description: Revision: Delete this section in its entirety and Insert the attached new section into the project manual.

**Item: M-2.3**

Location: Specification: Section 230900 – Instrumentation and Control for HVAC

Description: Clarification: It is the intent of this project that the existing temperature control system within the school is to be extended for connection to the new HVAC equipment that is to be installed as part of this project. Temperature Controls Contractor shall provide and install all required valves, controllers, components, VFD's, relays, wiring, programing, graphics, ect. for a complete and functioning system.

**Item: M-2.4**

Location: Specification: Section 232513 - Water Treatment Closed Loop Hydronic Systems

Description: Revision: Revision: Revise paragraph 2.01. to read:

**“2.01 ACCEPTABLE MANUFACTURERS**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Delta Controls installed by Innovative Control Systems, LLC.”

**Item: M-2.5**

Location: Specification: Section 232513 - Water Treatment Closed Loop Hydronic Systems.

Description: Revision: Delete this section in its entirety and Insert the attached new section into the project manual.

**Item:** **M-2.6**  
**Location:** Mechanical Drawing: ALL.  
**Description:** Clarification: It is the intent of this project that TCC shall provide and install new DDC thermostats in the same location as currently installed and reuse the existing backbox and raceway. In any location where a new thermostat would need to be installed, the TCC is to be responsible for providing raceway and backbox.

**Item:** **M-2.7**  
**Location:** Mechanical Drawing: MD1.1B.  
**Description:** Revision: It is the intent of this project that the existing Fin Tube Radiation located within rooms A136, A138, A140, A145, A147, and A155 are to remain in place and no work is to occur to these units as shown on the attached revised sheet MD1.1B.

**Item:** **M-2.8**  
**Location:** Mechanical Drawing: MD1.2.  
**Description:** Clarification: It is the intent of this project that the existing steel support structure that is located beneath each air handler is to remain in place and be reused to install the new air handlers. Contractor shall be responsible to modify and extend the structure as required.

**Item:** **M-2.9**  
**Location:** Mechanical Drawing: MD1.2.  
**Description:** Clarification: It is the intent of this project that the existing openings within the penthouse floor that the supply and return air ductwork are routed through are to remain and be reused. The mechanical contractor shall disconnect and remove the existing ductwork up within the penthouse as required for the removal of the existing air handlers and the reinstallation of the new air handling units. It is the intention of this project that the ductwork routed down through the floor is to remain and be reused and the existing penetrations are to not be increased or decreased in size.

**Item:** **M-2.10**  
**Location:** Mechanical Drawing: M1.0.  
**Description:** Clarification: Per the existing drawings, there are two 30"x24" dampers in each of the two combustion air ducts that are connected to the existing louvers that are located on the south wall of the boiler room.

**Item:** **M-2.11**  
**Location:** Mechanical Drawing: M1.0.  
**Description:** Clarification: Boiler Room, In conversation with the TCC, one of the vfd's for the hot water pumps was replaced in 2021. The temperature controls contractor shall include within their base bid a cost to replace both hot water pump VFD's. The controls contractor shall include a deduct cost alternate for the previously replaced VFD's to remain in place and be re-used.

**Item:** **M-2.12**  
**Location:** Mechanical Drawing: M1.0.  
**Description:** Clarification: It is the intent of this project that the mechanical contractor shall provide and install all gas piping, fittings, and accessories required to tie-in and connect the new gas line to the existing gas line and route for connection to the generator. The contractor shall coordinate with the gas utility to determine if the existing gas meter needs to be upsized based upon the additional added gas load.

- Item:** **M-2.13**  
Location: Mechanical Drawing: M1.0.  
Description: Clarification: It is the intent of this project that the building management system shall monitor the status of electrical generator transfer switch. On a loss of utility supplied power, generate an alarm at the computer graphics stating "LOSS OF UTILITY POWER". If the power is out and the building switches to generator power, the RTU's will remain in occupied mode (or the mode they were in at the time of the switch to the generator).
- Item:** **M-2.14**  
Location: Mechanical Drawing: M1.1B  
Description: Revision: It is the intent of this project that the existing Fin Tube Radiation located within rooms A136, A138, A140, A145, A147, and A155 are to remain in place, and no work is to occur to these units as shown on the attached revised sheet M1.1B.
- Item:** **M-2.15**  
Location: Mechanical Drawing: M1.1B  
Description: Revision: Revise the fin tube radiation unit tag for the units in Toilet A110, Toilet A111, and Janitor A144 as shown on the attached revised sheet M1.1B.
- Item:** **M-2.16**  
Location: Mechanical Drawing: M1.1B  
Description: Revision: Revise the cabinet unit heater unit tag for the units in Vestibule A101 as shown on the attached revised sheet M1.1B.
- Item:** **M-2.17**  
Location: Mechanical Drawing: M1.1C.  
Description: Revision: Revise the fin tube radiation unit tag for the units in Toilet C111 as shown on the attached revised sheet M1.1C.
- Item:** **M-2.18**  
Location: Mechanical Drawing: M1.1C.  
Description: Revision: Revise the cabinet unit heater unit tag for the units in Lobby C101 as shown on the attached revised sheet M1.1C.
- Item:** **M-2.19**  
Location: Mechanical Drawing: M1.2.  
Description: Clarification: It is the intent of this project that the existing steel support structure that is located beneath each air handler is to remain in place and be reused to install the new air handlers. Contractor shall be responsible for modifying and extend the structure as required.
- Item:** **M-2.20**  
Location: Mechanical Drawing: M1.2  
Description: Clarification: It is the intent of this project that the existing openings within the penthouse floor that the supply and return air ductwork are routed through are to remain and be reused. The mechanical contractor shall disconnect and remove the existing ductwork up within the penthouse as required for the removal of the existing air handlers and the reinstallation of the new air handling units. It is the intention of this project that the ductwork routed down through the floor is to remain and be reused and the existing penetrations are to not be increased or decreased in size.
- Item:** **M-2.21**  
Location: Mechanical Drawing: M1.2.  
Description: Clarification: AHU-7, temperature controls contractor shall include within their base bid a cost to replace the CHW control valve that was installed in 2022. The controls contractor shall include a deduct cost alternate for the existing CHW valve to remain in place and be re-used if the valve is fully functional and operates as it was intended.

- Item: M-2.22**  
 Location: Mechanical Drawing: M1.2.  
 Description: Clarification: AHU-1, AHU-2 and AHU-3, in conversation with TCC, the vfd's for the three listed air-handling units have been replaced within the last 5 years. The temperature controls contractor shall include within their base bid a cost to replace the three air handler VFD's. The controls contractor shall include a deduct cost alternate for the existing three VFD's to remain in place and be re-used.
- Item: M-2.23**  
 Location: Mechanical Drawing: M2.1.  
 Description: Revision: Revise the First Floor Mechanical Plan – Unit B Deduct Alternate No. 3 plan as shown on attached revised sheet M2.1. This revision is to reduce the amount of fin tube radiant heaters that are to be included in the alternate work.
- Item: M-2.24**  
 Location: Mechanical Drawing: M2.1.  
 Description: Revision: Revise the fin tube radiation unit tag for the units in Toilet A156, Toilet A159, Toilet E118 and Toilet E119 as shown on the attached revised sheet M2.1.
- Item: M-2.25**  
 Location: Mechanical Drawing: M6.1.  
 Description: Revision: Revise the Radiation Schedule as shown on the attached revised sheet M6.1.
- Item: M-2.26**  
 Location: Mechanical Drawing: M6.1.  
 Description: Revision: Revise the Cabinet Heater Schedule as shown on the attached revised sheet M6.1.
- Item: E-2.1**  
 Location: Electrical Drawing: E1.2.  
 Description: Clarification: Reception A105, add work description note #1 to VAV-B4A located in A105.
- Item: E-2.2**  
 Location: Electrical Drawing: E1.2.  
 Description: Clarification: In girls locker room B119 and Boys locker room B107, delete CUH8 and CUH9 and all associated work.
- Item: E-2.3**  
 Location: Electrical Drawing: E1.2.  
 Description: Clarification: Provide a CAT6 ethernet cable from new ATS to BMS head-end located in Electrical A121. Coordinate work with TCC for programming.

**ADDITIONAL CONTRACTOR QUESTIONS AND ANSWERS NOT COVERED IN ITEMS ABOVE**

Q1: Can the design team permit the inclusion of Lochinvar to the list of acceptable manufacturers?

A1: Not adding Lochinvar as an equal manufacturer at this time.

Q2: Who is responsible for furnishing and installing the boiler isolation valves?

A2: The Mechanical Contractor, as noted in the construction documents.

Q3: The schedule requirements for this project indicate that the bulk of the work is to be done during summer break, which is a 7-week duration. I assume we can only have the systems shut down at this time?

A3: Yes, the bulk of the work wants to be completed within the timeframe of 7 or 8 weeks. The Owner will prefer the Contractor to provide a scheduled option that may even include double shifts if that allows the completion of all base bid work in the summer. Alternate 5 has a provision if this type of schedule cannot be achieved. Summertime allows the contractor free reign to shut down systems as needed.

Q4: Are we permitted to begin work on other items prior to the summer break, such as demo of the boiler room components that aren't in use, or working in the penthouse on ductwork changes?

A4: Yes, you may begin before the summer break, as long as it does not interfere with classroom activities. It will have to be scheduled at a time when the weather and temperatures are favorable to not need heat in classroom areas during the late winter and early spring timeframes.

END OF ADDENDUM NO. 2

# RCSC Middle School

## HVAC Replacement

650 Zebra Lane  
Rochester, IN

# December 22, 2025



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### CERTIFICATION



Terry W. Thornsberry

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### ABBREVIATIONS

AB	ANCHOR BOLT	HB	HOSE BIBB	RA	RETURN AIR
AC	AIR CONDITIONING	HDR	HEADER	RAD	RADIUS
ADD	ADDENDUM	HDW	HARDWARE	RB	RUBBER BASE
ADJ	ADJACENT	HWK	Hardware	RCB	RESILIENT COVE BASE
AF	ABOVE FINISH FLOOR	HGT	HEIGHT	RCP	REINFORCED CONCRETE PIPE
AFS	ABOVE FINISH SLAB	HM	HOLLOW METAL	RD	ROOF DRAIN
ALT	ALTERNATE	HOR	HORIZONTAL	REF	REFERENCE
ALUM	ALUMINUM	HORIZ	HORIZONTAL	REN	REINFORCING
ANOD	ANODIZED	HP	HEAT PUMP	REV	REVISION (S), REVISED
AP	ACCESS PANEL	HR	HAND RAIL	RG	RETURN REGISTER
APD	AIR PRESSURE DROP	HT	HEIGHT	RH	RIGHT HAND
ARCH	ARCHITECT (URAL)	HTG	HEATING	RM	ROOM
AT	ACOUSTICAL CEILING TILE	HVAC	HEATING/VENTILATING/AIR CONDITIONING	RO	ROUGH OPENING
AUTO	AUTOMATIC	HTG	HEATING	RWD	RIGHT OF WAY
AWC	ACRYLIC WALL COATING	HTG	HEATING	RP	RESIN PANEL
AWP	ACOUSTICAL WALL PANEL	ID	INSIDE DIAMETER	RRD	RELIEF ROOF DRAIN
		INCL	INCLUDE (D), (ING)	RWC	RIGID VINYL WALL COVERING
		INS	INSULATE (D), (ING)		
BD	BOARD	INSUL	INSULATION		
BDD	BACKDRAFT DAMPER	INT	INTERIOR		
BLDG	BUILDING	INT	INTERIOR		
BLKG	BLOCKING	INV	INVERT		
BM	BENCH MARK	JC	JANITORS CLOSET		
BO	BOTTOM OF...	JT	JOINT		
BOM	BOTTOM OF MASONRY				
BOB	BOTTOM OF STEEL				
BOT	BOTTOM	KIT	KITCHEN		
BR	BRICK				
		L	LENGTH (LONG)		
C	CONCRETE	LAM	LAMINATE (D)		
CAB	CABINET	LAV	LAVATORY		
CB	CATCH BASIN	LAV	LAVATORY		
CFM	CUBIC FEET PER MINUTE	LAV	LAVATORY		
CFT	CUBIC FOOT (C.F.)	LH	LEFT HAND		
CG	CORNER GUARD	LL	LINE LOAD		
CJ	CONTROL JOINT	LT	LIGHT		
CL	CLOSET	LVR	LOUVER		
CLG	CEILING	LVT	LINOLEUM VINYL TILE		
CLR	CLEAR (ANCE)	LWT	LEAVING WATER TEMPERATURE		
CMU	CONCRETE MASONRY UNIT				
CO	CLEANOUT	M	METER (S)		
COL	COLUMN	MAS	MASONRY		
CONT	CONTINUOUS (CONTINUE)	MAT	MIXED AIR TEMPERATURE, OR WALK-OFF MAT		
CONSTR	CONSTRUCTION	MATL	MATERIALS		
CONTR	CONTRACT (OR)	MB	MOP BASIN		
CPT	CHAIR	MDH	1 000 BTU PER HOUR		
CR	CHAIR RAIL	MBM	METAL BUILDING MANUFACTURER		
CT	CERAMIC TILE	MC	MECHANICAL CONTRACTOR		
CYD	CUBIC YARD (C.Y.)	MD	MANUAL DAMPER		
		MECH	MECHANICAL		
DF	DRINKING FOUNTAIN	MFR	MANUFACTURE (ER)		
DIAM	DIAMETER (DIA.)	MFR	MANUFACTURING		
DWG	DIAGONAL	MH	MANHOLE		
DWM	DIMENSION	MIN	MINIMUM		
DIV	DIVISION	MISC	MISCELLANEOUS		
DL	DOOR	MM	MILLIMETER (S)		
DS	DOWNSPOUT	MO	MASONRY OPENING		
DTL	DETAIL	MOD	MOTOR OPERATED DAMPER		
DWG	DRAWING	MT	MOUNT (ED), (ING)		
		E	EAST		
EA	EACH	MTL	METAL		
EAL	EXHAUST AIR LOUVER	N	NORTH		
EAT	ENTERING AIR TEMPERATURE	NIC	NOT IN CONTRACT		
EC	ELECTRICAL CONTRACTOR	NOM	NOMINAL		
EF	EACH FACE, OR EXHAUST FAN	NRC	NOISE REDUCTION COEFFICIENT		
EG	EXHAUST GRILLE	NTS	NOT TO SCALE		
EJ	EXPANSION JOINT				
EL	ELEVATION	OA	OUTSIDE AIR		
ELEC	ELECTRIC (AL)	OAL	OUTSIDE AIR LOUVER		
ELEV	ELEVATOR	OC	ON CENTER (S)		
EMER	EMERGENCY	OD	OUTSIDE DIAMETER		
EPT	EPOXY PAINT	OH	OVERHEAD		
EQ	EQUAL	OJ	OPEN WEB JOIST		
EQUIP	EQUIPMENT	OPG	OPENING		
ESP	EXTERNAL STATIC PRESSURE	OPH	OPPOSITE HAND		
EWC	ELECTRIC WATER COOLER	OPP	OPPOSITE		
EW	ENTERING WATER TEMPERATURE	P	PAINT (ED)		
EXH	EXHAUST	PCB	PORCELAIN COVE BASE		
EXIST	EXISTING	PCF	POUNDS PER CUBIC FOOT		
EXP	EXPOSED	PERF	PERFORATE (S)		
EXT	EXTERIOR	PF	FOURED FLOORING		
		PKG	PARKING		
F.C.	FORWARD CURVED FAN	PLF	POUNDS PER LINEAL FOOT		
FA	FIRE ALARM	PL	PROPERTY LINE		
FAV	FIELD APPLIED VINYL	PLAM	PLASTIC LAMINATE		
FD	FIRE DAMPER	PNL	PANEL		
FD	FLOOR DRAIN	PNT	POINT		
FDC	FIRE DEPARTMENT CONNECTION	PP	PORCELAIN (PAVERS)		
FDN	FOUNDATION	PSF	POUNDS PER SQUARE FOOT		
FE	FIRE EXTINGUISHER	PSI	POUNDS PER SQUARE INCH		
FEC	FIRE EXTINGUISHER CABINET	PT	PORCELAIN TILE		
FF	FINISH FLOOR	PTD	PRESSURE TREATED		
FFE	FINISH FLOOR ELEVATION	PVC	POLYVINYL CHLORIDE		
PFL	FINISHED FLOOR LINE	PVMT	PAVEMENT		
FIN	FINISH	PWD	PLINWOOD		
FLR	FLOOR (ING)	QT	QUARRY TILE		
FFC	FIRE PROTECTION CONTRACTOR				
FFY	FINIS PER FOOT				
FTG	FOOTING				
GA	GAGE, GAUGE				
GALV	GALVANIZED				
GC	GENERAL CONTRACT (OR)				
GL	GLASS				
GPM	GALLONS PER MINUTE				
GWB	GYPSPUM WALL BOARD				
GYP	GYPSPUM				

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### ALTERNATES

GENERAL: ALL ALTERNATES ARE DEDUCTIVE FROM THE BASE BID, IF ACCEPTED.

ALTERNATE-1: STATE THE COMPLETE COST TO PROVIDE AND INSTALL LED LIGHTING IN THE BOILER ROOM AND PENTHOUSE, AS NOTED IN CONSTRUCTION DOCUMENTS.

ALTERNATE-2: STATE THE COMPLETE COST TO PROVIDE AND INSTALL A GAS-POWERED GENERATOR, AS NOTED IN CONSTRUCTION DOCUMENTS.

ALTERNATE-3: STATE THE COMPLETE COST, INCLUDING DEMO OF OLD FIN TUBE HEATER UNITS, TO PROVIDE AND INSTALL CEILING MOUNTED UNIT HEATERS IN THE BOYS AND GIRLS RESTROOMS.

ALTERNATE-4: STATE THE COMPLETE COST TO PROVIDE AND INSTALL ALL AIR HANDLING UNITS, VAVS AND RELATED EQUIPMENT SHOWN FOR FULL SCOPE OF REPLACEMENT AFFECTING AHU-1.

ALTERNATE-5: STATE THE COMPLETE COST TO PROVIDE AND INSTALL ALL AIR HANDLING UNITS, VAVS AND RELATED EQUIPMENT SHOWN FOR FULL SCOPE OF REPLACEMENT AFFECTING AHU-1. THE SCHEDULE FOR THIS AREA WILL EXTEND BEYOND JULY 24, 2026 AND WILL BE PHASED (2) CLASSROOMS AT A TIME UNTIL COMPLETE, UP TO THE SUBSTANTIAL COMPLETION DATE.

ALTERNATE-6: AFFECTING AHU-1, AHU-2 AND AHU-3: THE TEMPERATURE CONTROL CONTRACTOR SHALL INCLUDE IN THEIR BASE BID REPLACEMENT OF THE EXISTING VFD UNITS. THE TEMPERATURE CONTROLS CONTRACTOR SHALL STATE THE COMPLETE COST TO DEDUCT THE THREE VFD'S TO REMAIN IN PLACE AND TO BE REUSED.

### GRAPHIC SYMBOLS LEGEND

**DETAIL BUBBLE:** IDENTIFIES THE LOCATION OF THE ENLARGED DETAIL FOR THE AREA INDICATED WITHIN THE WORKING DRAWINGS SET.

**DEMOLITION TAG:** IDENTIFIES DEMOLITION WORK & EXISTING ITEMS TO REMAIN ON PLANS & ELEVATIONS.

**CONSTRUCTION TAG:** IDENTIFIES PROPOSED WORK ON FLOOR PLANS & ELEVATIONS.

**SECTION/DETAIL TAG:** IDENTIFIES PROPOSED WORK, BROKEN DOWN BY SPECIFICATION DIVISION, ON WALL SECTIONS & DETAILS.

**STRUCTURAL GRID LINES (PROPOSED):** IDENTIFIES THE PROPOSED STRUCTURAL GRID.

**VIEW NAME:** IDENTIFIES THE PLAN NAME, NUMBER, SCALE, & ORIENTATION ON THE SITE.

**VIEW NAME:** IDENTIFIES THE NAME, NUMBER, & SCALE OF THE DETAIL.

**DETAIL TITLE:** IDENTIFIES THE NAME, NUMBER, & SCALE OF THE DETAIL.

**BAR SCALE:** IDENTIFIES THE SCALE OF THE DRAWING.

**PROJECT LOCATION:** IDENTIFIES THE LOCATION OF THE ELEVATION INDICATED WITHIN THE WORKING DRAWINGS SET.

**ELEVATION TAG:** IDENTIFIES THE LOCATION OF THE ELEVATION INDICATED WITHIN THE WORKING DRAWINGS SET.

**ROOM NAME/NO. TAG:** IDENTIFIES ROOM NAME & NUMBER AS DESCRIBED IN THE PROJECT 'ROOM FINISH SCHEDULE'.

### DESIGN & CONSTRUCTION TEAM

#### ARCHITECT / INTERIOR DESIGN / ELECTRICAL ENGINEER:

VIRIDIAN ARCHITECTURAL DESIGN INC.  
6435 WEST JEFFERSON BLVD. #144  
FORT WAYNE, INDIANA 46804  
P: 260-450-7299  
WWW.VIRIDIAN-DESIGN.NET



#### MECHANICAL ENGINEER:

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FORT WAYNE, INDIANA 46805  
P: 260-438-9213  
SCOENR@SCO-LLC.COM



#### ELECTRICAL ENGINEER:

C-H ENGINEERING, INC.  
13313 DOLCETTO CV  
FORT WAYNE, INDIANA 46845  
P: 260-450-0501  
CHEENGINEERING@FRONTIER.COM



#### PROJECT LOCATION

650 ZEBRA LANE  
ROCHESTER, IN



### REVISION DATE DESCRIPTION

1	01-12-2026	ADDENDUM 002
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### DATE PROJECT

12/22/25 20250008

### TITLE COVER SHEET

### SHEET

GO.0

**CERTIFICATION**



*Terry W. Thornsbury*

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**RCSC Middle School**  
HVAC Replacement  
650 Zebra Lane  
Rochester, IN

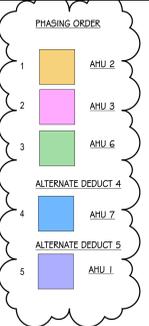
REVISION	DATE	DESCRIPTION
1	01-12-2026	ADDENDUM 002

DATE	PROJECT
12/22/25	20250008

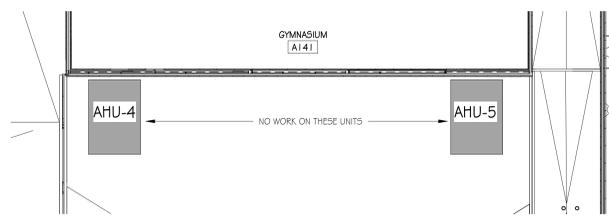
TITLE  
**PHASING PLAN**

SHEET  
**G1.0**

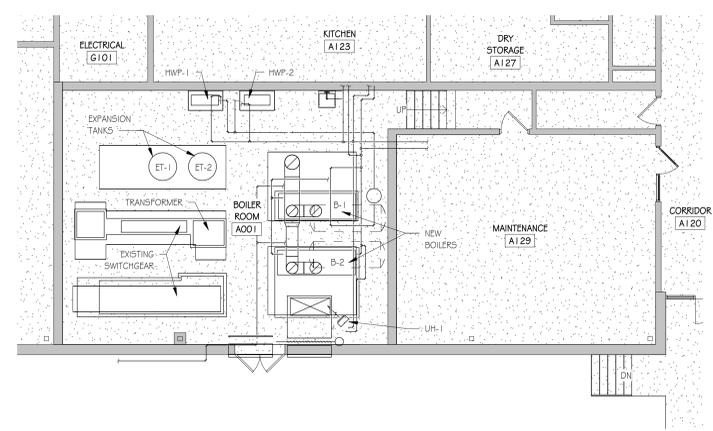
- GENERAL NOTES:**
- THE OWNER EXPECTS THE CONTRACTOR TO CREATE A SCHEDULE OF WORK TO COMPLETE ALL WORK FOR THE PROJECT DURING THE SCHOOLS SUMMER BREAK (TO THE GREATEST EXTENT FEASIBLE); EVEN MAKING USE OF DOUBLE SHIFTS, AS NEEDED. IF THE REALISTIC SCHEDULE DOES NOT PERMIT THIS WORK TO BE COMPLETED OVER THE SUMMER, THE PRIORITY ORDER OF PHASING FOR REPLACEMENT OF VAVS AND OTHER EQUIPMENT (DISRUPTING CLASSROOM AREAS) SHALL FOLLOW THE ORDER OF THE ADJACENT COLORED LEGEND, FROM TOP TO BOTTOM.
  - COORDINATE WITH THE OWNER ON TEMPORARY RELOCATION OF CLASSROOMS TO ALLOW WORK IN VACANT CLASSROOMS. PROTECT ALL EXISTING SCHOOL FURNITURE AND EQUIPMENT TO REMAIN IN THE ROOM. THE CONTRACTOR CAN SCHEDULE WORK FOR TWO CLASSROOMS AT A TIME UNTIL COMPLETE.
  - THE CONTRACTOR SHALL PROVIDE SUFFICIENT MAN POWER TO COMPLETE WORK IN A TIMELY MANNER.
  - WORK IN THE PENTHOUSE AND BOILER ROOM SHALL OCCUR PARALLEL AND TANDEM TO EACH OTHER AS WORK PERMITS AND AS MAN POWER ALLOWS; AVOID THE USE OF LINEAR SEQUENCE, SINGLE FOCUS TASKS, AND ENDEAVOR TO PROCEED WITH WORK IN AN EFFICIENT MANNER.
  - MECHANICAL AHUS SERVING THE BUILDING SHALL MAINTAIN THEIR EXISTING ZONING, AS WELL AS THEIR RESPECTIVE INDIVIDUAL ROOMS AFFECTED BY TEMPERATURE CONTROL DEVICES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



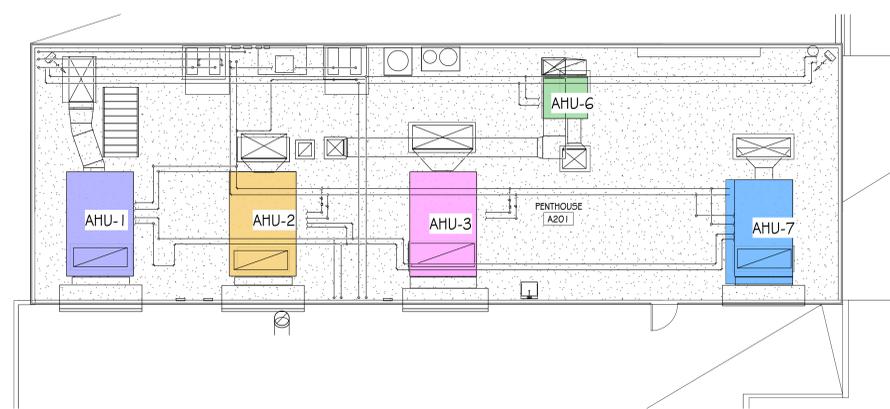
**NOTE:**  
CONTRACTOR TO PROTECT ALL INTERIOR AND EXTERIOR BUILDING COMPONENTS AND FINISHES THROUGHOUT THE DURATION OF CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, WALLS, FLOORS, DOORS, ROOF, SIDEWALKS, ASPHALT, GREEN SPACES, LANDSCAPING, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ALL DAMAGED SURFACES AND ITEMS PRIOR TO COMPLETION OF CONSTRUCTION.



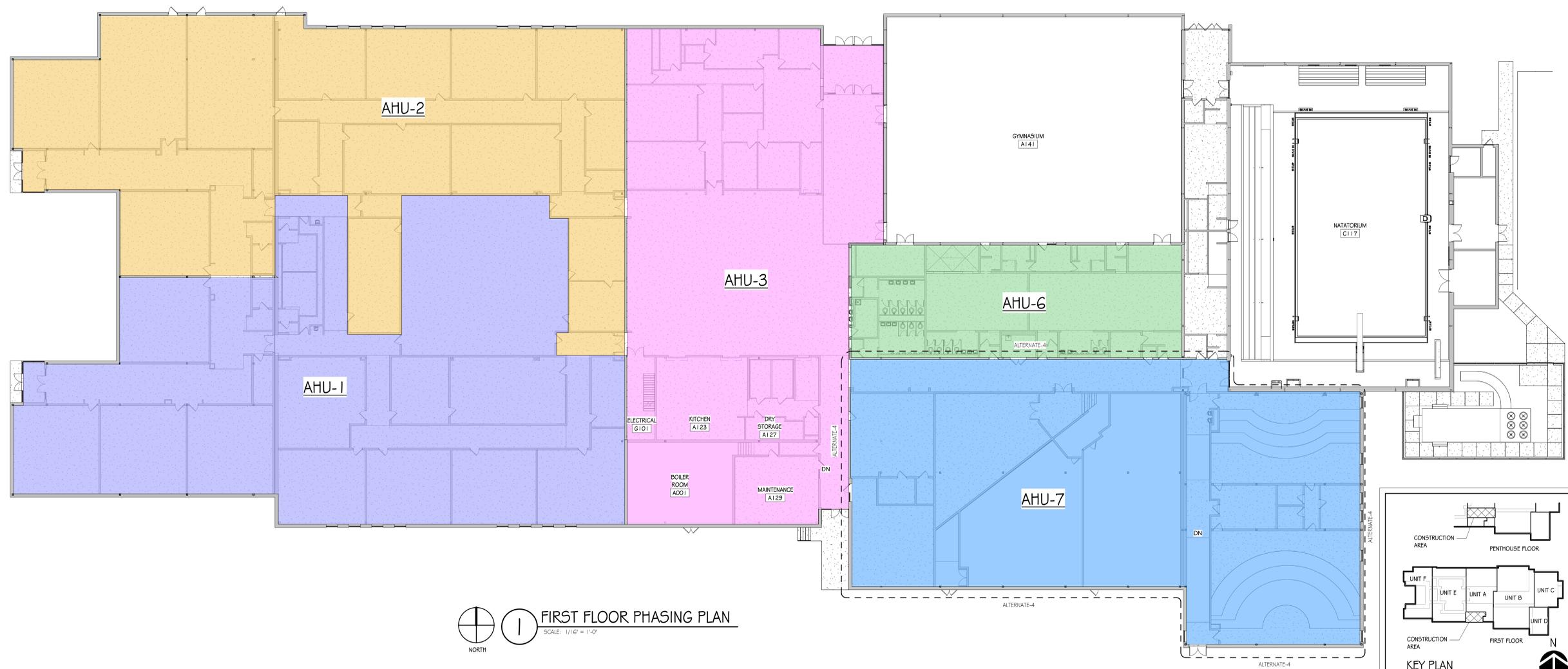
**4 ROOF PLAN BY GYM - UNIT B**  
SCALE: 1/16" = 1'-0"



**3 BOILER ROOM PLAN**  
SCALE: 1/8" = 1'-0"  
NORTH



**2 PENTHOUSE PLAN**  
SCALE: 1/8" = 1'-0"  
NORTH

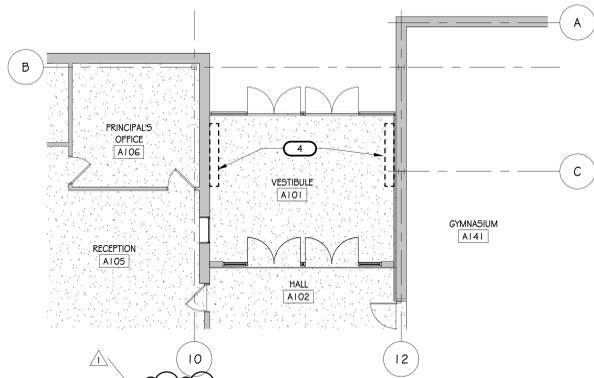


**1 FIRST FLOOR PHASING PLAN**  
SCALE: 1/16" = 1'-0"  
NORTH

one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot



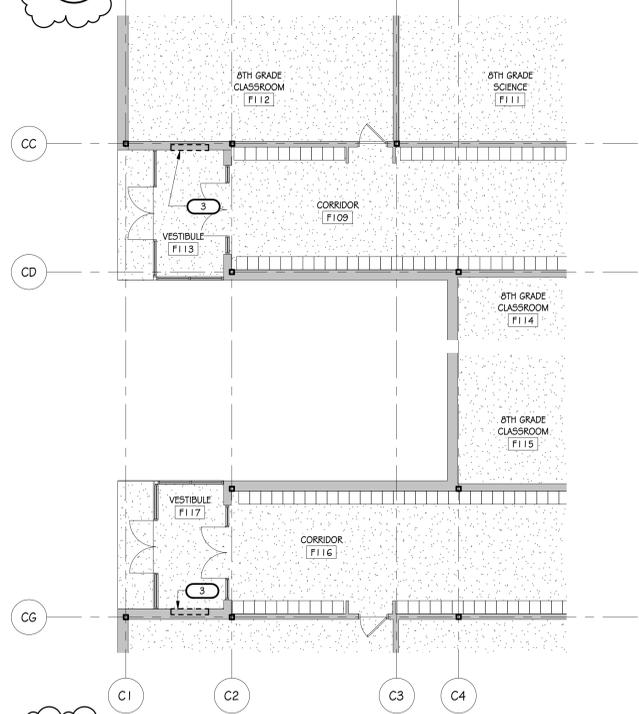
PICTURE 4 - VESTIBULE - BASE BID  
SCALE: 1" = 1'-0"



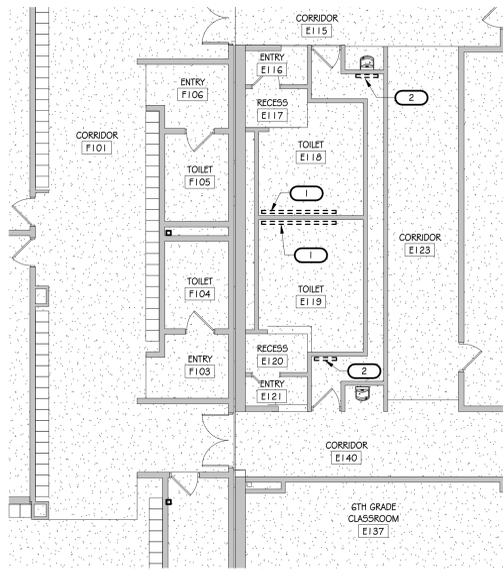
FIRST FLOOR PLAN UNIT A  
SCALE: 1/8" = 1'-0"



PICTURE 3 - VESTIBULE - BASE BID  
SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN UNIT F  
SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN UNIT E - ALTERNATE 3  
SCALE: 1/8" = 1'-0"



PICTURE 2 - GIRLS - ALT 3  
SCALE: NOT TO SCALE



PICTURE 1 - BOYS - ALT 3  
SCALE: NOT TO SCALE

GENERAL DEMOLITION NOTES

- THESE NOTES APPLY TO ALL DEMOLITION DRAWINGS AND TO ALL CONTRACTORS AND / OR SUBCONTRACTORS THAT WORK WITHIN THE BUILDING.
- ALL MATERIALS INDICATED AS DASHED ARE TO BE REMOVED. THIS INCLUDES ALL FINISHES AND MATERIALS NOT SPECIFICALLY CALLED OUT BUT PERTAINING TO THE INTENDED SCOPE. CONTRACTOR TO COORDINATE ALL ASSOCIATED WORK BETWEEN ALL TRADES.
- CONTRACTORS SHALL BE RESPONSIBLE FOR VISITING THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. THESE DEMOLITION SHEETS SHALL SERVE TO AID THE CONTRACTOR IN THE EVALUATION OF THE EXTENT OF DEMOLITION; BUT SHALL NOT BE HELD TO BE ALL INCLUSIVE.
- CONTRACTORS SHALL FIELD INSPECT ALL DEMOLITION WORK PRIOR TO REMOVAL, TO ENSURE SUCH REMOVAL DOES NOT IMPAIR STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF THE INSPECTION INDICATES THAT THE STRUCTURAL INTEGRITY MAY BE COMPROMISED, NOTIFY THE ARCHITECT / ENGINEER IMMEDIATELY.
- ALL CONSTRUCTION AREAS AND ASSOCIATED WORK AREAS SHALL BE KEPT CLEAN BY THE CONTRACTOR - DAILY.
- CONTRACTOR TO ENSURE NO DEMOLITION DEBRIS IS LEFT ON SITE (WOODS, DRIVEWAY, OR COUNTY ROADS) PRIOR TO COMPLETING ALL DEMOLITION WORK.

GENERAL CONSTRUCTION NOTES

- DIMENSIONS ARE FROM CORNER TO CORNER OF OPENING, OR TO FACE OF WALL UNLESS NOTED OTHERWISE.
- CONTRACTOR TO COORDINATE ALL WORK BETWEEN TRADES, INCLUDING BETWEEN FINISH CONTRACTOR AND ELECTRICAL, ON ALL LIGHT FIXTURES, WIRING, AND FINISHES.
- CONTRACTOR TO PROVIDE ALL RELATED FASTENERS, TRIM AND ACCESSORIES FOR INSTALL PRODUCTS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL CONTRACTORS ARE RESPONSIBLE FOR CLEANING SITE TO THE BEST OF THEIR ABILITIES AT THE END OF EACH WORK DAY.
- ALL CONTRACTORS ARE RESPONSIBLE FOR ANY DAMAGES CAUSED BY THEM DURING THE CONSTRUCTION PROCESS. IN THE EVENT OF ANY DAMAGES CONTRACTOR IS TO CONTACT THE OWNER IMMEDIATELY PRIOR TO THE END OF THE DAY OF CONSTRUCTION.

PLAN CONSTRUCTION NOTES

- REMOVE FIN TUBE HEAT CABINET AND PIPING IN ITS ENTIRETY. SEE MECHANICAL DWGS FOR ADDITIONAL INFORMATION. CONTRACTOR TO CLEAN TILE BEHIND THE UNIT HEATER THOROUGHLY AND PATCH / REPLACE TILES AS REQUIRED FOR A LIKE NEW APPEARANCE. CERAMIC TILE 4" X 4", CLASSIC 'ALMOND' 0155, DALLIE. SEE DETAIL 2 & 3 FIGURES. ALTERNATE 3
- REMOVE FIN TUBE HEAT CABINET IN ITS ENTIRETY AND PREP PIPING AND ELECTRICAL FOR NEW WORK. SEE MECHANICAL AND ELECTRICAL DWGS FOR ADDITIONAL INFORMATION.
- REMOVE WALL RECESSED FIN TUB HEATING CABINET IN ITS ENTIRETY. SEE PICTURE DETAIL 5. PREP ELECTRICAL AND PIPING FOR NEW WORK. SEE MECHANICAL AND ELECTRICAL DWGS FOR ADDITIONAL INFORMATION. FIELD VERIFY EXISTING MASONRY OPENING AND ADJUST SIZE OF OPENING AS NEEDED TO FIT NEW HEATING CABINET. PATCH AND TOOTH-IN OPENING WITH OWNER'S ATTIC STOCK OF BRICK AS REQUIRED FOR A CLEAN AND SQUARED OPENING TO FIT THE CABINET.
- REMOVE FIN TUB HEATING CABINET IN ITS ENTIRETY. SEE PICTURE DETAIL 6. PREP ELECTRICAL AND PIPING FOR NEW WORK. SEE MECHANICAL AND ELECTRICAL DWGS FOR ADDITIONAL INFORMATION. PATCH FLOOR FINISH WITH OWNER'S ATTIC STOCK OF CARPET TO MATCH EXISTING PATTERN.



6435 West Jefferson Blvd. #144  
Fort Wayne, Indiana 46804  
Ph: 260-450-7299  
www.viridian-design.net

CERTIFICATION



Terry W. Thorsbury

All Concepts, Ideas, design elements, plans, and details as shown on this document are the sole property of Viridian Architectural Design, Inc. and shall not be used for any purpose without prior expressed written consent. The Owner shall be permitted to retain copies for information and reference.

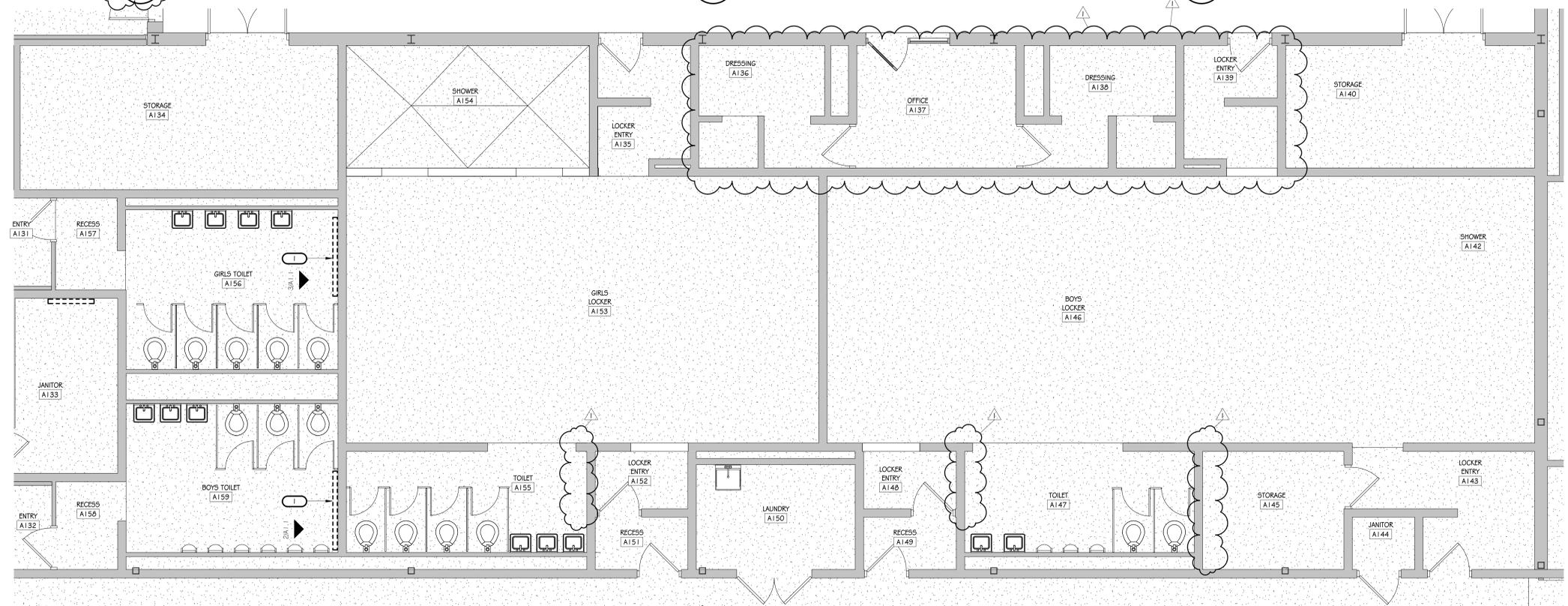
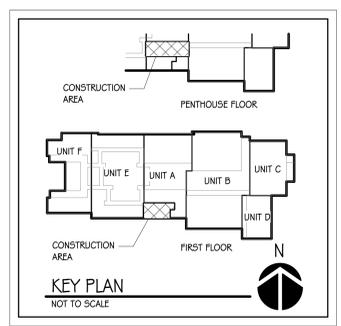
RCSC Middle School  
HVAC Replacement  
650 Zebra Lane  
Rochester, IN

REVISION	DATE	DESCRIPTION
1	01-12-2026	ADDENDUM 002

DATE: 12/22/25 PROJECT: 20250008

TITLE: FIRST FLOOR PLAN - ALTERNATE 3

SHEET: A1.1



FIRST FLOOR PLAN UNIT B - ALTERNATE 3  
SCALE: 1/4" = 1'-0"

one inch = one foot  
one half inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot



## SECTION 007300 - SUPPLEMENTARY CONDITIONS

### INTENT

- 1.1 These Supplementary Conditions amend and supplement the General Conditions defined in Document 007200 and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.
- 1.2 The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

### MODIFICATIONS TO AIA A201

#### 2.1 ARTICLE 1.1.1 - The Contract Documents

- A. Add to the end of this paragraph the following:
  1. "To be included as part of the Contract Documents is the Instructions to Bidders, Bid Form, Insurance Affidavits, and Addenda issued prior to the receipt of bids, if selected for inclusion."

#### 2.2 ARTICLE 1.1.4 - The Project

- A. Add to the end of this paragraph the following:
  1. **"The Project is to be "RCSC MS HVAC Replacement"**

#### 2.3 ARTICLE 1.1.6.1 - SPECIFICATIONS

- A. Add the following subparagraph:
  1. Each section of the contract specifications shall be governed by the requirements and provisions of the rest of the contract documents including the Drawings, General, Supplemental and other Conditions, all addenda and modifications issued after execution of the contract.

#### 2.4 ARTICLE 1.1 - Basic Definitions

- A. Add the following subparagraphs:
  1. 1.1.9 The term "product" shall mean to include new material, machinery, components, equipment, fixtures, and systems forming the Work, not including machinery and equipment used for preparation, fabrication, conveying, and erection of the Work. Products may also include existing materials or components required for reuse.
  2. 1.1.10 The term "provide" shall mean to furnish and install unless otherwise stated.
  3. 1.1.11 The term "furnish" shall mean to supply, deliver, unload, and inspect for damage.

4. 1.1.12 The term "install" shall mean to unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.

2.5 ARTICLE 1.2 - Correlation and Intent of the Contract Documents

A. Add the following subparagraph:

1. 1.2.4 In the event of conflict, discrepancy, or inconsistency among the contract documents, it shall be assumed that the better quality or greater quantity of work shall have been estimated and shall be provided. In any event, the architect shall reserve the right to determine which governs.

2.6 ARTICLE 2.1.1 - Owner

A. Add to the end of this paragraph the following:

1. **"The Owner is Rochester Community School Corporation. The Owner's representative will be Ms. Jana Vance, Superintendent."**

2.7 ARTICLE 3.5 - Warranty

A. Add the following subparagraphs:

1. 3.5.2.2 The General Contractor shall warrant all labor and materials performed on the project to be free of defects for a period of one (1) year from the written acceptance by the Owner that the project is completed. Normal wear and tear on the project is not considered part of the General Contractor's responsibility.
2. 3.5.3. If, within any guarantee period, repairs or changes are required in connection with guaranteed work which, in the opinion of the Architect/Owner, is rendered necessary as the result of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of this contract, the Contractor shall promptly upon receipt of notice from the Owner place in satisfactory condition in every particular all of such guaranteed work correct all defects therein; and make good all damage to the building or site, or equipment, or contents thereof which, in the opinion of the Architect is the result of the use of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the contract; and make good any work or material, or the equipment and contents of said building or site disturbed in fulfilling any such guarantee.
3. 3.5.4. In any case where in fulfilling the requirements of the contract or any guarantee, embraced in or required thereby, the Contractor disturbs any work guaranteed under another contract, he shall restore such disturbed work to a condition satisfactory to the Architect and guarantee such restored work to the same extent as it was guaranteed under such other contract.
4. 3.5.5. In the event any of the equipment specified, supplied and installed under this contract should fail to produce capacities or meet design specifications as published or warranted by the manufacturer of the equipment involved, the Contractor shall remove and replace such equipment with equipment that will meet requirements without cost to the Owner.
5. 3.5.6. If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expense incurred.
6. 3.5.7. All special guarantees applicable to definite parts of the work that may be

stipulated in the specifications or other papers forming a part of the contract shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

2.8 ARTICLE 3.6 - Taxes

A. Add the following subparagraphs:

1. 3.6.2 The Owner will obtain an exemption certificate for Contractor for taxes on all products or items, for purchasing products or items for the Work.

2.9 ARTICLE 3.9.1 - SUPERINTENDENT

A. Add to the end of this paragraph the following:

1. "The Contractor shall inform the Architect and Owner as to the name and qualifications of the superintendent, project superintendent and foreman he plans to have working on this project. The Architect and Owner have the right to approve or reject the superintendent, or any change in the superintendent."

2.10 ARTICLE 3.13 - USE OF THE SITE

A. Add the following subparagraph:

1. Existing subparagraph shall be 3.13.1.
2. 3.13.2. Contractor will abide by rules of the Owner regarding use of the premises and will confine his activities to the areas designated.

2.11 ARTICLE 3.14 - CUTTING AND PATCHING

A. Add the following subparagraph:

1. 3.14.3. Cutting and Patching shall be done by the construction trade whose Drawings requires the cutting and patching work. In the event it is not clearly defined in the Drawings, it shall be the responsibility of the General Contractor.

2.12 ARTICLE 4.1 - ARCHITECT

A. Add the following subparagraphs:

1. 4.1.4 The Architect is Viridian Architectural Design Inc., 6435 West Jefferson Blvd. #144 Fort Wayne, IN 46804. **The Architect's representative will be Mr. Terry W. Thornsby.**
2. 4.2.2 During the construction period through completion, provide photographic documentation of construction progress and at selected milestones.

2.13 ARTICLE 5.2 - AWARD OF SUBCONTRACTORS AND OTHER CONTRACTS FOR PORTIONS

## OF THE WORK

- A. Add the following to the end of the indicated paragraphs:
1. 5.2.1 The Contractor shall deliver to the Architect in writing the names of subcontractors and major equipment suppliers and a list of brands and sources of principal items of equipment within **48 hours** of award of Contract. Architect shall promptly review this list with the Owner and advise the Contractor within **ten (10) days** of his review."
  2. 5.2.3 Financial irresponsibility as determined by Owner and past record of failure to perform work on schedule shall be valid reason for a reasonable objection to any such persons or entity.
  3. 5.2.4 Subcontractors for all portions of the work shall be awarded and purchase orders for manufactured materials issued within thirty **(30) days** of award of Contract.
  4. 5.2.5 All Contractors and Subcontractors shall provide a **Limited Criminal History Report (LCHR)** to the architect within **seven (7) days** of award of Contract for all individuals scheduled to be on site. Contractors and Subcontractors shall provide **LCHR** for all new individuals scheduled to be on site throughout the duration of the project prior to the new individuals arriving on site.
- B. Add the following subparagraph:
1. 5.2.5 Subcontractors for all portions of the work shall be awarded and purchase orders for manufactured materials issued within thirty **(30) days** of award of Contract. Evidence of purchase orders and copies of receipts shall be furnished to the Architect and Owner.

## 2.14 ARTICLE 8 - TIME

- A. Add the following subparagraph:
1. 8.1.5: Contract Time commences from Notice to Proceed and continues until project is handed over to Owner as follows:
    - a. **Base Bid - Friday, July 24, 2026 for the Boiler Room, Penthouse and Classroom areas operational.**
    - b. **Substantial Completion of the Project, including Commissioning – Monday, December 28, 2026**

## 2.15 ARTICLE 8.2 - PROGRESS AND COMPLETION

- A. Add the following subparagraph:
1. 8.2.4 The work to be performed under the Contract Documents shall be commenced immediately after delivery of the Notice of Award, and the Contractor shall prosecute the work without interruption at the rate stated in the approved Progress Schedule to be submitted to and approved in writing by the Owner.
    - a. Submit the Project Progress Schedule within **10 days** after the delivery of the Notice of Award.
    - b. All other requirements should be in accordance with Article 8 of the General Conditions.

2.16 ARTICLE 9.2 - SCHEDULE OF VALUES

A. Add the following subparagraphs:

1. Existing subparagraph shall be 9.2.1.
2. 9.2.2 The schedule of values shall be prepared in such a manner that each major item of work and each subcontracted item of work is shown as a single line item on AIA Document G703, Application and Certificate for Payment, Continuation Sheet.

2.17 ARTICLE 9.3.1 - APPLICATIONS FOR PAYMENT

A. Add to the end of this paragraph the following:

1. The form of Application for Payment shall be AIA Document G702, Application and Certificate for Payment, supported by AIA Document G703, Continuation Sheet.

2.18 ARTICLE 9.3 - APPLICATIONS FOR PAYMENT

A. Add the following subparagraphs:

1. 9.3.4 Applications for Payment shall be submitted to the Architect/Owner by the General Contractor. If payment is requested to the Architect a Certificate for Payment thereby issued by the Architect to the Owner for progress payments on account of the Contract Sum to the Contractor as provided in the Conditions of the Contract as follows:
  - a. On or about the first day of each month, Application & Certificates for Payment shall be submitted based on **90%** for Contractor for General Construction, of the proportion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the work and **90%** for Contractor for General Construction, of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing by the parties, up to the 10 days prior to the date on which the Application for Payment is submitted. All Application and Certificates for Payment shall be reviewed in an expedient manner by the Architect and then delivered to the Owner.
  - b. An Application for Final Payment shall be submitted **30 days** after Substantial Completion of the work unless otherwise stipulated in the Certificate of Substantial Completion provided the work has then been completed and the Contract fully performed.
2. 9.3.5 The Contractor shall provide Waivers of Lien from each subcontractor with each request for payment.
3. 9.3.6 Payments will be made within thirty **(30) days** of the receipt of request, certificate, and application of payment.

## 2.19 ARTICLE 9.10 - FINAL COMPLETION AND FINAL PAYMENT

## A. Add the following subparagraphs:

1. 9.10.6 General Contractor shall secure and deliver to Architect any special guarantees required by these specifications prior to final payment. Corrections made under this article or any guarantee provision of these specifications shall begin no later than **ten (10) days** after written notice of defect to General Contractor by Owner or Architect.
2. 9.10.7 General Contractor shall, eleven (11) months following Substantial Completion or Final Payment, whichever is earlier, meet with Architect and Owner at the site of the work and make a final inspection of project prior to expiration of guarantee period. Deficiencies noted during this inspection shall be corrected and completed within **thirty (30) days** following such inspection.
3. 9.10.8 Owner's abuse or neglect of work, machines, or fixtures after such have been installed and adjusted to proper function and after complete instruction for use and maintenance has been given Owner, shall invalidate all part of guarantee liability by General Contractor for any such abuse or neglected item or work.

## 2.20 ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

## A. Add the following subparagraphs:

1. 10.2.9 The General Contractor shall confine his work, storage of materials, to an area adjacent to the construction site to be designated by the Owner.
2. Existing subparagraph shall be 10.4.1.
3. 10.4.2 The construction documents and the joint and several phases of construction hereby contemplated are to be governed at all times by the applicable provisions of the state and federal laws.
4. 10.4.3 General Contractor shall assume full responsibility for health and safety at the construction site.

## 2.21 ARTICLE 11 - INSURANCE AND BONDS

## A. Add the following subparagraphs:

1. 11.1.2.1 The insurance required by subparagraph 11.1.1. shall be written for not less than any limits of liability shown on the "Schedule of Insurance Coverages Required" bound herein, or required by law, whichever is greater.

## SCHEDULE OF INSURANCE COVERAGES REQUIRED

Type of Insurance	Minimum Limits of Liability
a. Workers Compensation (Coverage A)	Statutory
and Employers Liability (Coverage B)	\$500,000 ea. employee

\$500,000 ea. accident  
\$500,000 aggregate

b. Commercial General Liability including:

Coverage A, Premises & Operations, Completed Operations &  
Combined Bodily Injury Liability & Property Damaged Liability

\$500,000 ea. person  
\$1,000,000 ea. occurrence  
\$2,000,000 aggregate

Coverage B Personal & Advertising Liability

\$500,000 ea. person  
\$500,000 ea. occurrence  
\$500,000 aggregate

Coverage C Medical Payments

\$1,000 ea. person  
\$25,000 aggregate

Coverage shall be on the 1986 ISO Commercial General Liability Form  
or comparable form approved for use in the state of jurisdiction.

c. Business Auto Liability for all owned, non-owned and hired vehicles:  
Bodily Injury

\$500,000 ea. person  
\$500,000 ea. occurrence

Property Damage

\$500,000 ea. occurrence

for Combined Single Limit of Liability (CSL)

\$1,000,000

Liability insurance may be arranged by Commercial General Liability and  
Business Auto Liability policies for full limits required; or by a  
combination of underlying Commercial General Liability and Business  
Auto policies for lesser limits with the remaining limits provided by an  
excess or umbrella liability policy. All policies shall require 30 day written  
notice to Owner for cancellation or material change. No work or  
materials for this project shall be furnished until insurance certificates are  
accepted by Owner.

2.22 ARTICLE 11 - INSURANCE AND BONDS

- A. 11.1.3 Delete the first sentence and replace with the following: "The Contractor shall submit to the General Contractor two (2) copies of Certificates of Insurance for his review and the Owner's approval prior to commencement of the Work. The form of certificate preferred is AIA Document G715-2017, Supplemental Attachment for ACORD Certificate of Insurance. Certificates shall include each and every type of coverage specified."

## 2.23 ARTICLE 11 - INSURANCE AND BONDS

## A. Add the following subparagraph:

1. 11.1.5 Furnish one copy of the certificate for each copy of the Owner-Contractor Agreement. Specifically set forth evidence of all insurance required of the Contractor by this Article 11. The form of the certificate shall be AIA Document G715-2017 or ACORD Form 25-S current edition. Furnish copies of any endorsements that are subsequently issued amending coverage or limits.

## 2.24 ARTICLE 11 - BUILDER'S ALL RISK

## A. 11.3.1.1 (Replace)

"The **Owner** shall purchase and maintain Builders Risk Property Insurance upon the entire Work at the site for one hundred (100%) percent of the full value thereof, and shall include the interests of the Owner, Trustee, Architect/Engineer, Contractors, subcontractors and lower tier contractors in the Work and shall issue against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and setup, temporary buildings, and debris removal including demolition of those items incorporated into the Work.

Said insurance shall cover the buildings under construction and all materials and equipment on the building site which are properly stored and secured and intended to become a permanent part of the structure. The Owner and Contractors waive all rights against each other for damages caused by the perils covered by such insurance.

Property of the contractors which is not intended to become part of the building will not be insured by the **Owner** and nothing herein shall be construed as prohibition the Contractors from placing insurance coverage on such property, if they so desire.

Furthermore, it is the Contractor's responsibility to insure himself against those claims for theft, vandalism and other such items which are not contained in the General Contractor's Builder's Risk Policy. Each Contractor shall insure himself against claims for the theft and vandalism of his materials and equipment stored on the site in trailers, buildings, etc., which are not intended to become a permanent part of the Work."

## B. 11.3.1.2 (Replace)

"The **Owner** shall insure himself against claims for theft and vandalism of all materials and equipment which have been installed and have become a permanent part of the Work."

## C. 11.3.1.3 (Replace)

"If by the terms of this insurance any mandatory deductibles are required, or if the Owner should elect to increase the mandatory deductible amounts or purchase this insurance with voluntary deductible amounts, the Contractor shall be responsible for the payment of the amount of deductible in the event of a paid claim. The policy provides for a mandatory deductible amount of \$1,000."

## D. 11.3.2 (Revise)

"...The Owner shall purchase and maintain boiler and machinery insurance as may be required by the Contract Documents or by law which shall specifically cover such insured objects during installation, through testing and final acceptance by the Owner;"

E. 11.3.4 (Revise)

"...If the Contractor requests in writing that insurance for special hazards be included in the property insurance policy, the Owner shall if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order."

F. 11.3.6 (Delete)

G. 11.3.7 (Revise)

"...The Owner and General Contractor waive all rights against (1) each other and the Subcontractors, Sub-subcontractors, agents and employees each of the other, and (2) the Architect, his consultants, and separate Contractors, if any, and any of their Subcontractors, Sub-subcontractors, agents and employees, for damages..."

H. 11.3.8 (Delete all sentences after the first sentence)

I. 11.3.9 (Delete)

2.25 ARTICLE 13.1 - MISCELLANEOUS PROVISIONS

A. Add the following subparagraphs and paragraphs:

1. 13.1.1 The project shall be governed by the latest laws of the State of Indiana, County of **Fulton**, and current health and safety codes. All contractors entering into contract agreements with the Owner shall be held entirely responsible for knowledge of all such ordinances and regulations, for compliance with them, and for properly notifying the Architect of any deviation in the drawings and specifications from such rules and regulations.

2. ARTICLE 13.8 - AFFIRMATIVE ACTION

- a. 13.8.1 During the performance of this contract, the Contractor agrees as follows:

- 1) "The Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin. The Contractor also agrees that applicants are and will be treated in all matters, including (but not limited to) rates of pay, promotion, and transfer, without regard to their race, religion, color, sex, age or national origin."

- b. 13.8.2 The Contractor shall submit with his/her bid an executed copy of the "Contractors Statement of Equal Employment Opportunity Policy" provided with these specifications.

3. ARTICLE 13.9 - SPECIFICATIONS

- a. 13.9.1 Trade, brand or manufacturer's names when specified or noted are used to establish a standard of quality, durability, appearance and

efficiency. Substitutions may be made only for reasons that original materials cannot be supplied due to conditions beyond control of the Contractor, or because delivery cannot be made in time to be incorporated into progress of work. Such substitutions shall be made only after bona fide quotations and delivery schedule for both original item and substitute material is ordered. Contractor shall supply for Architect's consideration samples, product data, and exact amount of credit or extra costs involved in proposed substitution if accepted.

- b. 13.9.2 Specifications may be in abbreviated form and may include incomplete sentences. Omissions of words or phrases such as "The Contractor shall", "in conformity therewith", "shall be", "as noted on the drawings", and "an" are intentional. Supply omitted words or phrases by inference.

4. ARTICLE 13.10 - MANUFACTURER'S DIRECTORIES - OPERATION INSTRUCTIONS

- a. 13.10.1 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with their manufacturer's printed directions unless specified otherwise. Where reference is made to manufacturer's directions, Contractor shall submit specified number of copies of such directions to Architect. Operating and maintenance instructions for all equipment and materials shall be bound together in complete sets and three copies delivered to Architect prior to final payment.

END OF SECTION 007300

## SECTION 004110 - THE BID FORM

## THE PROJECT AND THE PARTIES

1.1 TO:

- A. **Owner**  
**Rochester Community School Corporation**  
**690 Zebra Lane**  
**Rochester, Indiana 46975**

1.2 FOR:

**RCSC MS HVAC Replacement**

1.3 DATE: \_\_\_\_\_ (Bidder to enter date)

1.4 SUBMITTED BY: (Bidder to enter name and address)

- A. Bidder's Full Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_

1.5 OFFER (BASE BID)

- A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Viridian Architectural Design, Inc. for the above-mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:
- B. \_\_\_\_\_  
 \_\_\_\_\_ dollars  
 (\$ \_\_\_\_\_), in lawful money of the United States of America.
- C. Project is Tax Exempt.
- D. All Bonds described in Section 002213 are to be included in the Bid.
- E. All Cash and Contingency Allowances described in Section 012100 **are to be included in the Base Bid Sum.**
- F. All Alternate Lump Sum pricing described in Section 012300 Alternates **are to be included as deductions to the Base Bid,** stated as separate pricing in section 1.8.

## 1.6 ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for ninety days from the bid closing date.
- B. If this bid is accepted by Owner within the time period stated above, we will:
  - 1. Execute the Agreement within seven days of receipt of Notice of Award.
  - 2. Furnish the required bonds within seven days of receipt of Notice of Award.
  - 3. Commence work within seven days after written Notice to Proceed of this bid.

## 1.7 CONTRACT TIME

- A. If this Bid is accepted, work shall be completed no later than the following:
- B. **Base Bid** – Substantial Completion of the Boiler Room, Penthouse and Classrooms to a state of operational by Friday, July 24, 2026. Substantial Completion of the Project, including Commissioning, by Monday, December 28, 2026.
- C. **Alternates** - Substantial Completion to coincide with the Base Bid Schedule, if possible; or, as determined by negotiation.
- C. Should the Contractor wish to expedite the Contract they may do so by submitting a proposed schedule for review, consideration and comment with their sealed bid.

## 1.8 OFFER (ALTERNATES)

- A. Having examined the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Viridian Architectural Design, Inc. for the above-mentioned project, we, the undersigned, hereby offer to include pricing to perform the Work for the Sum of:

**ALTERNATE #1** – STATE THE COMPLETE COST TO PROVIDE AND INSTALL LED LIGHTING IN THE BOILER ROOM AND PENTHOUSE.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

**ALTERNATE #2** – STATE THE COMPLETE COST TO PROVIDE AND INSTALL A GAS-POWERED GENERATOR, AS NOTED IN CONSTRUCTION DOCUMENTS.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

**ALTERNATE #3** – STATE THE COMPLETE COST, INCLUDING DEMO OF OLD FIN TUBE HEATER UNITS, TO PROVIDE AND INSTALL CEILING MOUNTED UNIT HEATERS IN THE BOYS AND GIRLS RESTROOMS.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

**ALTERNATE #4**—STATE THE COMPLETE COST TO PROVIDE AND INSTALL ALL AIR-HANDLING UNITS, VAV'S AND RELATED EQUIPMENT SHOWN FOR FULL SCOPE OF REPLACEMENT OF AHU-7.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

**ALTERNATE #5**—STATE THE COMPLETE COST TO PROVIDE AND INSTALL ALL AIR-HANDLING UNITS, VAV'S AND RELATED EQUIPMENT SHOWN FOR FULL SCOPE OF REPLACEMENT OF AHU-1. THE SCHEDULE WILL BE PHASED BEYOND JULY 24, 2026 UP TO THE DATE OF SUBSTANTIAL COMPLETION.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

**ALTERNATE #6**—AFFECTING AHU-1, AHU-2, AND AHU-3: THE TEMPERATURE CONTROL CONTRACTOR SHALL INCLUDE IN THEIR BASE BID REPLACEMENT COST OF THE EXISTING VFD UNITS. THE TEMPERATURE CONTROL CONTRACTOR SHALL STATE THE COMPLETE COST TO DEDUCT THE THREE VFD'S TO REMAIN IN PLACE AND TO BE REUSED.

(\$ \_\_\_\_\_), in lawful money of the United States of America.

#### 1.9 CHANGES TO THE WORK

- A. When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:
1. \_\_\_\_\_ percent overhead and profit on the net cost of our own Work;
  2. \_\_\_\_\_ percent on the cost of work done by any Subcontractor.
- B. On work deleted from the Contract, our credit to Owner shall be Architect-approved net cost plus \_\_\_\_\_ of the overhead and profit percentage noted above.

#### 1.10 ADDENDA

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
1. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  2. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  3. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.

1.11 BID FORM SIGNATURE(S)

The Corporate Seal of

\_\_\_\_\_

(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

\_\_\_\_\_

(Authorized signing officer, Title)

(Seal)

\_\_\_\_\_

(Authorized signing officer, Title)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF SECTION 004110

**SECTION 012300 - ALTERNATES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A.** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A.** This Section includes administrative and procedural requirements for alternates.

**1.3 DEFINITIONS**

- A.** Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

- 1. The credit for each alternate is the net addition to the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

**1.4 PROCEDURES**

- A.** Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B.** Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C.** Execute accepted alternates under the same conditions as other work of the Contract.
- D.** Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

## 3.1 SCHEDULE OF ALTERNATES

**A. ALTERNATE 1 (DEDUCT)**

State the complete cost to remove and replace all room lighting with new LED room lighting for the Boiler Room and Penthouse.

**B. ALTERNATE 2 (DEDUCT)**

State the cost to provide and install a new gas-powered generator.

**C. ALTERNATE 3 (DEDUCT)**

State the cost to provide and install Unit Heaters in Boys and Girls Bathrooms, rooms A156 and A159. Clean wall tile thoroughly to match existing. Patch tile with tile of matching appearance, as required, for a like new appearance.

**D. ALTERNATE 4 (DEDUCT)**

State the cost to provide and install Air Handling units, VAVs and related equipment in Areas Blue, as shown on sheet G1.0 Phasing Plan. See mechanical and electrical drawings for additional information.

**E. ALTERNATE 5 (DEDUCT)**

State the complete cost to provide and install all air handling units, vav's and related equipment shown for full scope of replacement affecting AHU-1. The schedule for this area will extend beyond July 24, 2026 and will be phased (2) classrooms at a time until complete, up to the substantial completion date.

**F. ALTERNATE 6 (DEDUCT)**

Affecting AHU-1, AHU-2 and AHU-3: the temperature control contractor shall include in their base bid replacement of the existing VFD units. The temperature control contractor shall state the complete cost to deduct the three VFD's to remain in place and to be reused.

END OF SECTION 012300

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## SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Balancing Air Systems:
    - a. Constant-volume air systems.
    - b. Variable volume air systems.
  - 2. Balancing Hydronic Piping Systems:
    - a. Constant-flow hydronic systems.
    - b. Variable-flow hydronic systems.
    - c. Primary-secondary hydronic systems.

#### 1.3 DEFINITIONS

- A. AABC: Associated Air Balance Council.
- B. NEBB: National Environmental Balancing Bureau.
- C. TAB: Testing, adjusting, and balancing.
- D. TABB: Testing, Adjusting, and Balancing Bureau.
- E. TAB Specialist: An entity engaged to perform TAB Work.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
- B. Contract Documents Examination Report: Within 30 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.
- C. Strategies and Procedures Plan: Within 60 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.
- D. Certified TAB reports.

- E. Sample report forms.
- F. Instrument calibration reports, to include the following:
  - 1. Instrument type and make.
  - 2. Serial number.
  - 3. Application.
  - 4. Dates of use.
  - 5. Dates of calibration.

## 1.5 QUALITY ASSURANCE

- A. TAB Contractor Qualifications: Engage a TAB entity certified by AABC.
  - 1. TAB Field Supervisor: Employee of the TAB contractor and certified by AABC.
  - 2. TAB Technician: Employee of the TAB contractor and who is certified by AABC as a TAB technician.
- B. TAB Conference: Meet with Construction Manager on approval of the TAB strategies and procedures plan to develop a mutual understanding of the details. Require the participation of the TAB field supervisor and technicians. Provide seven days' advance notice of scheduled meeting time and location.
  - 1. Agenda Items:
    - a. The Contract Documents examination report.
    - b. The TAB plan.
    - c. Coordination and cooperation of trades and subcontractors.
    - d. Coordination of documentation and communication flow.
- C. Certify TAB field data reports and perform the following:
  - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
  - 2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.
- D. TAB Report Forms: Use standard TAB contractor's forms approved by Construction Manager.
- E. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."

## 1.6 PROJECT CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.
- B. Testing and balancing is to be completed and a report issued at the completion of each phase of construction. Refer to the phasing drawing for additional information. Provide a final comprehensive report at the end of the project.

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## 1.7 COORDINATION

- A. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.
- B. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

## PART 2 - EXECUTION

### 2.1 TAB SPECIALISTS

- A. Subject to compliance with requirements, engage one of the following:
  - 1. Fluid Dynamics, Inc.  
802 Incentive Drive  
Fort Wayne, IN 46825  
(260) 490-8011
  - 2. Mechanical Test & Balance, Inc.  
1416 E. Joliet St.  
Crown Point, IN 46307
  - 3. Engineer Approved Testing and Balancing Contractor.

### 2.2 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.
- B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.
- C. Examine the approved submittals for HVAC systems and equipment.
- D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine ceiling plenums and underfloor air plenums used for supply, return, or relief air to verify that they meet the leakage class of connected ducts as specified in Section 233113 "Metal Ducts" and are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.
- F. Examine equipment performance data including fan and pump curves.
  - 1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.

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2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.
- G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.
  - H. Examine test reports specified in individual system and equipment Sections.
  - I. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
  - J. Examine terminal units, such as variable-air-volume boxes, and verify that they are accessible and their controls are connected and functioning.
  - K. Examine strainers. Verify that startup screens are replaced by permanent screens with indicated perforations.
  - L. Examine three-way valves for proper installation for their intended function of diverting or mixing fluid flows.
  - M. Examine heat-transfer coils for correct piping connections and for clean and straight fins.
  - N. Examine system pumps to ensure absence of entrained air in the suction piping.
  - O. Examine operating safety interlocks and controls on HVAC equipment.
  - P. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

### 2.3 PREPARATION

- A. Prepare a TAB plan that includes strategies and step-by-step procedures.
- B. Complete system-readiness checks and prepare reports. Verify the following:
  1. Permanent electrical-power wiring is complete.
  2. Hydronic systems are filled, clean, and free of air.
  3. Automatic temperature-control systems are operational.
  4. Equipment and duct access doors are securely closed.
  5. Balance, smoke, and fire dampers are open.
  6. Isolating and balancing valves are open and control valves are operational.
  7. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
  8. Windows and doors can be closed so indicated conditions for system operations can be met.

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## 2.4 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance" and in this Section.
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
  - 1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
  - 2. After testing and balancing, install test ports and duct access doors that comply with requirements in Section 233300 "Air Duct Accessories."
  - 3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section 230713 "Duct Insulation," Section 230716 "HVAC Equipment Insulation," and Section 230719 "HVAC Piping Insulation."
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

## 2.5 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' "as-built" duct layouts.
- C. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- D. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- E. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- F. Verify that motor starters are equipped with properly sized thermal protection.
- G. Check dampers for proper position to achieve desired airflow path.
- H. Check for airflow blockages.
- I. Check condensate drains for proper connections and functioning.
- J. Check for proper sealing of air-handling-unit components.
- K. Verify that air duct system is sealed as specified in Section 233113 "Metal Ducts."

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## 2.6 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
  - 1. Measure total airflow.
    - a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.
  - 2. Measure fan static pressures as follows to determine actual static pressure:
    - a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
    - b. Measure static pressure directly at the fan outlet or through the flexible connection.
    - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
    - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
  - 3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
    - a. Report the cleanliness status of filters and the time static pressures are measured.
  - 4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
  - 5. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
  - 1. Measure airflow of submain and branch ducts.
    - a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
  - 2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.
  - 3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

- C. Measure air outlets and inlets without making adjustments.
  - 1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.
- D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.
  - 1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
  - 2. Adjust patterns of adjustable outlets for proper distribution without drafts.

## 2.7 PROCEDURES FOR VARIABLE-AIR-VOLUME SYSTEMS

- A. Compensating for Diversity: When the total airflow of all terminal units is more than the indicated airflow of the fan, place a selected number of terminal units at a minimum set-point airflow with the remainder at maximum-airflow condition until the total airflow of the terminal units equals the indicated airflow of the fan. Select the reduced-airflow terminal units so they are distributed evenly among the branch ducts.
- B. Pressure-Independent, Variable-Air-Volume Systems: After the fan systems have been adjusted, adjust the variable-air-volume systems as follows:
  - 1. Set outdoor-air dampers at minimum, and set return- and exhaust-air dampers at a position that simulates full-cooling load.
  - 2. Select the terminal unit that is most critical to the supply-fan airflow and static pressure. Measure static pressure. Adjust system static pressure so the entering static pressure for the critical terminal unit is not less than the sum of the terminal-unit manufacturer's recommended minimum inlet static pressure plus the static pressure needed to overcome terminal-unit discharge system losses.
  - 3. Measure total system airflow. Adjust to within indicated airflow.
  - 4. Set terminal units at maximum airflow and adjust controller or regulator to deliver the designed maximum airflow. Use terminal-unit manufacturer's written instructions to make this adjustment. When total airflow is correct, balance the air outlets downstream from terminal units the same as described for constant-volume air systems.
  - 5. Set terminal units at minimum airflow and adjust controller or regulator to deliver the designed minimum airflow. Check air outlets for a proportional reduction in airflow the same as described for constant-volume air systems.
    - a. If air outlets are out of balance at minimum airflow, report the condition but leave outlets balanced for maximum airflow.
  - 6. Remeasure the return airflow to the fan while operating at maximum return airflow and minimum outdoor airflow.
    - a. Adjust the fan and balance the return-air ducts and inlets the same as described for constant-volume air systems.
  - 7. Measure static pressure at the most critical terminal unit and adjust the static-pressure controller at the main supply-air sensing station to ensure that adequate static pressure is maintained at the most critical unit.

8. Record final fan-performance data.

## 2.8 OUTSIDE AIR PROCEDURES FOR VARIABLE-AIR-VOLUME AND SINGLE ZONE VARIABLE-AIR-VOLUME SYSTEMS

- A. Measure outside air damper position at design supply airflow and at minimum fan speed to create a reset schedule through the FMS to maintain design outside air flow at varying fan speeds.

## 2.9 GENERAL PROCEDURES FOR HYDRONIC SYSTEMS

- A. Prepare test reports with pertinent design data, and number in sequence starting at pump to end of system. Check the sum of branch-circuit flows against the approved pump flow rate. Correct variations that exceed plus or minus 5 percent.
- B. Prepare schematic diagrams of systems' "as-built" piping layouts.
- C. Prepare hydronic systems for testing and balancing according to the following, in addition to the general preparation procedures specified above:
  1. Open all manual valves for maximum flow.
  2. Check liquid level in expansion tank.
  3. Check makeup water-station pressure gage for adequate pressure for highest vent.
  4. Check flow-control valves for specified sequence of operation, and set at indicated flow.
  5. Set differential-pressure control valves at the specified differential pressure. Do not set at fully closed position when pump is positive-displacement type unless several terminal valves are kept open.
  6. Set system controls so automatic valves are wide open to heat exchangers.
  7. Check pump-motor load. If motor is overloaded, throttle main flow-balancing device so motor nameplate rating is not exceeded.
  8. Check air vents for a forceful liquid flow exiting from vents when manually operated.

## 2.10 PROCEDURES FOR CONSTANT-FLOW HYDRONIC SYSTEMS

- A. Measure water flow at pumps. Use the following procedures except for positive-displacement pumps:
  1. Verify impeller size by operating the pump with the discharge valve closed. Read pressure differential across the pump. Convert pressure to head and correct for differences in gage heights. Note the point on manufacturer's pump curve at zero flow and verify that the pump has the intended impeller size.
    - a. If impeller sizes must be adjusted to achieve pump performance, obtain approval from Construction Manager and comply with requirements in Section 232123 "Hydronic Pumps."
  2. Check system resistance. With all valves open, read pressure differential across the pump and mark pump manufacturer's head-capacity curve. Adjust pump discharge valve until indicated water flow is achieved.

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- a. Monitor motor performance during procedures and do not operate motors in overload conditions.
  - 3. Verify pump-motor brake horsepower. Calculate the intended brake horsepower for the system based on pump manufacturer's performance data. Compare calculated brake horsepower with nameplate data on the pump motor. Report conditions where actual amperage exceeds motor nameplate amperage.
  - 4. Report flow rates that are not within plus or minus 10 percent of design.
  - B. Measure flow at all automatic flow control valves to verify that valves are functioning as designed.
  - C. Measure flow at all pressure-independent characterized control valves, with valves in fully open position, to verify that valves are functioning as designed.
  - D. Set calibrated balancing valves, if installed, at calculated presettings.
  - E. Measure flow at all stations and adjust, where necessary, to obtain first balance.
    - 1. System components that have Cv rating or an accurately cataloged flow-pressure-drop relationship may be used as a flow-indicating device.
  - F. Measure flow at main balancing station and set main balancing device to achieve flow that is 5 percent greater than indicated flow.
  - G. Adjust balancing stations to within specified tolerances of indicated flow rate as follows:
    - 1. Determine the balancing station with the highest percentage over indicated flow.
    - 2. Adjust each station in turn, beginning with the station with the highest percentage over indicated flow and proceeding to the station with the lowest percentage over indicated flow.
    - 3. Record settings and mark balancing devices.
  - H. Measure pump flow rate and make final measurements of pump amperage, voltage, rpm, pump heads, and systems' pressures and temperatures including outdoor-air temperature.
  - I. Measure the differential-pressure-control-valve settings existing at the conclusion of balancing.
  - J. Check settings and operation of each safety valve. Record settings.

#### 2.11 PROCEDURES FOR VARIABLE-FLOW HYDRONIC SYSTEMS

- A. Balance systems with automatic two- and three-way control valves by setting systems at maximum flow through heat-exchange terminals and proceed as specified above for hydronic systems.

#### 2.12 PROCEDURES FOR PRIMARY-SECONDARY HYDRONIC SYSTEMS

- A. Balance the primary circuit flow first and then balance the secondary circuits.

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### 2.13 PROCEDURES FOR HEAT EXCHANGERS

- A. Measure water flow through all circuits.
- B. Adjust water flow to within specified tolerances.
- C. Measure inlet and outlet water temperatures.
- D. Check settings and operation of safety and relief valves. Record settings.

### 2.14 PROCEDURES FOR MOTORS

- A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
  - 1. Manufacturer's name, model number, and serial number.
  - 2. Motor horsepower rating.
  - 3. Motor rpm.
  - 4. Efficiency rating.
  - 5. Nameplate and measured voltage, each phase.
  - 6. Nameplate and measured amperage, each phase.
  - 7. Starter thermal-protection-element rating.
- B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

### 2.15 PROCEDURES FOR BOILERS

- A. Hydronic Boilers: Measure and record entering- and leaving-water temperatures and water flow.

### 2.16 PROCEDURES FOR HEAT-TRANSFER COILS

- A. Measure, adjust, and record the following data for each water coil:
  - 1. Entering- and leaving-water temperature.
  - 2. Water flow rate.
  - 3. Water pressure drop.
  - 4. Dry-bulb temperature of entering and leaving air.
  - 5. Wet-bulb temperature of entering and leaving air for cooling coils.
  - 6. Airflow.
  - 7. Air pressure drop.
- B. Measure, adjust, and record the following data for each refrigerant coil:
  - 1. Dry-bulb temperature of entering and leaving air.
  - 2. Wet-bulb temperature of entering and leaving air.
  - 3. Airflow.
  - 4. Air pressure drop.

5. Refrigerant suction pressure and temperature.

## 2.17 PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS

- A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.
  1. Measure and record the operating speed, airflow, and static pressure of each fan.
  2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
  3. Check the refrigerant charge.
  4. Check the condition of filters.
  5. Check the condition of coils.
  6. Check the operation of the drain pan and condensate-drain trap.
  7. Check bearings and other lubricated parts for proper lubrication.
  8. Report on the operating condition of the equipment and the results of the measurements taken. Report deficiencies.
- B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
  1. New filters are installed.
  2. Coils are clean and fins combed.
  3. Drain pans are clean.
  4. Fans are clean.
  5. Bearings and other parts are properly lubricated.
  6. Deficiencies noted in the preconstruction report are corrected.
- C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.
  1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
  2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
  3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
  4. Balance each air outlet.

## 2.18 TOLERANCES

- A. Set HVAC system's air flow rates and water flow rates within the following tolerances:
  1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
  2. Air Outlets and Inlets: Plus or minus 10 percent.
  3. Heating-Water Flow Rate: Plus or minus 10 percent.

4. Cooling-Water Flow Rate: Plus or minus 10 percent.

## 2.19 REPORTING

- A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.
- B. Status Reports: Prepare biweekly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

## 2.20 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
  1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
  2. Include a list of instruments used for procedures, along with proof of calibration.
- B. Final Report Contents: In addition to certified field-report data, include the following:
  1. Pump curves.
  2. Fan curves.
  3. Manufacturers' test data.
  4. Field test reports prepared by system and equipment installers.
  5. Other information relative to equipment performance; do not include Shop Drawings and product data.
- C. General Report Data: In addition to form titles and entries, include the following data:
  1. Title page.
  2. Name and address of the TAB contractor.
  3. Project name.
  4. Project location.
  5. Architect's name and address.
  6. Engineer's name and address.
  7. Contractor's name and address.
  8. Report date.
  9. Signature of TAB supervisor who certifies the report.
  10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
  11. Summary of contents including the following:
    - a. Indicated versus final performance.
    - b. Notable characteristics of systems.
    - c. Description of system operation sequence if it varies from the Contract Documents.

- 
12. Nomenclature sheets for each item of equipment.
  13. Data for terminal units, including manufacturer's name, type, size, and fittings.
  14. Notes to explain why certain final data in the body of reports vary from indicated values.
  15. Test conditions for fans and pump performance forms including the following:
    - a. Settings for outdoor-, return-, and exhaust-air dampers.
    - b. Conditions of filters.
    - c. Cooling coil, wet- and dry-bulb conditions.
    - d. Face and bypass damper settings at coils.
    - e. Fan drive settings including settings and percentage of maximum pitch diameter.
    - f. Inlet vane settings for variable-air-volume systems.
    - g. Settings for supply-air, static-pressure controller.
    - h. Other system operating conditions that affect performance.
- D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outdoor, supply, return, and exhaust airflows.
  2. Water and steam flow rates.
  3. Duct, outlet, and inlet sizes.
  4. Pipe and valve sizes and locations.
  5. Terminal units.
  6. Balancing stations.
  7. Position of balancing devices.
- E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
    - a. Unit identification.
    - b. Location.
    - c. Make and type.
    - d. Model number and unit size.
    - e. Manufacturer's serial number.
    - f. Unit arrangement and class.
    - g. Discharge arrangement.
    - h. Sheave make, size in inches, and bore.
    - i. Center-to-center dimensions of sheave, and amount of adjustments in inches.
    - j. Number, make, and size of belts.
    - k. Number, type, and size of filters.
  2. Motor Data:
    - a. Motor make, and frame type and size.
    - b. Horsepower and rpm.
    - c. Volts, phase, and hertz.
    - d. Full-load amperage and service factor.
    - e. Sheave make, size in inches, and bore.
    - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.

- 
3. Test Data (Indicated and Actual Values):
    - a. Total air flow rate in cfm.
    - b. Total system static pressure in inches wg.
    - c. Fan rpm.
    - d. Discharge static pressure in inches wg.
    - e. Filter static-pressure differential in inches wg.
    - f. Preheat-coil static-pressure differential in inches wg.
    - g. Cooling-coil static-pressure differential in inches wg.
    - h. Heating-coil static-pressure differential in inches wg.
    - i. Outdoor airflow in cfm.
    - j. Return airflow in cfm.
    - k. Outdoor-air damper position.
    - l. Return-air damper position.
    - m. Vortex damper position.
  
  - F. Apparatus-Coil Test Reports:
    1. Coil Data:
      - a. System identification.
      - b. Location.
      - c. Coil type.
      - d. Number of rows.
      - e. Fin spacing in fins per inch o.c.
      - f. Make and model number.
      - g. Face area in sq. ft..
      - h. Tube size in NPS.
      - i. Tube and fin materials.
      - j. Circuiting arrangement.
  
    2. Test Data (Indicated and Actual Values):
      - a. Air flow rate in cfm.
      - b. Average face velocity in fpm.
      - c. Air pressure drop in inches wg.
      - d. Outdoor-air, wet- and dry-bulb temperatures in deg F.
      - e. Return-air, wet- and dry-bulb temperatures in deg F.
      - f. Entering-air, wet- and dry-bulb temperatures in deg F.
      - g. Leaving-air, wet- and dry-bulb temperatures in deg F.
      - h. Water flow rate in gpm.
      - i. Water pressure differential in feet of head or psig.
      - j. Entering-water temperature in deg F.
      - k. Leaving-water temperature in deg F.
      - l. Refrigerant expansion valve and refrigerant types.
      - m. Refrigerant suction pressure in psig.
      - n. Refrigerant suction temperature in deg F.
  
  - G. Gas-Fired Heat Apparatus Test Reports: In addition to manufacturer's factory startup equipment reports, include the following:
    1. Unit Data:
      - a. System identification.
      - b. Location.

- 
- c. Make and type.
  - d. Model number and unit size.
  - e. Manufacturer's serial number.
  - f. Fuel type in input data.
  - g. Output capacity in Btu/h.
  - h. Ignition type.
  - i. Burner-control types.
  - j. Motor horsepower and rpm.
  - k. Motor volts, phase, and hertz.
  - l. Motor full-load amperage and service factor.
  - m. Sheave make, size in inches, and bore.
  - n. Center-to-center dimensions of sheave, and amount of adjustments in inches.
2. Test Data (Indicated and Actual Values):
- a. Total air flow rate in cfm.
  - b. Entering-air temperature in deg F.
  - c. Leaving-air temperature in deg F.
  - d. Air temperature differential in deg F.
  - e. Entering-air static pressure in inches wg.
  - f. Leaving-air static pressure in inches wg.
  - g. Air static-pressure differential in inches wg.
  - h. Low-fire fuel input in Btu/h.
  - i. High-fire fuel input in Btu/h.
  - j. Manifold pressure in psig.
  - k. High-temperature-limit setting in deg F.
  - l. Operating set point in Btu/h.
  - m. Motor voltage at each connection.
  - n. Motor amperage for each phase.
  - o. Heating value of fuel in Btu/h.
- H. Fan Test Reports: For supply, return, and exhaust fans, include the following:
1. Fan Data:
- a. System identification.
  - b. Location.
  - c. Make and type.
  - d. Model number and size.
  - e. Manufacturer's serial number.
  - f. Arrangement and class.
  - g. Sheave make, size in inches, and bore.
  - h. Center-to-center dimensions of sheave, and amount of adjustments in inches.
2. Motor Data:
- a. Motor make, and frame type and size.
  - b. Horsepower and rpm.
  - c. Volts, phase, and hertz.
  - d. Full-load amperage and service factor.
  - e. Sheave make, size in inches, and bore.
  - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
  - g. Number, make, and size of belts.

- 
3. Test Data (Indicated and Actual Values):
    - a. Total airflow rate in cfm.
    - b. Total system static pressure in inches wg.
    - c. Fan rpm.
    - d. Discharge static pressure in inches wg.
    - e. Suction static pressure in inches wg.
  
  - I. Round, Flat-Oval, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
    1. Report Data:
      - a. System and air-handling-unit number.
      - b. Location and zone.
      - c. Traverse air temperature in deg F.
      - d. Duct static pressure in inches wg.
      - e. Duct size in inches.
      - f. Duct area in sq. ft..
      - g. Indicated air flow rate in cfm.
      - h. Indicated velocity in fpm.
      - i. Actual air flow rate in cfm.
      - j. Actual average velocity in fpm.
      - k. Barometric pressure in psig.
  
  - J. Air-Terminal-Device Reports:
    1. Unit Data:
      - a. System and air-handling unit identification.
      - b. Location and zone.
      - c. Apparatus used for test.
      - d. Area served.
      - e. Make.
      - f. Number from system diagram.
      - g. Type and model number.
      - h. Size.
      - i. Effective area in sq. ft..
  
    2. Test Data (Indicated and Actual Values):
      - a. Air flow rate in cfm.
      - b. Air velocity in fpm.
      - c. Preliminary air flow rate as needed in cfm.
      - d. Preliminary velocity as needed in fpm.
      - e. Final air flow rate in cfm.
      - f. Final velocity in fpm.
      - g. Space temperature in deg F.
  
  - K. System-Coil Reports: For reheat coils and water coils of terminal units, include the following:
    1. Unit Data:
      - a. System and air-handling-unit identification.

- 
- b. Location and zone.
      - c. Room or riser served.
      - d. Coil make and size.
      - e. Flowmeter type.
    - 2. Test Data (Indicated and Actual Values):
      - a. Air flow rate in cfm.
      - b. Entering-water temperature in deg F.
      - c. Leaving-water temperature in deg F.
      - d. Water pressure drop in feet of head or psig.
      - e. Entering-air temperature in deg F.
      - f. Leaving-air temperature in deg F.
  - L. Pump Test Reports: Calculate impeller size by plotting the shutoff head on pump curves and include the following:
    - 1. Unit Data:
      - a. Unit identification.
      - b. Location.
      - c. Service.
      - d. Make and size.
      - e. Model number and serial number.
      - f. Water flow rate in gpm.
      - g. Water pressure differential in feet of head or psig.
      - h. Required net positive suction head in feet of head or psig.
      - i. Pump rpm.
      - j. Impeller diameter in inches.
      - k. Motor make and frame size.
      - l. Motor horsepower and rpm.
      - m. Voltage at each connection.
      - n. Amperage for each phase.
      - o. Full-load amperage and service factor.
      - p. Seal type.
    - 2. Test Data (Indicated and Actual Values):
      - a. Static head in feet of head or psig.
      - b. Pump shutoff pressure in feet of head or psig.
      - c. Actual impeller size in inches.
      - d. Full-open flow rate in gpm.
      - e. Full-open pressure in feet of head or psig.
      - f. Final discharge pressure in feet of head or psig.
      - g. Final suction pressure in feet of head or psig.
      - h. Final total pressure in feet of head or psig.
      - i. Final water flow rate in gpm.
      - j. Voltage at each connection.
      - k. Amperage for each phase.
  - M. Instrument Calibration Reports:
    - 1. Report Data:
      - a. Instrument type and make.

- b. Serial number.
- c. Application.
- d. Dates of use.
- e. Dates of calibration.

## 2.21 INSPECTIONS

### A. Initial Inspection:

1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report.
2. Check the following for each system:
  - a. Measure airflow of at least 10 percent of air outlets.
  - b. Measure water flow of at least 5 percent of terminals.
  - c. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
  - d. Verify that balancing devices are marked with final balance position.
  - e. Note deviations from the Contract Documents in the final report.

### B. If TAB Work fails, proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
2. If the second final inspection also fails, Owner may contract the services of another TAB contractor to complete TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB contractor's final payment.

### C. Prepare test and inspection reports.

## 2.22 ADDITIONAL TESTS

- A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.
- B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION 230593

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**SECTION 23 25 13 – WATER TREATMENT FOR CLOSED-LOOP HYDRONIC SYSTEMS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 DESCRIPTION OF WORK**

- A. It is the intent of this project that the existing hydronic heating water system within the boiler room is to be reworked and replaced. This is to include new boilers, hydronic pumps, chemical feeder, piping, piping accessories, and all required components for a complete and functioning system.
- B. It is the intent of this project that the existing hydronic chilled water system is to remain in place and shall have the minimal amount of work completed to the system. All work to the chilled water system is to be limited to any work that is required due to the removal and replacement of piping at the new HVAC equipment that is to be installed as part of this project. All existing components of the chilled water system shall remain in place.

**1.3 SUMMARY**

- A. This Section includes the following water treatment for closed-loop hydronic systems:
  - 1. Manual chemical-feed equipment.
  - 2. Chemicals.

**1.4 ACTION SUBMITTALS**

- A. Product Data: Include rated capacities, operating characteristics, and furnished specialties and accessories for the following products:
  - 1. Bypass feeders.
  - 2. Water meters.
  - 3. Chemical-treatment test equipment.
  - 4. Chemical material safety data sheets.
- B. Shop Drawings: Pretreatment and chemical-treatment equipment, showing tanks, maintenance space required, and piping connections to hydronic systems.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Include diagrams for power, signal, and control wiring.

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### 1.5 INFORMATIONAL SUBMITTALS

- A. Water-Analysis Provider Qualifications: Verification of experience and capability of HVAC water-treatment service provider.
- B. Field quality-control reports.
- C. Water-Treatment Program: Written sequence of operation on an annual basis for the application equipment required to achieve water quality defined in "Performance Requirements" Article.
- D. Water Analysis: Illustrate water quality available at Project site.

### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: To include in emergency, operation, and maintenance manuals.

### 1.7 MAINTENANCE SERVICE

- A. Scope of Maintenance Service: Provide chemicals and service program to maintain water conditions required above to inhibit corrosion and scale formation for hydronic piping and equipment. Services and chemicals shall be provided for a period of one year from date of Substantial Completion and shall include the following:
  - 1. Initial water analysis and HVAC water-treatment recommendations.
  - 2. Startup assistance for Contractor to flush the systems, clean with detergents, and initially fill systems with required chemical treatment prior to operation.
  - 3. Periodic field served and consultation.
  - 4. Customer report charts and log sheets.
  - 5. Laboratory technical analysis.
  - 6. Analyses and reports of all chemical items concerning safety and compliance with government regulations.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Zinkan Enterprises Inc., Mishawaka, Indiana, 574-254-0275.
  - 2. HPE Industrial Water Treatment, Fort Wayne, Indiana, 260-497-9500.
  - 3. Watcon, Inc., South Bend, Indiana, 574-287-3397.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Provide all hardware, chemicals, and other material necessary to maintain HVAC water quality in all systems, as indicated in this Specification. Water quality for hydronic systems shall minimize corrosion, scale buildup, and biological growth for optimum

efficiency of hydronic equipment without creating a hazard to operating personnel or the environment.

- B. Base HVAC water treatment on quality of water available at project site, hydronic system equipment material characteristics and functional performance characteristics, operating personnel capabilities, and requirements and guidelines of authorities having jurisdiction.
- C. Closed hydronic systems, including hot-water heating below 250 deg F and glycol cooling shall have the following water qualities:
  - 1. Steel Corrosion Inhibitors: Provide sufficient inhibitors to limit mild steel corrosion.
  - 2. Yellow Metal Corrosion Inhibitor: Provide sufficient copper and brass corrosion inhibitors to limit copper corrosion.
  - 3. Scale Control: Provide softened water for initial fill and makeup. Where softened water is not used, provide sufficient scale inhibitors to prevent formation of scale and maintain all scale-forming material in solution.
  - 4. Dispersants: Provide sufficient dispersants to prevent sedimentation of fine particulate matter.

### 2.3 MANUAL CHEMICAL-FEED EQUIPMENT

- A. Bypass Feeders: Provide steel filter/feeders with corrosion-resistant exterior coating, minimum 3-1/2-inch fill opening in the top, and NPS 3/4 bottom inlet and top side outlet. Provide quarter turn or threaded fill cap with gasket seal and diaphragm to lock the top on the feeder when exposed to system pressure in the vessel. Provide with stainless-steel basket, 3.25"x 20" polyester bag filter sock, and 5-micron filter bags.
  - 1. Capacity: 5 gal.
  - 2. Minimum Working Pressure: 125 psig.

### 2.4 CHEMICAL-TREATMENT TEST EQUIPMENT

- A. Test Kit: Manufacturer-recommended equipment and chemicals in a wall-mounted cabinet for testing pH, corrosion inhibitors, alkalinity, hardness, and other properties recommended by manufacturer.
- B. Corrosion Test-Coupon Assembly: Constructed of corrosive-resistant material, complete with piping, valves, and mild steel and copper coupons. Locate copper coupon downstream from mild steel coupon in the test-coupon assembly.
  - 1. Two-station rack for closed-loop systems.

### 2.5 CHEMICALS

- A. Chemicals shall be as recommended by water-treatment system manufacturer that are compatible with piping system components and connected equipment and that can attain water quality specified in "Performance Requirements" Article.

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## PART 3 - EXECUTION

### 3.1 WATER ANALYSIS

- A. Perform an analysis of supply water to determine quality of water available at project site.

### 3.2 INSTALLATION

- A. Install chemical application equipment on concrete bases, level, and plumb. Maintain manufacturer's recommended clearances. Arrange units so controls and devices that require servicing are accessible. Anchor chemical tanks and floor-mounting accessories to substrate.
- B. Install water testing equipment on wall near water chemical application equipment.
- C. Install interconnecting control wiring for chemical treatment controls and sensors.
- D. Mount sensors and injectors in piping circuits.
- E. Bypass Feeders: Install in closed hydronic systems, including hot-water heating and chilled water and equipped with the following:
  - 1. Install bypass feeder in a bypass circuit around circulating pumps unless indicated otherwise on Drawings.
  - 2. Install water meter in makeup-water supply.
  - 3. Install test-coupon assembly in bypass circuit around circulating pumps unless otherwise indicated on Drawings.
  - 4. Install a gate or full-port ball isolation valves on inlet, outlet, and drain below the feeder inlet.
  - 5. Install a swing check on the inlet after the isolation valve.

### 3.3 CONNECTIONS

- A. Where installing piping adjacent to equipment, allow space for service and maintenance.
- B. Make piping connections between HVAC water-treatment equipment and dissimilar-metal piping with dielectric fittings. Comply with requirements in Section 232116 "Hydronic Piping Specialties."
- C. Install shutoff valves on HVAC water-treatment equipment inlet and outlet.
- D. Comply with requirements in Section 221119 "Domestic Water Piping Specialties" for backflow preventers required in makeup-water connection to potable-water systems.
- E. Confirm applicable electrical requirements in electrical sections for connecting electrical equipment.
- F. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- G. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

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### 3.4 FIELD QUALITY CONTROL

- A. The hydronic System shall not be operated for any reason prior to the complete flushing and charging of the system by the mechanical contractor. Contact successful water treatment contractor prior to cleaning and flushing system and equipment installation.
- B. Perform the following tests and inspections.
  - 1. Inspect field-assembled components and equipment installation, including piping and electrical connections.
  - 2. Inspect piping and equipment to determine that systems and equipment have been cleaned, flushed, and filled with water, and are fully operational before introducing chemicals for water-treatment system.
  - 3. Place HVAC water-treatment system into operation and calibrate controls during the preliminary phase of hydronic system startup procedures.
  - 4. Do not enclose, cover, or put piping into operation until it is tested, and satisfactory test results are achieved.
  - 5. Test for leaks and defects. If testing is performed in segments, submit separate reports for each test, complete with diagram of portion of piping tested.
  - 6. Leave uncovered and unconcealed new, altered, extended, and replaced water piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved.
  - 7. Cap and subject piping to static water pressure of 50psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow test pressure to stand for four hours. Leaks and loss in test pressure constitute defects.
  - 8. Repair leaks and defects with new materials and retest piping until no leaks exist.
- C. Equipment will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. At for-week intervals following Substantial Completion, perform separate water analyses on hydronic systems to show that automatic chemical-feed systems are maintaining water quality within performance requirements specified in this Section. Submit written reports of water analysis advising Owner of changes necessary to adhere to "Performance Requirements" Articles.

### 3.5 MAINTENANCE SERVICE

- A. Scope of Maintenance Service: Provide chemicals and service program to maintain water conditions required above, to inhibit corrosion and scale formation for hydronic piping and equipment. Services and chemicals shall be provided for a period of one year from date of Substantial Completion and shall include the following:
  - 1. Initial water analysis and HVAC water-treatment recommendations.
  - 2. Startup assistance for Contractor to flush the systems, clean with detergents, and initially fill systems with required chemical treatment prior to operation.
  - 3. Periodic field service and consultation.
  - 4. Customer report charts and log sheets.
  - 5. Laboratory technical analysis.
  - 6. Analyses and reports of all chemical items concerning safety and compliance with government regulations.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC water-treatment systems and equipment.

END OF SECTION 232513

**CERTIFICATION**



All Concepts, ideas, design elements, plans, and details as shown on this document are the sole property of Viridian Architectural Design, Inc. and shall not be used for any purpose without prior expressed written consent. The Owner shall be permitted to retain copies for information and reference.



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**RCSC Middle School**  
**HVAC Replacement**  
690 Zebra Lane  
Rochester, IN

REVISION	DATE	DESCRIPTION
1	01-12-26	Addendum 01

DATE	PROJECT
12/22/25	20250008
TITLE	
DEMOLITION - FIRST FLOOR MECHANICAL PLAN - UNIT B	
SHEET	

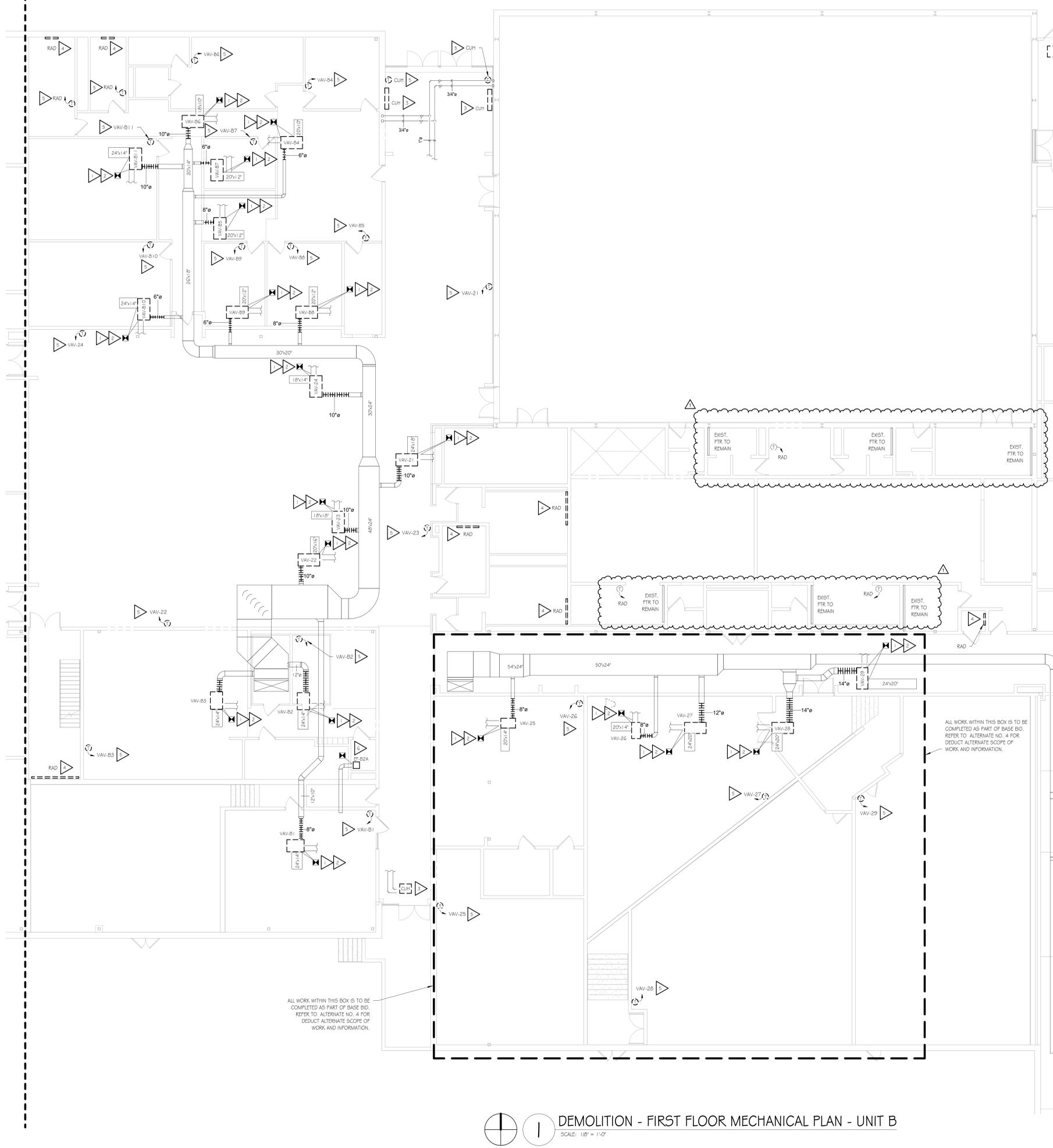
MDI.1B

**MECHANICAL DEMOLITION PLAN NOTES**

- 1. ALL SCOPE OF WORK WITHIN THIS SERIES OF DRAWINGS, ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES AND GENERAL CONTRACTOR/CONSTRUCTION MANAGER.
- 2. CONTRACTOR SHALL CAREFULLY DISCONNECT AND REMOVE THE EXISTING TERMINAL BOX COMPLETE, INCLUDING ALL WIRING, CONTROLS, PIPING, FLEXIBLE DUCTWORK, AND ACCESSORIES AND MAKE READY FOR THE INSTALLATION OF A NEW UNIT IN THE SAME LOCATION. IT IS THE INTENT OF THESE DRAWINGS THAT THE CONTRACTOR SHALL REMOVE THE MINIMUM AMOUNT OF EXISTING DUCTWORK AS REQUIRED FOR REMOVAL AND REINSTALLATION OF THE NEW UNIT AS REQUIRED.
- 3. CONTRACTOR SHALL CAREFULLY DISCONNECT AND REMOVE THE EXISTING HYDRONIC WATER PIPING AND HYDRONIC ACCESSORIES FROM THE EXISTING TERMINAL BOX INCLUDING THE CONTROL VALVE, BALANCING VALVES, AIR VENTS, AND STRAINERS AND MAKE READY FOR THE INSTALLATION OF NEW COMPONENTS TO BE INSTALLED FOR CONNECTION TO THE NEW UNITS. IT IS THE INTENT OF THESE DRAWINGS THAT THE CONTRACTOR SHALL REMOVE THE MINIMUM AMOUNT OF EXISTING PIPING AS REQUIRED FOR REMOVAL AND REINSTALLATION OF THE NEW UNIT AS REQUIRED. CONTRACTOR SHALL CUT AND NOTCH WALL AS REQUIRED TO PERFORM WORK AND SHALL PATCH WALL WITH FULL CMU BLOCK TO MATCH EXISTING WALL.
- 4. CONTRACTOR SHALL CAREFULLY DISCONNECT AND REMOVE THE EXISTING CABINET UNIT COMPLETE, INCLUDING ALL AND ASSOCIATED HOT WATER SUPPLY AND RETURN PIPING, VALVES, WIRING AND CONTROLS, HANGERS AND SUPPORTS, AND ENCLOSURE AND MAKE READY FOR THE INSTALLATION OF A NEW UNIT IN THE SAME LOCATION. IT IS THE INTENT OF THESE DRAWINGS THAT THE CONTRACTOR SHALL REMOVE THE MINIMUM AMOUNT OF EXISTING PIPING AS REQUIRED FOR REMOVAL AND REINSTALLATION OF THE NEW UNIT AS REQUIRED. CONTRACTOR SHALL CUT AND NOTCH WALL AS REQUIRED TO PERFORM WORK AND SHALL PATCH WALL WITH FULL CMU BLOCK TO MATCH EXISTING WALL.
- 5. CONTRACTOR SHALL CAREFULLY DISCONNECT AND REMOVE THE EXISTING FIN-TUBE RADIATOR COMPLETE, INCLUDING ALL AND ASSOCIATED HOT WATER SUPPLY AND RETURN PIPING, VALVES, WIRING AND CONTROLS, HANGERS AND SUPPORTS, AND ENCLOSURE AND MAKE READY FOR THE INSTALLATION OF A NEW UNIT IN THE SAME LOCATION. IT IS THE INTENT OF THESE DRAWINGS THAT THE CONTRACTOR SHALL REMOVE THE MINIMUM AMOUNT OF EXISTING PIPING AS REQUIRED FOR REMOVAL AND REINSTALLATION OF THE NEW UNIT AS REQUIRED. CONTRACTOR SHALL CUT AND NOTCH WALL AS REQUIRED TO PERFORM WORK AND SHALL PATCH WALL WITH FULL CMU BLOCK TO MATCH EXISTING WALL.
- 6. DISCONNECT AND REMOVE EXISTING THERMOSTAT / TEMPERATURE SENSOR COMPLETE, INCLUDING ALL ASSOCIATED WIRING, BASE, AND DEVICES AND MAKE READY FOR THE INSTALLATION OF A NEW DDC THERMOSTAT / TEMPERATURE SENSOR TO BE INSTALLED IN THE SAME LOCATION.
- 7. CONTRACTOR SHALL CAREFULLY DISCONNECT THE EXISTING DUCTWORK FROM THE EXHAUST FAN AND REMOVE THE EXISTING CEILING MOUNTED EXHAUST FAN COMPLETE, INCLUDING ALL WIRING, CONTROLS, AND HANGERS / SUPPORTS FROM THE EXHAUST DUCT THAT IS TO REMAIN AND MAKE READY FOR THE INSTALLATION OF A NEW CEILING MOUNTED EXHAUST FAN TO BE INSTALLED IN THE SAME LOCATION.

IT IS THE INTENT OF THIS PROJECT THAT ALL EXISTING TEMPERATURE CONTROLS THAT ARE MADE OBSOLETE BY THE WORK OF THIS PROJECT, INCLUDING ALL CONTROL PANELS, CONTROL VALVES, SENSORS, THERMOSTATS, WIRING, VFDs AND ACCESSORIES SHALL BE DISCONNECTED, REMOVED, AND TAKEN OFF LINE COMPLETE AND MAKE READY FOR THE INSTALLATION OF NEW DDC CONTROLS, VALVES, WIRING, AND ALL ACCESSORIES REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.

IT IS THE INTENT OF THIS PROJECT THAT THE MECHANICAL CONTRACTOR SHALL REMOVE THE EXISTING CEILING GRID AND CEILING TILES AS REQUIRED FOR THE REMOVAL AND REINSTALLATION OF NEW WORK. ONCE ALL THE WORK IS COMPLETE, THE CONTRACTOR SHALL REINSTALL THE PREVIOUSLY REMOVED CEILING GRID AND TILES TO MATCH THE SURROUNDING AREAS. IF ANY OF THE GRID OR TILES IS DAMAGED DURING CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL NEW GRID/TILES. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

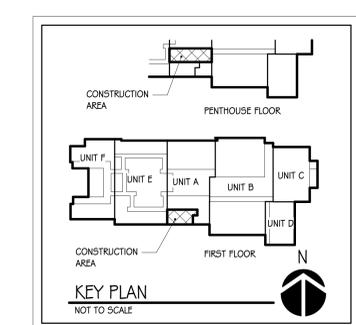


one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot  
one eighth inch = one foot

ALL WORK WITHIN THIS BOX IS TO BE COMPLETED AS PART OF BASE BID. REFER TO ALTERNATE NO. 4 FOR DEDUCT ALTERNATE SCOPE OF WORK AND INFORMATION.

ALL WORK WITHIN THIS BOX IS TO BE COMPLETED AS PART OF BASE BID. REFER TO ALTERNATE NO. 4 FOR DEDUCT ALTERNATE SCOPE OF WORK AND INFORMATION.

**DEMOLITION - FIRST FLOOR MECHANICAL PLAN - UNIT B**  
SCALE: 1/8" = 1'-0"  
NORTH



**CERTIFICATION**



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**RCSC Middle School**  
HVAC Replacement  
690 Zebra Lane  
Rochester, IN

REVISION	DATE	DESCRIPTION
1	01-12-26	Addendum 01

DATE: **12/22/25** PROJECT: **20250008**

TITLE: **FIRST FLOOR MECHANICAL PLAN - UNIT B**

SHEET

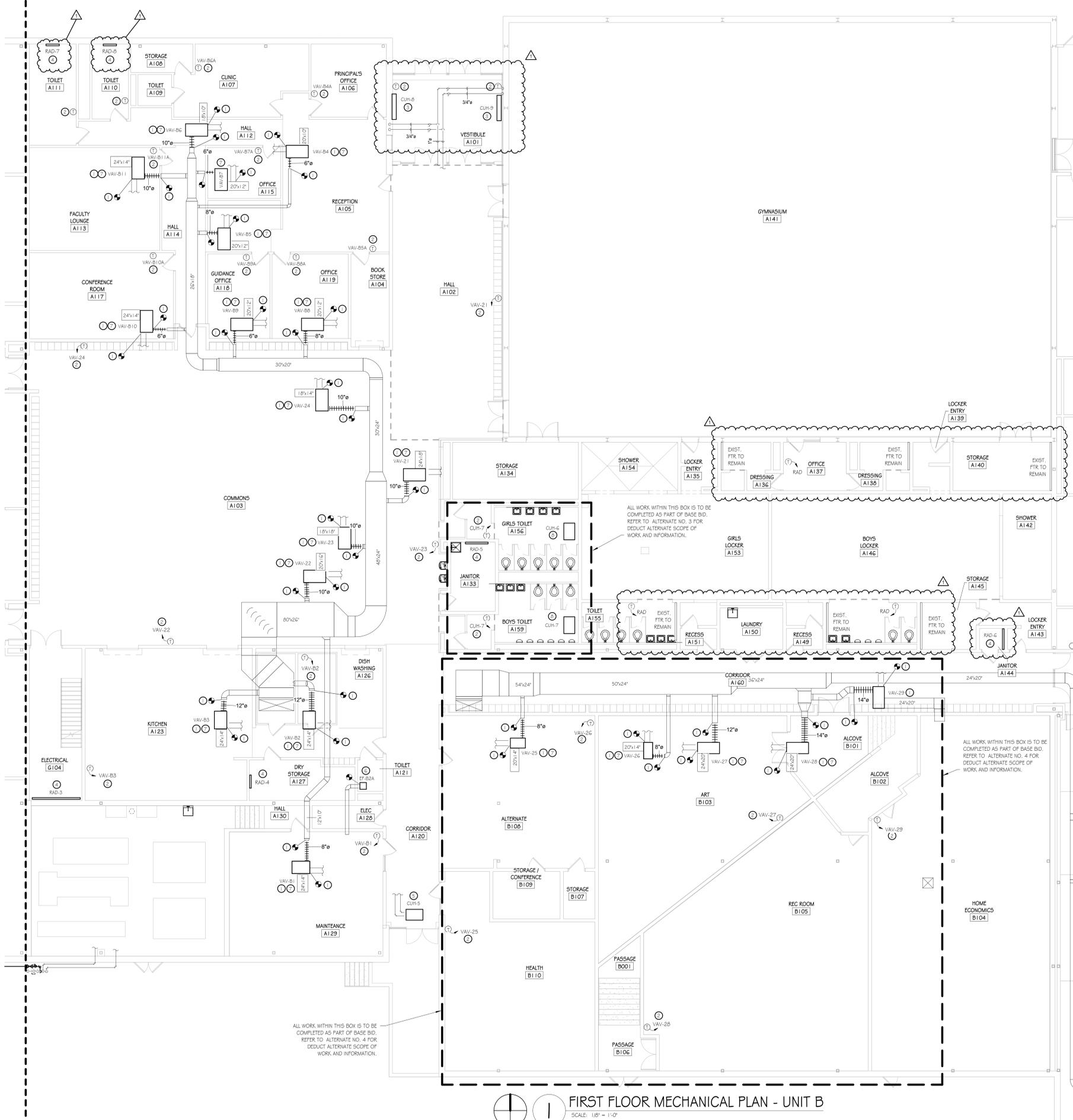
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**MECHANICAL PLAN NOTES**

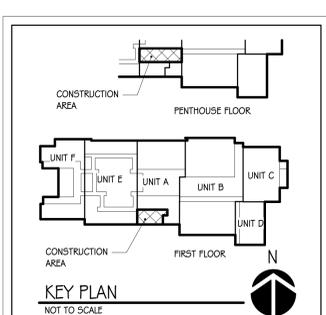
- 1. ALL SCOPE OF WORK WITHIN MY SERIES OF DRAWINGS, ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THIS SCOPE OF WORK WITH ALL OTHER TRADES AND GENERAL CONTRACTOR/CONSTRUCTION MANAGER.
- 2. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FAN POWERED VAV BOX IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED BOX. PROVIDE AND INSTALL A PERMANENTLY AFFIXED EQUIPMENT LABEL TO THE CEILING GRID TO IDENTIFY THE LOCATION OF THE UNIT. COORDINATE INSTALLATION LOCATION OF THE LABEL WITH THE OWNER PRIOR TO INSTALLATION. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED COMPONENTS, WIRING, DUCTWORK, CONTROLS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. TE-IN AND CONNECT TO EXISTING HOT WATER SUPPLY AND HOT WATER RETURN PIPING. MECHANICAL CONTRACTOR SHALL MODIFY AND EXTEND THE EXISTING SHEETMETAL DUCTWORK AS REQUIRED TO INSTALL THE NEW VAV BOX. PROVIDE AN ADDITIONAL 5'-0" LINEAR FOOT OF DUCTWORK AND RE-CONNECT TO THE EXISTING DUCTWORK AND EXTEND THE DUCTWORK AS REQUIRED FOR THE INSTALLATION OF THE VAV IN THE LOCATION AS SHOWN. PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN DUCTWORK AS REQUIRED. ROUTE HYDRONIC PIPING TO UNIT PER 2-WAY OR 3-WAY PIPING DETAIL ON SHEET MS-1. REFER TO SERIES FAN POWERED VARIABLE AIR VOLUME BOX SCHEDULE FOR VALVE REQUIREMENT.
- 3. PROVIDE AND INSTALL NEW DDC TEMPERATURE SENSOR/THERMOSTAT TO BE INSTALLED WITHIN THE SAME LOCATION AS THE PREVIOUSLY REMOVED THERMOSTAT. THE NEW SENSOR SHALL BE INSTALLED WITHIN THE EXISTING WALL BOX AND THE NEW CONTROL WIRING SHALL BE ROUTED DOWN THE WALL WITHIN THE EXISTING CONDUIT FOR CONNECTION TO THE NEW SENSOR. TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONTROL WIRING, RELAYS, AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL COMPONENTS AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.
- 4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CABINET UNIT HEATER IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED HEATER. TE-IN AND CONNECT NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING WITHIN THE WALL AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CUT AND NOTCH EXISTING WALL AS REQUIRED FOR INSTALLATION OF HEATER AND ALL COMPONENTS. CONTRACTOR SHALL PATCH THE EXISTING WALL AS REQUIRED TO MATCH THE SURROUNDING CONDITIONS AND PROVIDE A FULLY SEALED WALL CONDITION. REFER TO UNIT HEATER #4 CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.
- 5. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIN TUBE RADIATOR IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED HEATER. TE-IN AND CONNECT NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING WITHIN THE WALL AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. CONTRACTOR SHALL FIELD MEASURE AND VERIFY THE EXACT LENGTH OF FIN TUBE AND ENCLOSURE THAT IS REQUIRED TO BE INSTALLED IN THE LOCATION SHOWN. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CUT AND NOTCH EXISTING WALL AS REQUIRED FOR INSTALLATION OF HEATER AND ALL COMPONENTS. CONTRACTOR SHALL PATCH THE EXISTING WALL AS REQUIRED TO MATCH THE SURROUNDING CONDITIONS AND PROVIDE A FULLY SEALED WALL CONDITION. REFER TO UNIT HEATER #4 CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.
- 6. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CEILING HUNG CABINET UNIT HEATER IN THE SUSPENDED ACOUSTICAL CEILING GRID AS SHOWN. MODIFY AND TE-IN NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING ABOVE THE CEILING AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. REFER TO UNIT HEATER #4 CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.
- 7. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CEILING MOUNTED EXHAUST FAN TO BE INSTALLED IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED FAN. TE-IN AND CONNECT EXISTING EXHAUST DUCTWORK TO THE NEW FAN. PROVIDE AND INSTALL ALL HANGERS/SUPPORTS, WIRING, TRANSITIONS AND FITTINGS WITHIN THE DUCTWORK FOR A COMPLETE AND FUNCTIONING SYSTEM. EXHAUST FAN IS TO BE INTERLOCKED TO THE EXISTING LIGHT SWITCH IN THE ROOM FOR FAN OPERATION.
- 8. PROVIDE AND INSTALL NEW DDC CONTROLS, INCLUDING ALL NEW ELECTRONIC DAMPER ACTUATORS, ELECTRONIC HOT WATER/CHILLED WATER CONTROL VALVES, NEW FREEZE STAT, SENSORS, CONTROL WIRING, RELAYS, AND ACCESSORIES TO THE NEW AIR HANDLING UNIT THAT IS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL POWER, COMPONENTS/WIRING AND PROGRAMMING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.
- 9. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CEILING HUNG CABINET UNIT HEATER IN THE SUSPENDED ACOUSTICAL CEILING GRID IN LOCATION SHOWN. CONTRACTOR SHALL VERIFY FINAL INSTALLATION LOCATION OF THE NEW HEATER WITH THE EXISTING LIGHTING FIXTURES THAT ARE TO REMAIN. HEATER IS TO BE INSTALLED IN A LOCATION THAT DOES NOT REQUIRE THE LIGHTS TO BE RELOCATED. MODIFY AND TE-IN NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING ABOVE THE CEILING AND MAKE CONNECTIONS TO THE HEATER. ALL EXISTING PIPING WITHIN THE WALL THAT WAS PREVIOUSLY CONNECTED TO THE REMOVED FIN TUBE IS TO BE CAPPED AND ANCHORED IN PLACE. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CUT AND NOTCH THE EXISTING WALL AS REQUIRED FOR REMOVAL OF THE FIN TUBE HEATER AND ALL COMPONENTS. CONTRACTOR SHALL PATCH THE EXISTING WALL AS WITH FULL CMU BLOCK AS REQUIRED TO MATCH THE SURROUNDING CONDITIONS AND PROVIDE A FULLY SEALED WALL CONDITION. REFER TO UNIT HEATER # CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.

IT IS THE INTENT OF THIS PROJECT THAT THE MECHANICAL CONTRACTOR SHALL REMOVE THE EXISTING CEILING GRID AND CEILING TILES AS REQUIRED FOR THE REMOVAL AND REINSTALLATION OF NEW WORK. ONCE THE WORK IS COMPLETE, THE CONTRACTOR SHALL REINSTALL THE PREVIOUSLY REMOVED CEILING GRID AND TILES TO MATCH THE SURROUNDING AREAS. IF ANY OF THE GRID OR TILES IS DAMAGED DURING CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL NEW GRID/TILES. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

IT IS THE INTENT OF THIS PROJECT THAT ALL NEW HVAC EQUIPMENT SHALL BE PROVIDED WITH NEW DDC CONTROLS COMPLETE, INCLUDING ALL NEW ELECTRONIC DAMPER ACTUATORS, ELECTRONIC HOT WATER/CHILLED WATER CONTROL VALVES, NEW FREEZE STAT, SENSORS, CONTROL WIRING, RELAYS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL POWER, COMPONENTS/WIRING AND PROGRAMMING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.



**FIRST FLOOR MECHANICAL PLAN - UNIT B**  
SCALE: 1/8" = 1'-0"  
NORTH



one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
one eighth inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

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**RCSC Middle School**  
HVAC Replacement  
690 Zebra Lane  
Rochester, IN

REVISION	DATE	DESCRIPTION
1	01-12-26	Addendum 01

DATE	PROJECT
12/22/25	20250008

TITLE  
**FIRST FLOOR MECHANICAL PLAN - UNIT C**

SHEET

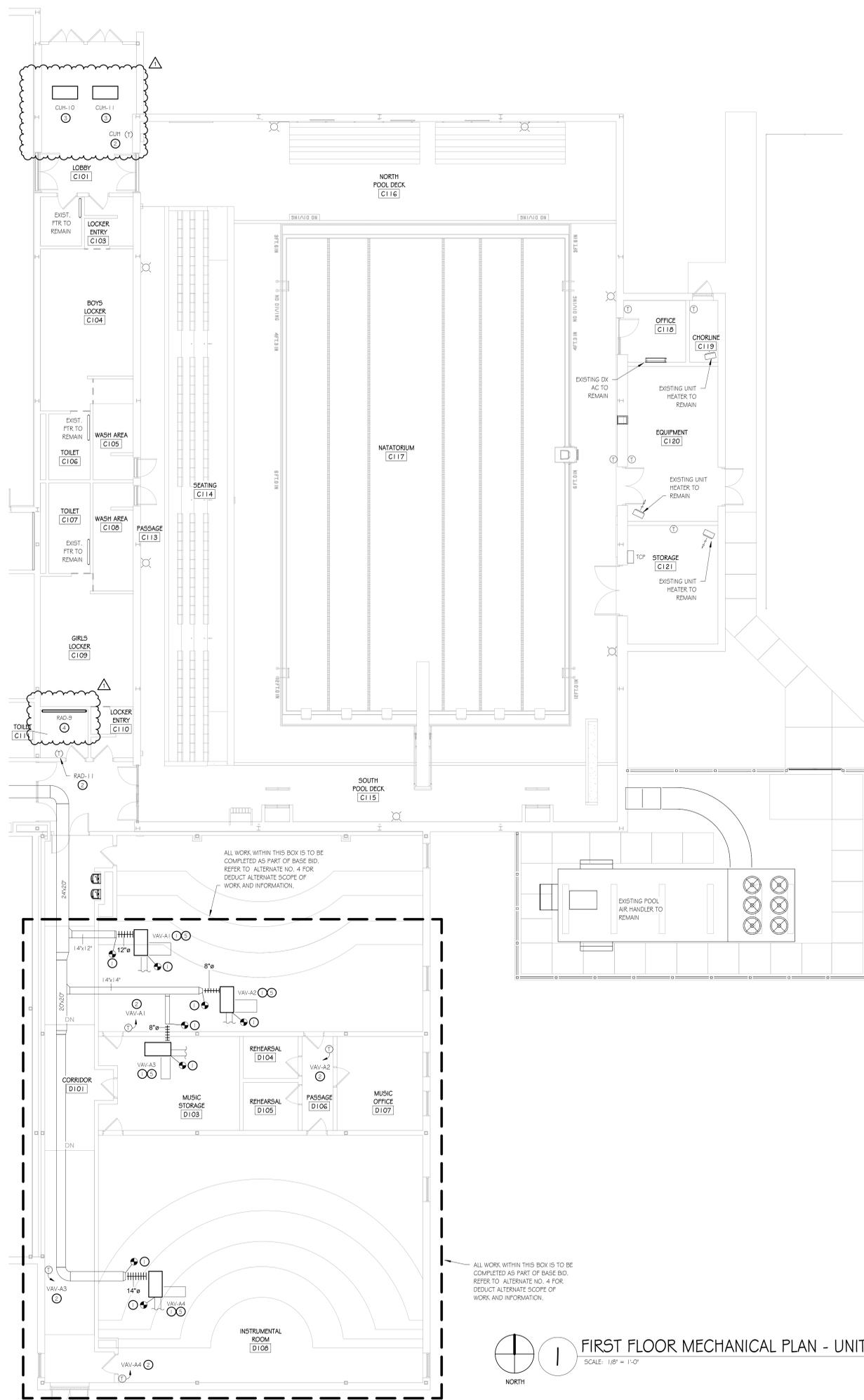
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**MECHANICAL PLAN NOTES**

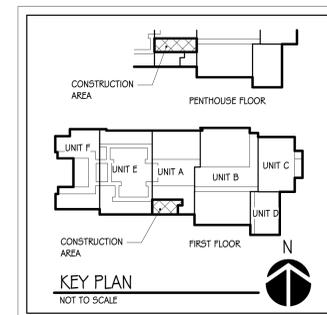
- 1. ALL SCOPE OF WORK WITHIN ANY SERIES OF DRAWINGS, ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THIS SCOPE OF WORK WITH ALL OTHER TRADES AND GENERAL CONTRACTOR/CONSTRUCTION MANAGER.
- 2. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FAN POWERED VAV BOX IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED BOX. PROVIDE AND INSTALL A PERMANENTLY AFFIXED EQUIPMENT LABEL TO THE CEILING GRID TO IDENTIFY THE LOCATION OF THE UNIT. COORDINATE INSTALLATION LOCATION OF THE LABEL WITH THE OWNER PRIOR TO INSTALLATION. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED COMPONENTS, WIRING, DUCTWORK, CONTROLS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. TIE-IN AND CONNECT TO EXISTING HOT WATER SUPPLY AND HOT WATER RETURN PIPING. MECHANICAL CONTRACTOR SHALL MODIFY AND EXTEND THE EXISTING SHEETMETAL DUCTWORK AS REQUIRED TO INSTALL THE NEW VAV BOX. PROVIDE AN ADDITIONAL 5'-0" LINEAR FOOT OF DUCTWORK AND RE-CONNECT TO THE EXISTING DUCTWORK AND EXTEND THE DUCTWORK AS REQUIRED FOR THE INSTALLATION OF THE VAV IN THE LOCATION AS SHOWN. PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN DUCTWORK AS REQUIRED. ROUTE HYDRONIC PIPING TO UNIT PER 2-WAY OR 3-WAY PIPING DETAIL ON SHEET MS. 1. REFER TO SERIES FAN POWERED VARIABLE AIR VOLUME BOX SCHEDULE FOR VALVE REQUIREMENT.
- 3. PROVIDE AND INSTALL NEW 80C TEMPERATURE SENSOR/THERMOSTAT TO BE INSTALLED WITHIN THE SAME LOCATION AS THE PREVIOUSLY REMOVED THERMOSTAT. THE NEW SENSOR SHALL BE INSTALLED WITHIN THE EXISTING WALL BOX AND THE NEW CONTROL WIRING SHALL BE ROUTED DOWN THE WALL WITHIN THE EXISTING CONDUIT FOR CONNECTION TO THE NEW SENSOR. TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONTROL WIRING, RELAYS, AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL COMPONENTS/WIRING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.
- 4. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CEILING HUNG CABINET UNIT HEATER IN THE SUSPENDED ACoustICAL CEILING GRID AS SHOWN. MODIFY AND TIE-IN NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING ABOVE THE CEILING AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. REFER TO UNIT HEATER 4 CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.
- 5. CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIN TUBE RADIATOR IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED HEATER. TIE-IN AND CONNECT NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING WITHIN THE WALL AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. CONTRACTOR SHALL FIELD MEASURE AND VERIFY THE EXACT LENGTH OF FIN TUBE AND ENCLOSURE THAT IS REQUIRED TO BE INSTALLED IN THE LOCATION SHOWN. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CUT AND NOTCH EXISTING WALL AS REQUIRED FOR INSTALLATION OF HEATER AND ALL COMPONENTS. CONTRACTOR SHALL PATCH THE EXISTING WALL AS REQUIRED TO MATCH THE SURROUNDING CONDITIONS AND PROVIDE A FULLY SEALED WALL CONDITION. REFER TO UNIT HEATER 4 CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.
- 6. PROVIDE AND INSTALL NEW 80C CONTROLS, INCLUDING ALL NEW ELECTRONIC DAMPER ACTUATORS, ELECTRONIC HOT WATER/CHILLED WATER CONTROL VALVES, NEW FREEZE STAT, SENSORS, CONTROL WIRING, RELAYS, AND ACCESSORIES TO THE NEW AIR HANDLING UNIT THAT AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL POWER, COMPONENTS/WIRING AND PROGRAMMING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.

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IT IS THE INTENT OF THIS PROJECT THAT ALL NEW HVAC EQUIPMENT SHALL BE PROVIDED WITH NEW 80C CONTROLS COMPLETE, INCLUDING ALL NEW ELECTRONIC DAMPER ACTUATORS, ELECTRONIC HOT WATER/CHILLED WATER CONTROL VALVES, NEW FREEZE STAT, SENSORS, CONTROL WIRING, RELAYS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL POWER, COMPONENTS/WIRING AND PROGRAMMING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.



**FIRST FLOOR MECHANICAL PLAN - UNIT C**  
SCALE: 1/8" = 1'-0"  
NORTH



one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
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**CERTIFICATION**



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HVAC Replacement  
690 Zebra Lane  
Rochester, IN

REVISION	DATE	DESCRIPTION
1	01-12-26	Addendum 01

DATE	PROJECT
12/22/25	20250008

TITLE  
**FIRST FLOOR MECHANICAL PLAN ALTERNATES - UNITS A & B**  
SHEET

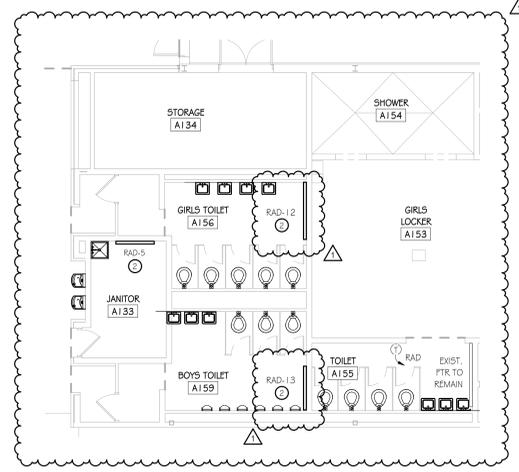
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**MECHANICAL PLAN NOTES**

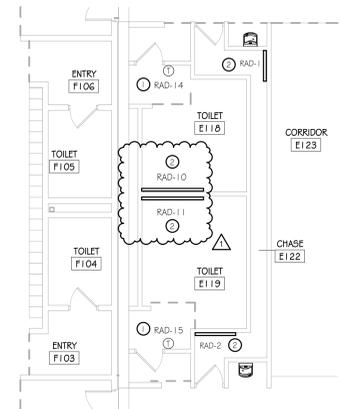
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- MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THIS SCOPE OF WORK WITH ALL OTHER TRADES AND GENERAL CONTRACTOR/CONSTRUCTION MANAGER.
- PROVIDE AND INSTALL NEW DDC TEMPERATURE SENSOR/THERMOSTAT TO BE INSTALLED WITHIN THE SAME LOCATION AS THE PREVIOUSLY REMOVED THERMOSTAT. THE NEW SENSOR SHALL BE INSTALLED WITHIN THE EXISTING WALL BOX AND THE NEW CONTROL WIRING SHALL BE ROUTED DOWN THE WALL WITHIN THE EXISTING CONDUIT FOR CONNECTION TO THE NEW SENSOR. TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONTROL WIRING, RELAYS, AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL COMPONENTS/WIRING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.
- CONTRACTOR SHALL PROVIDE AND INSTALL NEW FIN TUBE RADIATOR IN THE SAME LOCATION AS THE PREVIOUSLY REMOVED HEATER. TE-IN AND CONNECT NEW HYDRONIC HOT WATER SUPPLY AND RETURN PIPING TO THE EXISTING PIPING WITHIN THE WALL AND MAKE CONNECTIONS TO THE HEATER. PROVIDE AND INSTALL ALL NEW VALVES, COMPONENTS, ACCESSORIES AND NEW TEMPERATURE CONTROL VALVES FOR A COMPLETE AND FUNCTIONING SYSTEM. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL ALL NECESSARY OFFSETS AND TRANSITIONS IN PIPING AS REQUIRED FOR CONNECTION TO UNIT. CONTRACTOR SHALL FIELD MEASURE AND VERIFY THE EXACT LENGTH OF FIN TUBE AND ENCLOSURE THAT IS REQUIRED TO BE INSTALLED IN THE LOCATION SHOWN. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO CUT AND NOTCH EXISTING WALL AS REQUIRED FOR INSTALLATION OF HEATER AND ALL COMPONENTS. CONTRACTOR SHALL PATCH THE EXISTING WALL AS REQUIRED TO MATCH THE SURROUNDING CONDITIONS AND PROVIDE A FULLY SEALED WALL CONDITION. REFER TO UNIT HEATER & CABINET UNIT HEATER 2-WAY VALVE CONTROL PIPING DETAIL FOR ADDITIONAL INFORMATION.

IT IS THE INTENT OF THIS PROJECT THAT THE MECHANICAL CONTRACTOR SHALL REMOVE THE EXISTING CEILING GRID AND CEILING TILES AS REQUIRED FOR THE REMOVAL AND REINSTALLATION OF NEW WORK. ONCE ALL THE WORK IS COMPLETE, THE CONTRACTOR SHALL REINSTALL THE PREVIOUSLY REMOVED CEILING GRID AND TILES TO MATCH THE SURROUNDING AREAS. IF ANY OF THE GRID OR TILES IS DAMAGED DURING CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL NEW GRID/TILES. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

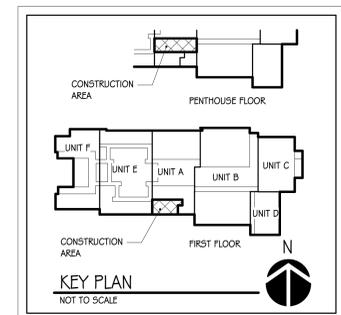
IT IS THE INTENT OF THIS PROJECT THAT ALL NEW HVAC EQUIPMENT SHALL BE PROVIDED WITH NEW DDC CONTROLS COMPLETE, INCLUDING ALL NEW ELECTRONIC DAMPER ACTUATORS, ELECTRONIC HOT WATER/CHILLED WATER CONTROL VALVES, NEW FREEZE STAT, SENSORS, CONTROL WIRING, RELAYS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL ELECTRICAL POWER, COMPONENTS/WIRING AND PROGRAMMING AS REQUIRED TO CONNECT THE SYSTEM FOR A FULLY FUNCTIONING SYSTEM. WIRING SHALL BE INSTALLED PER THE CURRENT INDIANA NEC CODE.



**2** FIRST FLOOR MECHANICAL PLAN - UNIT B DEDUCT ALTERNATE NO. 3  
SCALE: 1/8" = 1'-0"



**1** FIRST FLOOR MECHANICAL PLAN - UNIT A DEDUCT ALTERNATE NO. 3  
SCALE: 1/8" = 1'-0"



one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

